

# **Federal Fire Training Strategy**

**Training and Development for the  
Next Generation of Federal Wildland  
Fire Managers**

*Version 2.0*  
*2002*

## ***Table of Contents***

	<i>Pages</i>
Executive Summary	3-18
Introduction	19-21
I.    Business Case for Change and Study Methodology	22-27
II.   Current State Assessment	28-38
III.  Future State Needs Summary	39-55
IV.   Plateaus and Action Items	56-57
Appendices	58
A.    Comment Review	59-67
B.    Benchmark Summaries	68-70
C.    GATR Survey Responses	71-78
D.    Bibliography	79-82

# Federal Fire Training Strategy

## *Training & Development for Federal Fire Management's Next Generation*

Version 2.0  
2002

### *Executive Summary*

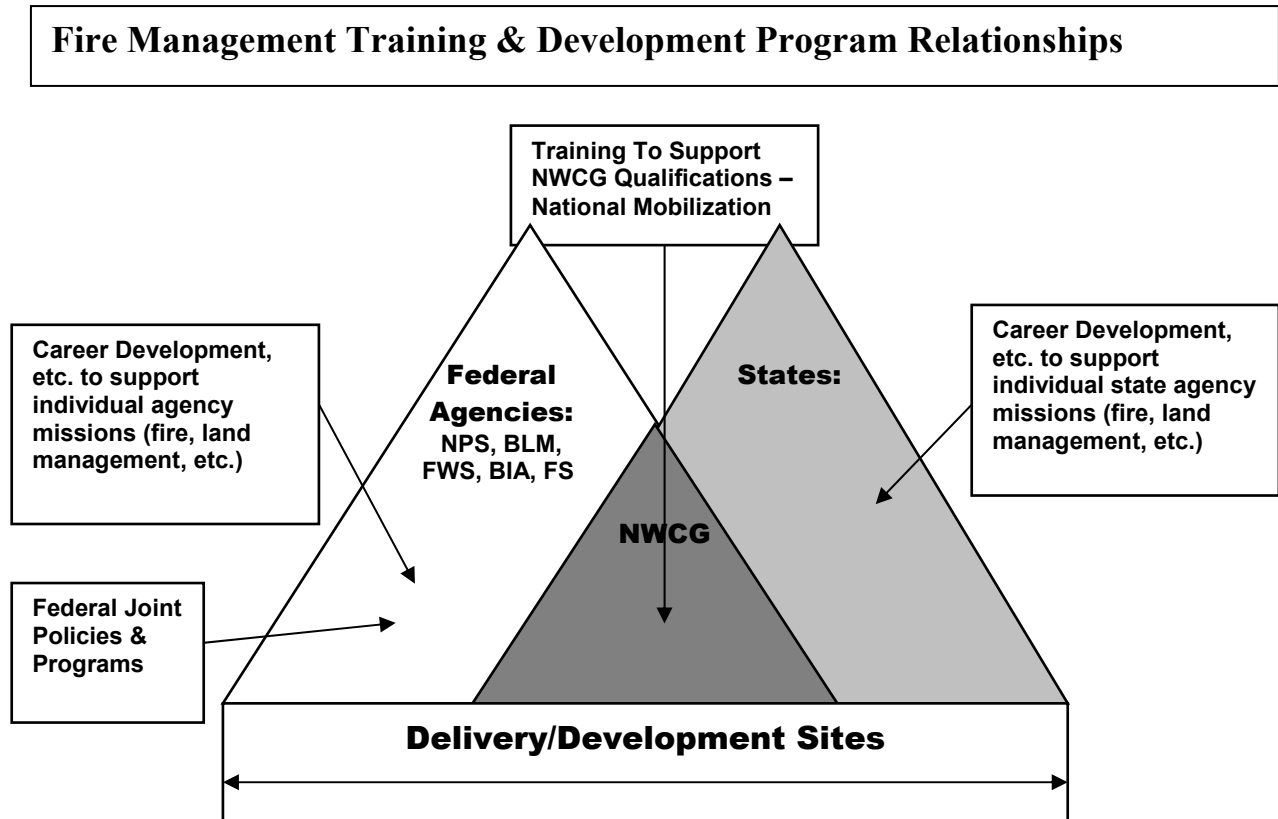
#### *Preface:*

The Federal Fire Training Task Group (FFTTG), consisting of representatives from the five federal agencies most directly involved with wildland fire management, conducted this assessment with the goal of creating a future strategy for workforce development for the next decade. It purposely avoids the detailing of tactics and technical detail of a plan. While it contains a current state assessment of organizational capabilities and on-going initiatives, the strategy focuses primarily on what the desired state of training and development in federal fire management could and should be.

Because the strategy doesn't assign responsibilities, detail organizational responsibilities, or calculate budget implications, an additional tactical plan will be prepared to implement the items suggested in this report. The conclusion does advocate an initial set of investments, which are described as the first plateau in strategic change. A strategy is expected to be rewritten as those involved learn what works well and what does not. That is what most distinguishes strategy from planning. The future training environment is going to be dramatically different from the way it exists today. New developments in technology, simulation and learning methodology, and e-learning are expected to revolutionize what training is offered and how it is delivered. The task group fully expects the next version of the future workforce development strategy to reflect this accelerating rate of change and innovation. It is hoped that the information contained in this version will be useful for those pursuing the next plateau of change.

Another note is important. The strategy recognizes that federal fire program management is a true interagency endeavor that also reaches state and local governments and other partners and cooperators. The charter for the task group was to focus on federal training investments in federal fire management, which are at a critical juncture as stated in the business case for change. The task group also referenced but left intact the training and development roles and responsibilities of the NWCG. To clarify further, *Figure 1* is essentially a chart created by the NWCG training working team that shows the overlap between NWCG's responsibilities and those belonging to the federal and state wildland fire agencies. The recognition of this concept by all agencies provides NWCG freedom to address qualifications needs. The federal and state agencies are then free to pursue the job of relating knowledge, skills and abilities specific to the agency workplace.

Figure 1



Source: Adapted from NWCG Training Working Team – “Cohesive Strategy Working Paper” February, 2002

### Overview:

The commitment to employee training and development programs in the wildland fire community has always been strong. Four Department of Interior agencies (Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and the Fish and Wildlife Service) and the Department of Agriculture (Forest Service) have always believed that training and development are integral methods for improving organizational performance. The agencies have expected experience and training to compliment each other, but this concept has focused primarily on fire suppression skills. Past practices and good intentions will not be sufficient to meet the new demands and challenges for developing the best possible federal fire management employees for next generation.

The limitations of the current system are too numerous:

- Outside of the National Wildfire Coordinating Group’s (NWCG) Incident Training Curriculum, there is no established training program to develop senior and mid level federal fire managers. The training curriculum offered by NWCG, while extensive and

well regarded, does not serve as a pathway for promotions and advancements within the federal fire system. Federal fire managers reach their positions largely through trial and error or on-the-job training rather than through any formal career development process or learning pathway.

- The recent NWCG Firefighter Participation study shows that many in the workforce are unsure of the fire management career path. They feel that local budgets don't adequately support taking training even when it is offered. A solid majority see the training cycle as too lengthy and question its value in terms of career advancement. While training is not a major barrier for advancement and participation in fire, it is also not regarded as a major enabler or positive factor as one might expect.
- The influx of new employees hired under the National Fire Plan further complicates the situation. Training and career development programs will be critical in retaining these employees and creating a professional workforce for the future. Likewise, within the NWCG Incident Training Curriculum, some changes will be needed to accelerate the training of incident managers to meet the needs of the future, especially where this links to career development.
- Organizational investments in training must translate into both individual learning and organizational sharing of knowledge. Training and development programs must reach more employees. Programs have far greater impact on how well they master their current jobs and prepare for career positions. Looking to the future, fire management personnel must have access to more training in leadership, supervision, human resources, budgeting, planning, emerging technologies and other areas.
- Finally, training and development must continually be self-evaluating. Learning evaluation needs to expand past current methods of testing and "student satisfaction" feedback to assessing learning designs, analyzing content mastery and improving delivery methods. Especially those that incorporate new technologies, new applications of simulations, and other communication innovations.

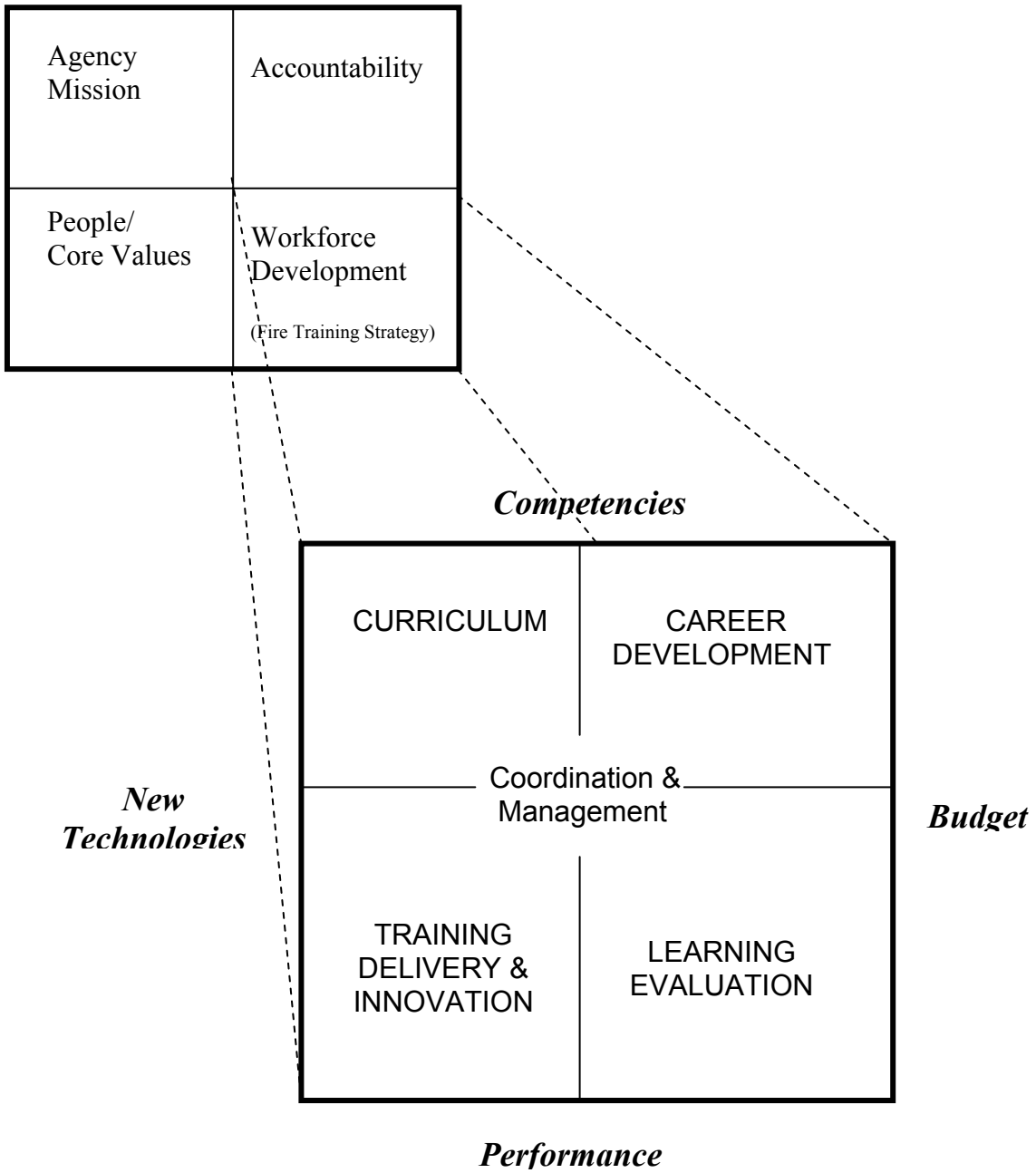
This report assesses the current state of fire program management training and employee development but is most concerned with the future state of training that will be needed to build new core competencies in fire program management and in incident management where applicable.

As part of an agency design model this report recommends strategic change in five key areas of training and development as follows per *Figure 2*:

- Strategy I - Career and leadership development,
- Strategy II - Training coordination and management,
- Strategy III- Curriculum definition and innovation,
- Strategy IV- Training delivery and technology, and
- Strategy V- Learning evaluation

*Figure 2*

*Agency Performance Design*



## **Strategy I. Career and Leadership Development**

*Issue* – The changing nature of fire program management combined with the increasing complexity of jobs, career ladders, and leadership development, require that more information about work positions, career choices, training and development be made available. This is further complicated when combined with the expectations of a new generation of workers who want to know more about job choices and career paths in advance. Additionally, organizations need to be able to assess rates of development (and retention) to assess current levels of supply in their most critical skill needs areas in order to ensure that they have an adequate pool of qualified applicants for future leadership positions. This report recognizes the difference between leadership and management and supports the development of both within the appropriate roles. Our challenge is to ensure an adequate pool of qualified candidates able to fill both types of positions.

*The strategy envisions:*

### **(A) Establishing career maps to support career management planning.**

Career maps would define the series of job development choices for key job families in fire program management and related incident management fields. Each map would highlight appropriate experience and training for the specific purpose of informing individuals about available career paths and options. (Figure 3a) A computer based career map will be made accessible to managers and employees to create a virtual career planning process. (Figure 3b) The map will separate those parts of career development from Incident Command System (ICS) qualifications to account for training and experience needed to succeed within a parallel working environment. The Training Strategy can be utilized as a recruitment tool, and career maps emphasizing the effective use of target groups, i.e. people with disabilities would be created to promote diversity within the workforce.

**Figure 3a**  
*Model of Career Pathway/Map*

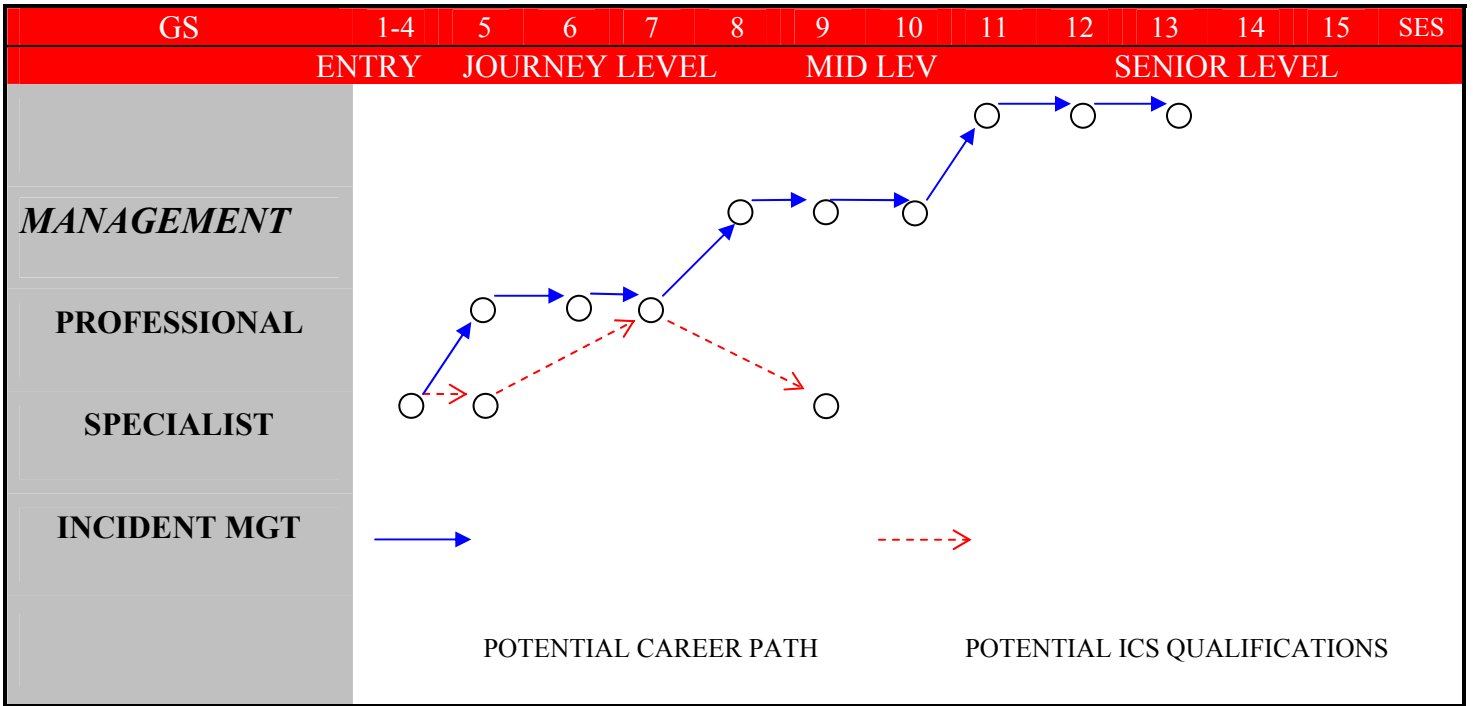
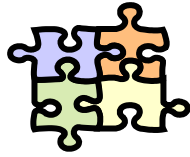


Figure 3b



SEARCH  
POSITIONS



FROM	TO
FIRE FIGHTER II ▾	CREW BOSS ▾



**DIRECTIONS TO GET YOU THERE:**

POSITION SEQUENCE	GRADE LEVELS	NUMBER OF AVAILABLE POSITIONS		TRAINING TO GET YOU THERE	OTHER STEPS
		NATION	REGION		
IHC FIRE FIGHTER II	GS -3/4	153	33	Firefighter Training (S-130), Introduction to Wildland Fire Behavior (S-190), Advanced Fire Fighter Training (S-191)	Satisfactory performance as a Firefighter Type 2
IHC SQUAD BOSS	GS -4/5	86	16		Satisfactory performance as a Firefighter Type 2, Satisfactory position performance as Advanced Firefighter/Squad Boss on a wildland fire incident
IHC CREW BOSS	GS-5/6	33	3	Basic ICS (I-200)	Satisfactory performance as an Advanced Firefighter/Squad Boss, Incident Commander Type 4

## **(B) Expanding mentoring, networking, and external learning opportunities by:**

- (1) Enriching orientation programs for new employees with a supplemental group mentoring concept (i.e. assigning a mentor to a group of new employees to discuss career issues, either in person or on-line)
- (2) Expanding fire management mentoring platforms by providing on-line mentoring. A group of “experts” or “career counselors” would be created and available to provide career advice to agency personnel requesting it. (Such a refocusing of mentoring would not exclude agencies from continuing existing formalized mentoring programs).
- (3) Promoting networking opportunities within training situations (i.e. design collaborative learning and team problem solving, on-line communities)
- (4) Refocusing some details, shadow assignments into “externships” (i.e. new opportunities for learning other jobs and work situations)

## **(C) Developing a Training Model for “Leaders of the Future”.**

Training and Development should support how the roles of leaders in fire program management and related incident management fields are defined and explore new models for how leaders develop and learn. This would include self-assessment methods designed to provide employees with tools and feedback to build their leadership capabilities. The Training system does not select the leaders of the future (this is always a management decision), but it plays a key role in ensuring that there is an adequate pool of qualified candidates for future leadership positions.

## **Strategy II. Training Coordination & Management**

**Issue** – For years the geographic areas have filled a vacuum in fire management by serving as a combined recruiting, admissions, registrar, class scheduler, and instructional management body. New technologies and greater demands for training make possible a national system that supports the geographic areas and lightens their administrative workload, while increasing the numbers of students, courses, and instructors in the system and making clearer national priorities. A proposed effort to merge existing geographic area databases on course scheduling and nominations is a step in this direction.

To accomplish this on an interagency basis requires a governing body that is interagency, has a defined commitment in terms of the five agencies planned investments in training and development, and some level of budgetary planning role to stimulate new investments and innovations. *Figure 4* helps us illustrate one possible Network to improve coordination.

*The strategy envisions:*

### **(A) Creating a new federal fire training management board.**

Working for the Federal Fire Agency Leadership Council (FFALC), the Federal Fire Training Board would consist of the national training officers or training center directors from the Forest Service, Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and the Fish and Wildlife Service. The Federal Fire Training Board will monitor training needs assessments and designate and monitor federal training investments to meet common agency needs in both fire program management, related incident management and fire program support areas. The Board would play a standard setting role in helping geographic areas strengthen their training programs and development efforts.

**(B) Managing training demand from a central perspective.**

- (1) Create uniform on-line nomination and registration process for all training programs (i.e. one central on-line training registration process).
- (2) Manage the national training database on educational and training accomplishments and course certifications.
- (3) Conduct regular federal training needs assessments in fire program management for curriculum development planning, course scheduling, and training investment decisions.
- (4) Create a central process for registering and certifying instructors. The very best instructors should also be made available to support classes using technologies such as Tel-Net or other distance learning platforms to increase the number of students they contact.
- (5) Create incentives, pay or otherwise, for subject matter experts and certified instructors so that they continue to participate in training activities. Likewise, create incentives for home unit managers to allow employees to continue participation as instructors.
- (6) Facilitate the scheduling of courses locally among the geographic areas so that optimal scheduling and reciprocity among regions is promoted.

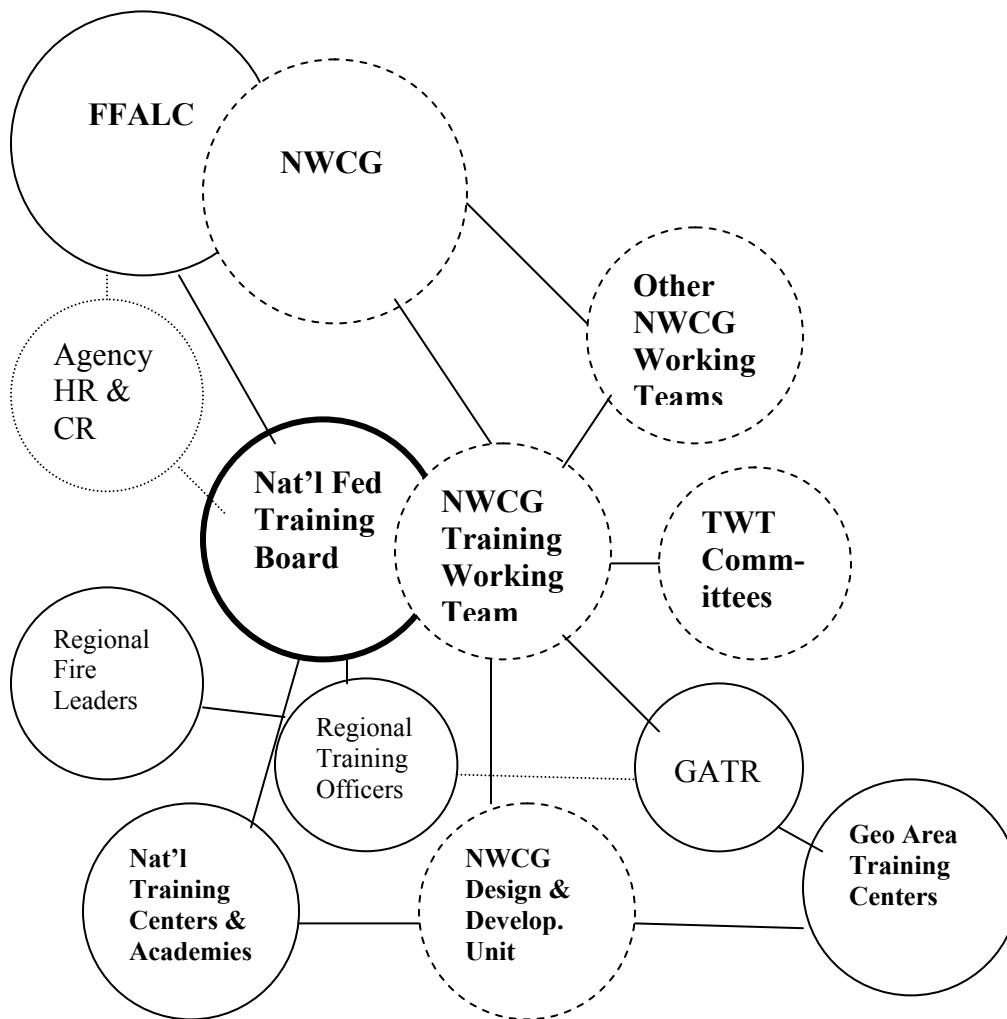
**(C) Setting standards for regional and geographic training supply**

- (1) Set standards for establishing new classes, curriculum changes, and training innovations to include providing seed money to encourage new training local innovation technology transfer initiatives.
- (2) Set standards for academies and training centers to ensure that they represent “learning centers of excellence” and not just convenience.
- (3) Set standards for course equivalencies so that universities, institutes, contractors, and non-federal partners can offer courses or training that meets employee development needs and are of commensurate quality. This can be extended to establishing partnerships with universities for academic accreditation for agency provided training.

**(D) Continuing to promote interagency cooperation as the structural basis for all training programs.**

Geographic Area Training centers and Academies, Learning Centers and Labs will be seen as interagency shared resources for incident management and fire program management. There will always be a need for coordination between and within Geographic Areas.

**Figure 4  
Training Management and Coordination Network**



Key: FFALC – Federal Fire Agency Leadership Council  
 NWCG – National Wildfire Coordination Group  
 HR & CR – Human Resource and Civil Rights  
 TWT – Training Working Team  
 GATR – Geographic Area Training Representative

### Strategy III. Curriculum Definition & Innovation

*Issue* - New ideas about what should be included in fire program management and related incident management training are not consistently integrated into the curriculum. The challenge is to develop a well-defined curriculum that lists the total sum of courses offered in a field of study and the learning progression within. Second, there must be a disciplined process for ensuring that the curriculum stays current and keeps pace with new learning requirements.

Changes and innovations in courses and new content need to be linked to organizational priorities, training needs assessments, and new knowledge requirements. These changes must not be driven simply by demands or ideas, no matter how well intentioned. Furthermore, core curricula should anchor skill building, content mastery, and work professionalization to include obtaining certification for demonstrating levels of knowledge and also educational degrees or credentials. This report encourages innovation in the establishment of academies and training entities to improve delivery of approved curriculum. Although this report assumes that innovation will occur locally, it recommends approval of emerging academies by the Federal Fire Training Board.

*The strategy envisions:*

#### **(A) Defining core curricula for fire program management and related incident management based on competency models.**

*Figure 5*  
**Core Curricula Model**

<b>Program Leadership</b>	<b>Technical/Specialist</b>	<b>Program Management</b>	<b>Incident Management</b>
Curriculum to develop knowledge, skills, and abilities needed to lead and direct people, teams, organizations and initiatives	Curriculum to develop knowledge, skills, and abilities needed for specific specialty areas and technical expertise.	Curriculum to develop knowledge, skills, and abilities needed to effectively manage projects, programs, budgets and time	Curriculum to develop knowledge, skills, and abilities needed for qualifications for firefighters and fire supervisors.
<b>Possible Courses</b>	<b>Possible Courses</b>	<b>Possible Courses</b>	<b>Possible Courses</b>
Team Building Skills Supervision Mentoring & Coaching Leadership development Human Behaviors	Fire Ecology Safety Fuels & RX Fire Aviation Communications Prevention	Budget & Finance Planning Economics Human Resources Computing & IT Fire Program Interfaces	NWCG Curriculum Performance Based Training

**(B) Creating curricula that include training and academic course road maps.**

Figure 6  
**Model Curriculum Map – Fire Planning \***

	Entry	Journey Level	Mid Level	Senior Level	Organization
<b>Program Leadership</b>	Senior Level Leadership Techniques Supervision I	Leadership Styles Supervision II	Leadership Teams Supervision III	Leadership Supervision IV	Organization
<b>Technical/ Specialist</b>	Fire Ecology 101	Fuels MGT 101	Fire Ecology 102	Fuels MGT 20 Fire Ecology 103	
<b>Program Management</b>	Computer Skills	B&F	B&F NFMAS Fire Pro	B&F NFMAS Advanced Fire Pro	B&F
<b>Incident Mgt</b>	 ← NWCG (as it relates to jobs) →				

\*This chart represents the course work that may be needed for an individual to become a fire planner. Incident Management Skills are developed based on the individual’s interest and abilities to support the fire suppression organization or direct fuels management.

**(C) Assessing curriculum continuously and consistently.**

Curriculum oversight and assessment will be accomplished at regular intervals by a chartered group of subject matter experts, professional educators or trainers, and organizational leaders – not by standing committees or course presenters. New processes will be created to sponsor establishment of new courses, major changes to curriculums, and new approaches to learning. The Federal Fire Training Board will oversee this process, but training innovation will be encouraged at all levels.

**(D) Expanding the applicability of training programs.**

Curriculums will increasingly be “professionalized” to include certification, accreditation, and academic/institute equivalencies. Course equivalents will be accepted across agencies.

## Strategy IV. Training Delivery & Technology

**Issue** - The most pervasive challenge in the training strategy for the foreseeable future is accelerating technology. Technology, i.e. the impacts of computing, Internet access, and new developments in media and telecommunications, is revolutionizing education and creating a new generation of “e-learning”. While some units will not have access to the most up to date technology it is recognized that other units will have emerging technologies. Therefore it is recommended that e-learning should not exclude classroom training nor be a substitute for experience and proven performance on the job.

This promises to be a difficult transition process for the interagency wildland fire community. A major asset for Fire Management over the years has been the participation of its subject matter experts and senior leaders in various forms of conventional classroom training. The challenge to Fire Management is enhancing and revising current traditional classroom based platforms with new technology and an e-learning based curriculum. This means that current and future programs using on-the-job training and demonstrated performance based skills (Position Task Book System) will be continued. This must be accomplished on a limited budget at a time when there has been a dramatic increase in the number of new generation employees who, it should be noted, have higher expectations about technological innovation in training.

*The strategy envisions:*

**(A) Using technology to enhance the quality of training and increase the challenge presented in learning opportunities for the workforce.**

Training should be refocused and reframed so that courses and learning exercises are more realistic (i.e. keyed to actual work life situations) and wherever possible, more difficult than work situations.

**(B) Applying new technology platforms (i.e. e-learning, distance learning) to substantially impact the reach, the breadth while concurrently reducing the cost of training interventions.**

- (1) Increase the number of learning opportunities in both fire program management and related incident management as measured by the number of classes and number of students.
- (2) Increase the scope and content offered in courses to include more pre-work, more problem-solving and peer interaction, and more subject coverage.
- (3) Faster turn around on course development cycles by using a rapid prototyping process that assumes new e-courses and blended classroom training upgrades will be completed in weeks not months or years.

**(C) Establishing wider practice and experience in training formats using simulation by creating a simulation strategy as an integral part of fire program management and related incident management learning.**

**(D) Prioritizing technology investments in training and learning for a new generation.**

The key courses and training needs of new hires since 2000 will be plotted for and serve as the main targets for new technology platforms. A significant percentage of training technology investments (70%) would be earmarked to develop e-learning platforms for these courses either by the agencies or through partnerships or strategic alliances with existing institutions. These courses, as they are developed and upgraded, will have open access for other “students” and “instructors” to serve as innovative benchmarks.

## **Strategy V. Learning Evaluation**

*Issue* - All organizations face the dilemma of how to evaluate their return on investment for training and development. Previous studies have recommended elevating assessment methods to assure that training once learned is being applied and that training once applied impacts positively on organizational results. Yet, this simple strategic objective remains elusive. Most organizations do not get beyond the most basic level of evaluation of training that assures some degree of participant feedback or customer satisfaction with the training course or program. The proposed Incident Qualification and Certification System (IQCS) could offer the answer by creating a national database, which allows for the collection and evaluation of training and workforce development. This report fully supports the development of such a system.

Rather than creating another formal bureaucratic or survey measurement process that requires training to meet a standard that no other human resource management process is asked to meet, a more basic approach is laid out in this strategy paper. Training programs will be expected to demonstrate that they deliver the intended knowledge to students and that training investments have a positive impact on building core skill competencies and retaining a skilled workforce.

*The strategy envisions:*

**(A) Maintaining continuity in the interagency training investment.**

Dedicating a percentage of operating budgets by a formula, or linking to numbers of employees by category the agencies can ensure that training and development spending is not “skipped over” in lean budget years, or improperly maintained. Training investments will be managed by the Federal Fire Training Board to ensure that the budget tracks actual training and educational costs and that these investments are diversified, i.e. they have both their fire program management and related incident management segments.

**(B) Measuring training results in terms of “workforce quality”.**

This requires that an appropriate number of competent and properly trained employees be in place. This will involve two core evaluation criteria as follows:

- (1) Assessing Access (Training Reach)—metrics involving:
  - How many people receive effective refresher and subject updates?
  - How much training bridges fire and non-fire communities?
  - How many people access and complete necessary courses each year?

*This metric must be related to training needs; it is not simply a sum of all education efforts in the fire management and related incident management arenas.*

- (2) Content Mastery (Building the Skills Base) – metrics involving:
  - How many courses have effective testing for content mastery?
  - How many students pass, fail or fail to complete these courses?
  - How many certificates, degrees, etc. are earned?

*This metric must be related to some form of quality standard in testing in terms of content learning, so it is not subject to grade inflation or passing rate adjustments.*

## **Plateaus and Action Items**

The concept of “plateaus” refers to a method of establishing goals to be obtained at various time periods over the life span of the accepted strategy. Upon acceptance of the five strategic areas by the five federal wildland fire agencies, “plateaus” will be established by this task group in each of the strategic areas as written or as modified by the agencies that address the logical sequence of actions that will need to be taken over the course of time to achieve the overall federal fire training strategy and create a training program. Tasking and completion of actions will be coordinated and managed by the newly established Federal Fire Training Board as the coordination organization.

The task group for the first plateau (9 to 12 months) recommends the following action items for each strategy:

### **Strategy I**

- (1) Create Career-Quest, an interactive website for realistic career mapping, providing career steps, training, and “KSA” advice from current position to a target position.

### **Strategy II**

- (1) Constitute a Federal Fire Training Board for the coordination of training and the establishment of groups to complete the action items identified in the strategy.
- (2) Formalize an instructor certification process.
- (3) Improve Training Needs Analysis and Coordination.
- (4) Provide a “National” registration of courses and online nomination process.

### **Strategy III**

- (1) Develop curriculum maps tied to agency job needs.
- (2) Commission an external curriculum review group to review and revise multiple fire management courses to integrate new subjects, training methodologies, and learning assessment.

### **Strategy IV**

- (1) Prioritize technology investments in training and learning by focusing on the learning path of new generation workers.

### **Strategy V**

- (1) Create a community fire management training budget for FY-03
- (2) Track the number of course offerings, subject hours, and number of participants
- (3) Establish an examination standard for courses offered by academies, NIFC, NARTC and other Training Centers.
- (4) Publish an annual report on baseline metrics, such as pass/fail rates, costs, etc.

# **Federal Fire Training Strategy**

## ***Training and Development for the Next Generation of Federal Wildland Fire Managers***

*Version 2.0*  
*2002*

### **Introduction**

Modern government organizations understand that their “dynamic capability”, which is the ability of their employees to adapt, change, renew, and especially to learn, is one of the primary determinants of future success. The management function most directly concerned with enhancing these abilities in the workforce is training and development. However, “training as usual” has reached a crossroads. While organizations recognize that training is absolutely critical for survival, they also see that good intentions, supportive policies, and even the willingness to make sizeable annual investments in providing a wide range of training opportunities and career development alternatives are not enough. The need for new strategies, including new courses, new methods, and new technologies to reach the next generation of learners is paramount.

The Federal Fire Management Community’s growing awareness that new training and development strategies are needed has been accelerated by the hiring of nearly 3,500 new wildland firefighters in 2001. The five federal land management agencies with wildland fire management responsibilities (USFS, BLM, NPS, FWS, and BIA) that collectively make up the federal Fire Management Community have a long record of successful interagency cooperation in many areas of fire management including joint fire management training. It is natural that if new strategies for training and development are needed they should be addressed by an interagency review group that would make recommendations to the five federal fire directors. This was the rationale behind establishing a management review team to study the need for new directions and strategies for fire management training.

### ***The Federal Fire Training Task Group***

An interagency task group was chartered by the federal fire directors in June 2001 to undertake a review of the current state of fire management training and development and to assess future needs and strategic requirements. This group, entitled the Federal Fire Training Task Group (FFTTG) was made up of one member from each of the federal wildland fire agencies under the leadership of the Director of NARTC. The group’s purpose was to develop a long-term strategic outlook for the federal Fire Management Training Program that could provide a framework for supporting existing agency and geographic area training programs and creating new programs and processes for the future.

### ***Federal Fire Training Task Group Members***

Leader	Rich Wands	Director, NARTC
Logistics	Robbin Ekman*	Special Uses/Lands, Sierra Nat'l Forest
BLM	Madonna Lengerich	Training Specialist, NIFC - BLM
FWS	Jim Kelton	Fire Mgt Specialist, USFWS, Mountain/Prairie Region
USFS	Bill Waterbury	Asst. Director, Southwest Regional Office
NPS	Chad Fisher	Training Specialist, NIFC – NPS
BIA	Richard Schwab	Asst. Regional FMO, Southwest Region
Process Consultant	Al Hyde	Brookings Institution, Washington Center for Public Policy Education
FS Advisor	Billy Terry	Branch Chief, USFS Washington

### ***Contributors***

NPS	Pat Haddad	Fire Program Asst., Saguaro National Park
BLM	Aitor Bidaburu	Training Specialist, NIFC – BLM
BIA	Robert Plantrich	Asst Regional FMO, BIA WRO Forestry

\* Ekman's role of logistics coordinator was changed to full task group member during the project with Brookings and NARTC picking up the logistics support function.

## *The FTTG Charter*

The Task Group's core mission was to determine the need for:

1. New strategies for establishing career tracks for differing fire programs,
2. New requirements for an overall training coordination system,
3. New curricula such as leadership and management,
4. New methods for accelerating learning and embedding safety,
5. New technologies for training delivery,
6. New database collection systems for progress tracking, and
7. New approaches for evaluating training.

In addition to the mission, the task group's charter also included the following responsibilities:

- Assess current training programs such as USDA Corporate Training, OPM Training, NWCG Training, and other pertinent federal agency training programs.
- Assess core competencies and career tracks for differing fire programs.
- Examine the linkages between entry-level training, geographic area training and national level training.
- Develop a systematic approach for coordinating training among the various training centers throughout the country and ensure that standards are consistently applied.
- Assess needs and potential models for databases that will be maintained to track individual development and career training needs.
- Explore the value of developing partnerships with existing learning institutions, the National Fire Academy and contractors to further enhance the training program while providing professional accreditation.
- Benchmark leading private sector, military, and other appropriate models to assess how fast the external environment surrounding training, e-learning, and knowledge management is developing.
- Determine an approach for (a) evaluating the benefits of training for the employees for continuous learning improvement, (b) assessing the effectiveness of training for the involved agencies in terms of return on organizational performance, and (c) create specifications for a documentation process to track the total cost of training in order to ensure a return on the investment and to justify the training cost expenditures.

## I. Business Case for Change

Despite the challenges in workforce training needs in the fire arena the Task Group revisited the business specifics within fire management training to establish a business case for change. There are a number of new forces and factors pushing for change. The recent NWCG survey on firefighter participation found widespread acceptance of current training quality with 45% of all respondents rating the quality of fire training as high compared to 16% who saw the quality of training as a serious issue. Similarly, there has not been a major drop off in demand (numbers of students) or supply (number of courses or training programs offered).

Therefore, it was important to review whether or not there is a compelling case for change and whether there should be a sense of urgency that problems must be addressed now. The task group looked at four key areas and concluded that there are significant factors that warrant both new actions and new approaches.

### 1. There is a highly significant increase in the numbers of new employees in fire management and related areas.

The landmark fire season of 2000 and the development of the National Fire Plan in the aftermath resulted in a congressional and presidential commitment to increase workforce numbers in fire management to the most efficient levels. Major hiring efforts were initiated in 2001 in all five federal land management agencies producing the following workforce numbers as of June 2001 when this Task group started its work

Federal Wildland Firefighters (Seasonal and permanent)					
Agency	Firefighters 2000	New Hires 2001	Firefighters June 2001	Percentage Increase	Projected Final 2001
USFS	7,700	2,200	9,900	28.5%	11,000
BLM	2,435	635	3,506	26.1%	3,506
BIA	1,152	263	1,415	22.8%	1,415
NPS	702	278	980	39.6%	1,390
FWS	500	96	596	19.2%	972
Totals	12,489	3,472	16,397	27.8%	19,367

(Source: *Government Executive* magazine article, Summer 2001. Data provided by agencies.) These numbers (the most conservative available) are both simple and compelling - an influx of over 25% new employees in fire management translates into a major demand on the training and

development system over the next decade - especially if fire management hopes to retain these employees.

**2. There will be higher levels of retirement within the current core fire personnel and fewer “militia” available over the next decade.**

These statistics are more problematic since retirement is not directly under the organizations’ control. A 1999-2000 review of the “red card system” shows the following percentages of firefighters reaching the critical 50-55 period where they establish eligibility for fire fighter retirement and where they will reach mandatory retirement. These estimates, taken from five data samples of approximately 20% of the Workforce who were red card qualified, show 25% of the Interior firefighting workforce becoming eligible for retirement over the next decade compared to a 45% number for the Forest Service.\*

The table below indicates that a considerable part of the experienced workforce will be leaving fire management in a time frame that will place great pressure on training and development to prepare the next generation of fire professionals and managers. As the table shows, the problem is more chronic now. With low attrition rates prevailing in the federal government and the economy currently in recession, the impacts are likely to be more muted for a while. By 2004 and on until 2010 the problem of cumulative retirements will have significant impact.

Table – Estimates of Age Distribution of Wildland Fire Red Cards 1999-2000

Percentage of Red Cards By Age	DOI Totals	BLM	BIA	NPS	FWS		USFS
Under 25	11.3%	14.4%	12.6%	8.9%	9.9%		1.7%
26 to 35	27.4%	19.1%	33.3%	30.3%	27.2%		13.4%
36 to 45	30.7%	28.1%	33.5%	32.2%	27.4%		29.9%
46 to 50	15.4%	19.3%	11.3%	14.7%	16.0%		31.2%
50 to 55	9.7%	12.1%	5.3%	9.9%	10.9%		15.2%
Over 55	5.6%	7.1%	4.0%	4.2%	8.5%		8.7%

(Source: “Where Have All The Firefighters Gone?”, Report to the NWCG on Wildland Fire Fighter Participation, 2000)

\* In early 2000 when these statistics were gathered, the maximum age for mandatory retirement under fire retirement was still 55. The recent change to age 57 is expected to have minimal effect

**3. Employee perspectives on training & development within fire management show “concerns” about training value, access, and purpose.**

The next generation of fire managers has in effect just been hired by federal wildland fire agencies. Many in this group of younger employees will have different work values which will certainly be reflected in their perception of training and development approaches. Some of these differences were addressed in the recent NWCG fire fighter participation survey, which examined training (along with 11 other key factors) in terms of being a motivator or a deterrent.

Among all age groups within the fire fighting community, there is a very positive perception of the quality levels of fire training. A key negative perception is that training is not widely seen as an “enabler” to draw people into fire fighting. The survey results rated inadequate budgets for training, the length of the training cycle, supervisory reluctance to release personnel to take training, and the lack of a career ladder and mentoring programs in fire management as major or moderate problems. These problem ratings are even more pronounced among newer employees who gave more severe problem ratings to each of the above issues except one - supervisory reluctance to release personnel for training. The table below summarizes the eight questions addressed on the surveys and shows the mean scores for the survey plus differences between the newest and longest hired employees

<b>FIRE TRAINING ACCESS ISSUES</b>	<b>Survey Mean Score</b>	<b>Problem Level</b>	<b>Mean –New Employees (&lt; 5 Yrs)</b>	<b>Mean – Employees (&gt;20 Yrs)</b>	<b>Statistically Significant Difference</b>
Inadequate Training Budget	1.48	Major	1.68	1.42	Yes
Lengthy Training Cycle	1.04	Moderate	1.29	0.98	No
Supervisory Reluctance	1.06	Moderate	1.05	1.06	No
Lack Career Ladder in Fire	0.99	Moderate	1.15	0.90	Yes
Lack Mentoring Program in Fire	0.96	Moderate	1.32	0.84	Yes
<b>FIRE TRAINING VALUE ISSUES</b>					
Scheduling Fire Training	0.69	Minor	0.89	0.61	Yes
Fire Training as Career Value	0.61	Minor	0.45	0.61	No
Quality of Fire Training	.013	None	0.16	0.06	No

(Source: “Where Have All The Firefighters Gone?”)

#### **4. Accelerating technology and methodology advances in the training environment are outpacing Fire Management internal developments.**

The evidence for the business case for change is more anecdotal in this area. There are a number of training interventions in fire management that demonstrate that new technologies are being aggressively pursued and deployed in a variety of settings. But as the Task Group went about its assessment of current training capabilities, it was forced to conclude that fire management training had not reached a point where it could even state what percentage of its training investments was for e-learning and distance training, new simulation developments, or other new technology platforms. The current state assessment summarizes the business case aptly:

*“Currently, Wildland Fire training is focused on traditional training techniques involving instructors in classrooms with 30 to 40 students. Training techniques primarily involve lectures “presented” by instructors from lesson plans in instructor guides. Use of technology involves standard use of slides, overhead projectors, “Power Point”-type presentations, and videotape. Course material may (or may not) be updated, but if it is it’s usually on an infrequent basis. The current rate and availability of training courses offered by the interagency community is not keeping pace with the demand for knowledge, skills, and experience in the wildland fire work environment. This leads to two major problems:*

*- The training curricula needs to keep pace with technological advancements that impact wildland fire program management skills beyond fireline tactics, such as planning and organization. Increased use of advanced technology in wildland fire management, like digital mapping, global positioning systems, remote sensing satellites, fire behavior prediction, internet applications, and digital communications will increase the demand on training programs for new uses of technology in wildland fire management. The second issue is even more acute – how to leverage new technologies and capabilities to enhance learning, change teaching methods, and open up entire new training platforms for learning.”*

While the current state assessment ended on a positive note by acknowledging a number of laudable and interesting initial steps being taken within the wildland fire management community, there is not currently a comprehensive strategy for setting priorities for technology investments in training nor any valuation methodologies to assess return on investment.

One final consideration is in order. Current plans and projections call for major investments in information technology throughout government. Spending for Internet related development projects is expected to grow from 1.5 billion in 2000 to 6.2 billion by 2005. The Gartner Group projects total government spending on all information technology to increase from 77.6 billion in 2000 to 101.1 billion by 2005, which translates into an annualized rate of increase of 5%. The business case would argue for at least that level of annual increase in technology spending for training and development simply to keep pace.

## **In Summary**

There is a compelling business case for change. The combined pressures of bringing in one of the largest and most significant groups of new employees in nearly two decades, the pending retirement in the next 3 to 7 years of 25% to 45% of fire management's most experienced workforce, strong differences in perceptions about training and development in fire management, and major requirements for technology advances in all aspects of training development demand major change now. A true federal strategy for training and development is the first prerequisite for creating a "training and development capability" that enables fire management to improve its organizational performance by having the smartest workforce possible.

Finally, this strategy must be debated and decided upon now, before the onset of another fire year. There is a short window of perhaps 2 years, but certainly not more than 4 to 5 years, where fire management can launch the education of its next generation on the right path, using new technologies and training advances, all with the capable assistance and advice of the current generation of fire leaders. To squander this opportunity would be both incredibly shortsighted and tragic.

## **Study Methodology**

The charter for the Task Group specified two research directives. The first entailed assessing current capabilities across the five federal agencies including the geographic areas and various training academies and institutions. The second involved analyzing the future training environment by examining broader industry and educational trends and organizational benchmarks. To keep both research tasks linked a common set of seven issue areas were developed as focal points for the strategy:

1. New strategies for establishing career tracks for differing fire programs,
2. New requirements for an overall training coordination system,
3. New curriculums such as leadership and management,
4. New methods for accelerating learning and embedding safety,
5. New technologies for training delivery,
6. New database collection system for progress tracking, and
7. New approaches to evaluating training for learning, return on investment and organizational performance

In preparing the current state assessment, the Task Group collected over 125 reference works--reports, studies, curriculum and course materials examples, presentations, web-site documents, academy materials, handbooks and manuals, etc. An annotated bibliography of the most instructive reference works (about a third of the works collected) is included in Appendix D. A brief survey on coordination issues was designed and sent to the Geographic Area Training

Representatives (GATR). While the number of responses was small the comments provided were instructive and are compiled in Appendix C.

Current state assessment papers evaluated current capabilities and also tried to denote on-going initiatives and projects. As the Task Group approached preparing future state papers the number of issue areas was collapsed into five. New database collection systems became part of training coordination, while accelerated learning and safety was put into training delivery and technology.

The resulting framework for the future state papers was then used as a model for organizing the report. There are five subsections for current and future state which are also reflected in the workforce development noted in Figure 2 in the executive summary:

- Strategy I - Career and leadership development,
- Strategy II - Training coordination and management,
- Strategy III- Curriculum definition and innovation,
- Strategy IV- Training delivery and technology, and
- Strategy V- Learning evaluation

Organizational benchmarks were also selected across the public and private sector. The Task Group was able to get personal briefings from the Internal Revenue Service, Navair (Naval Aviation Systems), and the University of California at San Francisco Medical School, Microsoft, and Cigna Technology Institute. Benchmark presentation materials were obtained from the Corporate Universities at Motorola, W.W. Grainger, and Sun Microsystems. Brief summaries of the benchmarks are provided in Appendix B.

## II. Current State Assessment

### Core Strategy Issues

*How is fire management doing in terms of?*

- 1. New strategies for establishing career tracks for differing fire programs,*
- 2. New requirements for an overall training coordination system,*
- 3. New curriculums such as leadership and management,*
- 4. New methods and new technologies for training delivery,*
- 5. New approaches to evaluating training for learning, return on investment and organizational performance*

The FFTTG began its review process by identifying key questions in five core strategy areas or issues. The team members identified a large body of reference manuals, training guides, training policy and program studies, actual organizational, curriculum and classroom material for fire management training and career planning, presentations, that are fully referenced in Appendix D, to assist in preparing this strategy. These materials were reviewed in depth at the 2<sup>nd</sup> meeting of the task group. A summary assessment was prepared for the 3<sup>rd</sup> meeting of the task group that was both a problem analysis (what's working and what's not working) and a projection of whether progress being made was keeping pace with institutional needs. Each of the current state summaries follows in this section of the report

### Issue I: Progress in establishing career tracks for Fire Management and Fire-Management Related Positions and Occupational Series

#### Current Status Summary

Currently there are few established career guides for employees working in the field of fire management in the five federal agencies responsible for wildland fire prevention and suppression. In the past, employees have taken a random approach to building careers that allowed them to attain personal goals within their respective fire management organizations. The traditional career path has been essentially through the suppression side of the fire organization. The past decade has seen an increase in positions outside of the established suppression organization as fuels management, planning, fire ecology, and public information have become ever more important.

Establishing career tracks in all aspects of fire management is extremely important. Properly designed career tracks will assist employees in setting realistic career goals and understanding the most appropriate pathways to attain those goals. At the same time, career tracks can ensure that qualified individuals meet the skill requirements of the fire agencies. The following list

overviews the guidance methods that are currently available, possible limitations, and future requirements:

- ❑ Several agencies have some type of program to guide employees in leadership, essential competencies, and agency mission. Anecdotal evidence suggests that most of the agencies are not using these programs to the fullest extent possible. When compared with the other training requirements of new employees, currency and operational development training of employees, and an employee's regular work activities it seems that many of these programs go by the wayside.
- ❑ Within fire management, the Wildland and Prescribed Fire Qualifications Guide, 310-1, is widely used to ensure that the performance based operational qualification system operates as designed. But otherwise, developmental guides are uncommon in the fire management community. Guides are available but seem to have only regional or bureau specific audiences. Some are also out of date.
- ❑ There are several programs being used as intake or developmental measures. Again, not all of these are being currently utilized to their greatest potential while others primarily target diversity issues and are still highly suppression centric.
- ❑ Accelerated training opportunities are available but can only be applied to a limited number of candidates per year and again they are very suppression oriented. External programs like Technical Fire Management can assist in bridging the gap that many technicians find between them and the professional series. However, there are a limited number of candidates per agency that can take part in this program per year and the program, while highly regarded, is quite expensive.

### **Impact of the Interagency Fire Program Management Qualifications Standards Guide**

Perhaps the biggest step taken to date is the Interagency Fire Program Management Qualifications Standards Guide. This guide establishes minimum qualifications standards for fourteen key fire management positions and establishes common competency descriptors recognized across agency boundaries. The key positions are listed below in three groups, representing three levels:

First Line Supervisory Levels (Primary)	Fire Project Technicians & Specialists (Primary & Secondary)	Fire Program Managers (Secondary)
*****	*****	*****
Interagency Hot Shot Superintendent	Wildland Fire Operations Specialists	Unit Fire Program Manager
Helicopter Manager	Rx Fire & Fuels Specialist	Geographic Area Fire Program Manager
Senior Fire Fighter	Fire Prevention & Education Specialist	National Fire Program Manager
Engine Supervisor	Initial Attack Lead Dispatcher/Asst. Center Manager	
Supervisory Fire Engine Operator	Center Manager	
Initial Attack Dispatcher		

*Source: Standards & Qualifications Presentation – BIA July 2001*

Common Competencies are then defined across these positions and rated for three levels:

Working Level – Defined as the minimum level of experience and/or training that it takes to produce work of acceptable quality.

Journey Level- Defined as sufficient experience to be considered a seasoned employee. Is skilled in performing the more difficult tasks related to the function. Has received advanced training in the function

Expert Level – Defined as reflecting the quality of experience and/or training needed to perform the most challenging aspects of the position.

Knowledge, Skills, and Abilities (KSA’s) are then defined for 10 Factors: I. Mission Comprehension, II. Agency Orientation, III. Resource Stewardship, IV. Fundamental Values, V. Leadership, VI. Problem Solving Skills, VII. Communication Skills, VIII. Personal Development and Planning, IX. Agency Operations, and X. Program/Project Progress Monitoring and Evaluation

The Qualifications Standards Guide also allows employees to build toward Individual Development Plan targeted career and Incident Command System positions. This guide has been approved by both the DOI and USFS and is awaiting approval of the supplemental standards for the GS-401 series by OPM to be implemented. While the guide covers only fourteen positions deemed crucial to firefighter safety, it potentially could be extended to most every position within the fire community. However, the key question is could the qualifications & standards guide be used as an effective template for career tracking? Certainly it is an essential step but the

standards ratings would have to go much further to be effective as a career guide for fire management and fire-related professional positions. The following would constitute next steps:

- ❑ Establish vertical and lateral pathways among the key fire management positions – illustrating how those inside the profession (or wanting to enter at the bottom) can advance and how those outside in fire related positions might be able to transfer in.
- ❑ Relate the competencies to current and projected workforce supply and demand data-illustrating numbers of positions, at what grade levels and in what geographic areas.
- ❑ Align the KSA's in key fire management positions to experience levels and specific training programs and courses – at the entry, journey, and expert level —and show equivalents of training and experience.

## **Issue II: Progress in developing a National Planning and Geographic Coordination System for Fire Management and Related Training**

### **Current Status Summary**

The current system lacks a vision of how overall fire management and employee development training is to be coordinated. Currently, no specific group is charged with developing a system for unified interagency training coordination that incorporates the national, geographic area, and local levels. Training coordination and planning are needed over the full spectrum of the training process from establishing an overall training curriculum, scheduling courses, developing instructors and exploring and assessing new methods for training delivery.

The inadequacies in the current system does not suggest that various groups within the wildland fire management community have not been active in trying to address these major issues. The NWCG has created a Training Working Team (TWT) that is very much involved with training standards and system needs, but the TWT does not have the responsibility for overall coordination of fire management training. The emphasis of the group is largely focused on NWCG curriculum development, primarily the S, J courses, and I. Consequently, coordination of training is decentralized as each geographic area and each agency attempts to coordinate the training needs of their own area.

By necessity, the Geographic Area Training Representatives have chartered themselves into a group to address some of these issues, such as attempting to coordinate the schedules of upper level courses between the geographic areas. Upper level courses in particular are difficult to put on at the geographic area level, and the number of courses put on nationally may not be sufficient to train the number of people who need the courses. The central coordination vacuum in fire management training has created the following:

- ❑ The system for determining what courses to put on is often based on “wants” (i.e., demand), not “needs”. Each region in this case establishes demand. There is not a system in place to coordinate a determination of which training is most urgently needed and to

ensure that those who need the training the most get the highest priority. Some Geographic Areas have developed approaches to address these two concerns.

- ❑ Since only the S, I, and J courses have an official body to look after them, other functional groups such as aviation, fire behavior, dispatch, prescribed fire, and GIS specialists have formed ad hoc groups to look after the training needs for their own specialties. As a result, these functional groups often go their own way, even to the point of developing their own standards. They do not worry about duplicating the work of others and may be pursuing some innovative delivery methods that aren't being shared. Little or no coordination of these non-suppression training courses is occurring.
- ❑ The geographic areas have developed a number of regional training centers and Fire Use Academies independently. To date, no attempt has been made to evaluate whether they constitute a best model or training delivery method that should be encouraged and expanded as a national resource; or conversely whether they should raise their standards of instruction or change quality levels.
- ❑ As might be expected in this largely decentralized environment, some agencies in order to meet current training needs are contracting training development on their own. Among the agencies, there is no overall coordination of non-federal fire course development. Finally there is no one group responsible for coordination of agreements with institutions of higher education as part of the overall training strategy.

### **Other Obstacles to National Planning and Geographic Coordination**

Any new approach or system proposal for training planning and coordination should also take into consideration major barriers for implementation. A major problem is budget continuity – there is insufficient funding for the organizational structure and resources necessary to provide national planning and regional coordination. The current budget situation in fire management favors organizations purchasing their own training as opposed to sharing costs, much less allocating funds for coordination that may be seen as more overhead. Other problems that would have to be resolved if the coordination model were changed include:

- ❑ Concerns of geographic areas, local areas, agencies, and cooperators that they would be losing control over “their training programs for their employees” to any national level coordination group. Also, overall coordination of federal employee development programs would have to mesh with interagency suppression training needs of the states.
- ❑ Uncertainty over the issue of recruiting and developing future instructors. Fire management training at the geographic level has had a distinctly local and regional perspective because of the involvement of many of its most experienced managers and subject matter experts. There may be suspicions that national coordination would be a movement towards creating a different “professional instructor” base.
- ❑ Federal land management agencies all have different regional boundaries that may not overlay the geographic areas. They may prefer to stick with intra-agency training

coordination, at least for some types of training.

### **Issue III: Progress in establishing new curriculums such as leadership and management**

#### **Current Status Summary**

The majority of training that is available is primarily aimed at Suppression, Prescribed Fire, Prevention, Aviation, Dispatch and the Incident Command System. The National Wildfire Coordinating Group (NWCG) is responsible for managing this training through the Training Working Team (TWT). NWCG approves products generated by the TWT and maintains a publication called the Wildland and Prescribed Fire Qualification System Guide (310-1). This publication establishes position standards and a “road map” for progression through the Incident Command System (ICS). Academies and Training Centers located across the country such as the USFS Apprenticeship Academy in California, Fire Use Training Academy in New Mexico, Great Basin Training Center in Idaho, and National Advanced Resource Technology Center in Arizona, are training delivery centers that primarily deliver NWCG sponsored courses.

However, when Academies/Centers identify training needs that NWCG courses do not meet they will incorporate non-NWCG training. An example is the Fireline Leadership course that has been well received in the fire community and is in high demand. Subsequently, the National Joint Apprenticeship Academy has adjusted its’ curriculum to include Fireline Leadership. Courses taught at the various academies are typically those necessitated by the requirements in the 310-1. The training centers also offer various courses necessary to advance in fire management. Training centers aren’t designed to provide an entire curriculum. They provide courses to meet the needs in a specific area. Therefore, it typically takes employees years to complete a specific series of classes since they usually only get one or two per year.

The majority of training has focused on the management of wildland fire incidents and the logistical support of these incidents. As a result, federal agencies have long recognized that NWCG products alone do not meet the total needs of developing fire managers. This is especially apparent in the areas of Fire’s integration with Resource Management and Leadership. Proficiency in these areas is necessary for strategic fire planning and the day-to-day responsibilities of being a strong supervisor/manager. A “gap” exists in terms of providing these skills and knowledge to the mid and upper fire management ranks.

An Interagency Leadership Task Group working under the auspices of the TWT has made a recommendation toward closing the “gap”. The proposal is to establish a distinct leadership curriculum that would be adopted by NWCG. This would augment the existing NWCG courses to help meet the needs discussed above.

Agencies are also utilizing private vendors, colleges/universities, and seminars to help close the “gap”. Examples include: Technical Fire Management (TFM) by Washington Institute, Fireline Leadership by Mission-Centered Solutions, USDI and USDA Universities and miscellaneous seminars that address a wide variety of topics.

What seems to be lacking is a course of study outside the framework of the 310-1, that is commensurate with the total knowledge and skills required of fire management positions. What exists now is a fragmented approach to getting this training over long periods of time through many different sources. It is also compounded by not having an approved set of competencies for duties not associated with wildfire, fire use and prescribed fire.

In terms of training curriculum development, it should be noted that courses do change and courses of study, whether at the entry level or senior professional or executive, are constantly being modified and redesigned. Unfortunately, these curriculum shifts are not driven by standards promulgated by any coordinating or accreditation body. And while curriculum shifts and course changes are often driven by subject matter expert committees or by feedback from training participants, there is no body of objective criteria or systematic review that determine when curriculum should be updated, fine-tuned, or radically altered.

#### **Issue IV: Progress in establishing new methods and New Technologies for Training Delivery and Learning**

##### **Current Status Summary**

A core element of wildland fire training and one that is central to the knowledge transfer process is the reliance on our own agency professionals and subject matter experts to deliver training. We currently depend on agency employees to instruct the majority of our training courses as collateral duties. The success of this approach is dependent on management's commitment to make these employees available along with the skills and abilities these individuals possess to provide professional instruction.

Even in our academies and training centers, where we have full time professionals working, they generally function as staff coordinators and do not see themselves as full time faculty or full time professional instructors. They will work with steering committees or advisory groups that design training courses and the instructors who provide the training. Although NWCG sets suggested standards for instructors in the 310-1, agency instructors sometimes lack professional skill and training in knowledge delivery. There are no existing pay incentives to assist in attracting and maintaining the best quality instructors. Furthermore federal agencies do not currently have a sound certification system for instructors.

Given a system that relies heavily on its own experts to function as instructors, it is not surprising that there is no cohesive systematic approach in the development of training delivery methods within the federal wildland fire agencies. Across the agencies there are a variety of training delivery systems being utilized. There are numerous academies and training centers co-sponsored by federal agencies that offer courses and programs in fire management such as the Colorado Wildfire Academy, National Joint Apprenticeship Academy, Fire Use Training Academy in New Mexico, Great Basin Training Center in Idaho, and the Prescribed Fire Training Center in the Southeast. Although a variety of programs exist there is not one

coordinated center or program across agency lines that addresses the entire scope of fire management's training needs in terms of delivery methods or mechanisms.

The majority of federally sponsored training focuses on teaching the technical aspects of fire management. Currently there is insufficient emphasis on development of training programs and methods for the fire community that address safety, leadership and the human dimensions of wildland firefighting, i.e. communication, decision making under stress, organizational effectiveness and leadership as addressed in the "Human Factors Workshop".

There are several educational institutions that currently offer college accreditation programs with a concentration in Forest Fire Science. Fire management has not currently explored in enough detail developing partnerships with existing institutions of higher learning, consortiums or private contractors to pursue enhancing our training programs while providing professional accreditation.

Another major issue is embedding Safety into training. While safety is a core value for all federal wildland fire agencies, training in safety tends to be addressed by incorporating it into our current curriculums. Although this addresses safety training to some degree there will still need to be a careful look at developing stand-alone courses that specifically address safety. Assessment and feedback are not fully embedded into our safety programs. Feedback at all levels is crucial for achieving positive changes.

Another core problem is the length of the training cycle. Various reports over the past year have pointed out that the length of time it takes for individuals involved in fire to obtain the right amount of fire training and experience takes too long. Many new employees see the lengthy training cycle as a major barrier to pursuing a career in fire management or staying involved. While concerns have been expressed about the potential impacts on safety of accelerating the learning process in fire management, there is consensus that current processes are too slow and a major obstacle for developing fire leaders for the future.

### **The State of Technology in Fire Management Training**

Recent developments in the integration of new technologies for training programs have demonstrated great potential to provide innovative, effective training to large audiences over great distances. Cutting edge digital audio and video graphic presentations are integral to the deployment of these training courses, providing students with interactive and creative learning environments. These technologies include the use of interactive internet web sites (i.e. online universities, e-learning), training course presentations using satellite transmission of instruction to remote locations, and training courses packaged on CD-ROM, DVD and other digital media formats. The use of information technology networks for delivery of course content and student interface also provide the opportunity to track student participation, progress and evaluation of course content.

Some of the most intriguing and effective use of technology in training currently involves the use of simulators and virtual reality programs. Simulators are extensively utilized by the military for

flight training, armored infantry battlefield simulation, submarine warfare, and battlefield command. Simulators, while expensive to develop, have proven to be highly effective training tools. Commercial Airline companies use simulators extensively for pilot refresher training and re-certification on various types of aircraft. The computer gaming industry has demonstrated the potential to recreate virtually any reality and provide the user with a total interactive experience in fantasy worlds, professional sporting events or police and military scenarios. Modeling the fire environment with integrated three-dimensional digital terrain, fire spread algorithms, values at risk, tactical resources and interactive control by a student is within the realm of current technology.

Currently, Wildland Fire training is focused on traditional training techniques involving instructors in classrooms with 30 to 40 students. Training techniques primarily involve lectures presented by instructors from lesson plans in instructor guides. Use of technology involves standard use of slides, overhead projectors, “Power Point”-type presentations, and videotape. Course material may (or may not) be updated, but if it is it’s usually on an infrequent basis. The current rate and availability of training courses offered by the interagency community is not keeping pace with the demand for knowledge, skills, and experience in the wildland fire work environment. This leads to two major problems:

- ❑ The training curricula needs to keep pace with technological advancements that impact wildland fire program management skills beyond fireline tactics, such as planning and organization. Increased use of advanced technology in wildland fire management, like digital mapping, global positioning systems, remote sensing satellites, fire behavior prediction, internet applications, and digital communications will increase the demand on training programs for new uses of technology in wildland fire management.
- ❑ The second issue is even more acute – how to leverage new technologies and capabilities to enhance learning, change teaching methods, and open up entire new training platforms for learning.

With that challenge in mind, it should be said that there are interesting initial steps being taken within the wildland fire management community. At this time, probably the most advanced use of information technology for training within the wildland fire community can be found on the Interagency Aviation Training website. This site offers a limited number of aviation safety course modules that feature advanced digital video and audio streaming technologies to provide exciting and interactive course presentations. The course presentations include progressive, interactive testing of students and student registration procedures for tracking student participation.

National Training centers for the Bureau of Land Management (NTC) and the U.S. Fish & Wildlife Service (NCTC) are beginning to offer web-based training through their respective web sites. The U.S. Department of Agriculture also has a web site for employees with an increasing focus on web-based training. Web based course offerings are limited compared to formal classroom and CD-ROM training, with most of the training content being administrative and natural resource program management in orientation. These training centers are also making

major efforts in distance learning through the utilization of satellite transmission of courses, seminars and conferences to remote locations with receiver equipment. The BLM recently presented the firefighter safety refresher course Standards for Survival through the satellite broadcast facility at the NTC.

At present, the wildland fire training community is making only limited steps in the utilization of CD-ROM or DVD for packaging computer based training courses. These courses include the complete Intermediate Fire Behavior Course (S-290) and the scenario portion of the Initial Attack Incident Commander course (S-200). However, based upon current agency capabilities in information technology, the deployment of wildland fire oriented web based training, distance learning and training packaged in digital media is poised for a large scale and effective implementation.

### **Issue V: Progress in establishing new approaches to evaluating training for learning, return on investment and organizational performance**

#### **Current Status Summary**

A key for determining the effectiveness of a training program is to have a strong and organized approach to evaluating specific courses in terms of the value of instruction (i.e. did learning occur?) and for assessing entire programs of study (i.e. did the learning have the desired impact on the individual's performance and ultimately the organization's). From the literature researched and the examples of training evaluation reviewed there is no organized approach existing within the federal wildland fire community to accomplish either goal.

Most training is presented and critiqued by the students and faculty using a scaled rating sheet that at best determines an initial reaction for customer satisfaction and does little to improve course content, design or delivery method. The model basically assumes the customer is always right and collected evaluations are mostly used to provide feedback to instructors about how to satisfy their customers better or occasionally to press for a change in what's being taught (subject matter is not relevant or more likely too boring) and once in a while for a change in the instructor.

Given the wildland fire community's penchant for certification and qualification, it is somewhat ironic that training courses are not subject to any rigorous or systematic learning examination processes. There are exams given in some courses but there is no systematic effort to ascertain how much is being learned (and retained) in wildland fire training or what percentage of students are passing or failing training courses.

The next logical step, using "Pre-" and "Post-" course evaluations and training effectiveness assessments, for the most part, does not exist; although some isolated attempts have been made by some course steering committees. If an evaluation and assessment program is vital to the training program, then a standardized approach is needed as well as the establishment of some baseline metrics to determine any sort of return on the training investment. In the 1999 NARTC BPR study report, recommendations were made to raise the level of evaluation with the hope that

this would impact middle and lower level training. Using the American Society for Training & Development's (ASTD) four levels for evaluating programs as described by Donald Kirkpatrick:

- ❑ The wildland fire training community remains at level 1, essentially measuring customer satisfaction. This level of evaluation is needed as it can determine the effectiveness of a particular course and it can be used to improve the course.
- ❑ There are some courses that can be considered to be approaching level 2 and that is determining what knowledge was learned. This is primarily being done through final course testing, but without pre course testing and subsequent follow-up in the field, we are still unable to fully determine what was learned and applied.
- ❑ Level 3, which is evaluating behavioral changes, and level 4, which is evaluating results, simply does not exist.

A truly effective evaluation and assessment program is needed for determining future training needs, continuing current programs and justifying the existence of a training program. An indicator of the impression that upper level management may have of the training program is shown whenever budget cutbacks are made and training is one of the first items reduced. When a training program is highly regarded and effective, it would be one of the last programs cut.

But this also presents another issue that must be resolved before the wildland fire community can assess its return on investment. What is the cost of training and where is the training budget expended? Given the high level of involvement of many subject matter experts and fire professionals in different aspects of training, this question needs to be examined carefully. Organizations would regard the high level of agency participation in fire training as a major intangible benefit, something to be highly valued. Whatever cost model is used it must also put a value on some of the other intangible aspects of fire training as opposed to simply marking up costs for facilities, travel, steering committee meeting travel, overtime pay, or tuition assistance.

Finally, evaluation may have a third dimension worth full consideration. It could serve as a foundation for the Lessons Learned and Knowledge Management Programs. As these programs emerge further, a training evaluation and assessment program would greatly enhance these two programs by furthering the exchange of information and improving learning at all levels.

### **III. Future State Needs Summary**

After the Federal Fire Training Task Group (FFTTG) completed its current state assessment, it focused exclusively on creating a strategic projection of where fire management training and development needed to be in the future. Team members combined to produce more in-depth papers in each of the five core strategic issue areas in an attempt to line out alternatives and future course directions for career planning, coordination, curriculum development, new technologies for delivery, and learning evaluation. At the fourth meeting of the FFTTG in Tucson, the team discussed in depth each set of issues after agreeing that the larger framework provided by the five core issues was sufficient to chart a future direction. The team members then developed specific recommendations for the core issues and submitted them to the five federal agency fire directors. The recommendations are contained in the executive summary and repeated as concluding notes to each future state needs summary in this section of the report.

#### **Strategy I - Career and leadership development,**

##### **Future Directions**

In the future job market, traditional models for career paths will fall short. Future models must incorporate an expanding set of strategies necessary to assist employees in achieving career goals while helping organizations develop a better talent pool for creating a more capable workforce.

The goal of any organization should be to recruit and develop the best employees. The development of employees along career paths is inherent to the strength of the organization. However, as the demand for experienced, performance-oriented people escalates and competition for human resources becomes keener, organizations will need to market their jobs and provide employees incentives for career development. A system that values individual growth and enhances organizational effectiveness is critical. Otherwise, organizations will not be able to attract and retain the best employees.

In the traditional career model, an employee moves up the ladder into a position that suits their abilities and meets the goals of the organization. But the basic concept of lifetime employment with career mobility in a single organization is changing. In fact, studies find that new employees are increasingly unwilling to commit to any employer for their career lifetime and are continually reevaluating job prospects and career options.

In the future, definitions of success will include multiple career paths and multiple entry points into careers. Future career paths will include some of the following:

- ❑ Lateral transfers – reassignments in a related or unrelated field that can be used to broaden experience, provide subsequent movement, or accomplish a better job fit. These could include short-term project and work detail assignments simply to gain exposure to other work areas or work organizations (networks).

- ❑ Upward advancement - A combination of education, experience, and "value-added" service to enable an employee to advance upward in a field of choice.
- ❑ Downward transfers – reassignments to jobs of lower grades or lower responsibilities, which are used to position an employee in an area, that will offer greater subsequent advancement or a better job fit. This type of movement may also provide a better balance between work, family, and personal interests.
- ❑ Outplacement – An employee may choose to join another organization, which may offer employment opportunities more closely matching personal and professional goals.

Increasingly, new employees feel the need to have more self-determination in their careers. They become easily frustrated and harder to retain if they cannot have mastery over their own domain. They want more control of their career growth and especially seek to have all the information available that affects them or could better inform the career choices they seek to make.

Managers on the other hand will need to recognize there are more dimensions than just upward mobility that affect employee career growth. To develop employees along career paths, they will have to include such dimensions as one recent University study has noted:

- ❑ Breadth (moving across functions)
- ❑ Depth (skill/knowledge development)
- ❑ Challenge (bigger, more complex projects)
- ❑ Client impact (managing more and higher level clients)
- ❑ Height (moving upward in position and/or title)

New Employees also want access to different forms of career counseling and first hand job exposure. Mentoring and Networking assignments are especially valuable. The purpose of mentoring programs is to tap existing knowledge and expertise within the service in a personal interactive manner. The intent of this voluntary, no-fault program is to insure succession of organizational knowledge and institutional memory and help employees' achieve their fullest potential. Most successful people give credit to others who have shepherded them at different stages of their career. The most successful mentorship's are those that develop naturally and build off a foundation of trust. While fire management should continue to support formal mentoring arrangements, it can also create new forms and formats for mentoring.

Another method for developing knowledge about career choices is networking, shadowing or longer temporary work assignments such as thirty day detail assignments to regional or national offices, allowing pre-selected employees to attend management and strategy meetings, or supporting "cohort" or groups of employees who attend elite fire suppression schools or other fire management training programs.

Fire program managers must recognize the critical role that career management plays in developing and retaining a better workforce. New strategies must be created to ensure that all employees see clearly the path for advancement, that career choice options are both well-defined

and spelled out in terms of experience and training accomplishments, and that formal and informal assistance is available in terms of mentoring and career counseling for every employee.

Finally, from an organizational perspective, career development must also be aligned with leadership development. While not every employee may want to be a top executive or a future leader in fire management, the path defining expectations and requirements for leaders should be clear. Conversely, fire management will want to assure itself that future career development processes will provide an adequate number of qualified candidates from which the new generation of fire leaders may be selected.

## **Future Strategy and Recommendations**

Strategies in career and leadership development include the following key steps spelled out in the recommendations below:

### **1. To create and have available for the workforce the series of career maps that cover the key fire management professional and leadership positions:**

Career maps would define the series of job development choices for key job families in fire program management and related incident management fields. Each map would highlight appropriate experience and training for the specific purpose of informing individuals about available career paths and options. (Figure 3a) A computer based career map will be made accessible to managers and employees to create a virtual career planning process. (Figure 3b)

The map will separate those parts of career development from Incident Command System (ICS) qualifications to account for training and experience needed to succeed within a parallel working environment. The Training Strategy can be utilized as a recruitment tool, and career maps emphasizing the effective use of target groups, i.e. people with disabilities would be created to promote diversity within the workforce.

### **2. To expand existing formats and forums for mentoring, networking, and providing career orientation and advice to employees about fire management:**

Enriching orientation programs for new employees with a supplemental group mentoring concept (i.e. assigning a mentor to a group of new employees to discuss career issues, either in person or on-line)

Expanding fire management mentoring platforms by providing on-line mentoring. A group of “experts” or “career counselors” would be created and available to provide career advice to agency personnel requesting it. (Such a refocusing of mentoring would not exclude agencies from continuing existing formalized mentoring programs).

Promoting networking opportunities within training situations (i.e. design collaborative learning and team problem solving, on-line communities)

Refocusing some details, shadow assignments into “externships” (i.e. new opportunities for learning other jobs and work situations)

### **3. To establish and refine “training models” for leadership development:**

Training and development should support how the roles of leaders in fire program management and related incident management fields are defined and explore new models for how leaders develop and learn. This would include self-assessment methods designed to provide employees with tools and feedback to build their leadership capabilities. The Training system does not select the leaders of the future (this is always a management decision) but it plays a key role in ensuring there is an adequate pool of qualified candidates for future leadership positions.

## **Strategy II - Training coordination and management**

### **Future Directions**

Pressures to buy equipment, pay salaries, and meet both fuel management and other program goals have created an endless array of reasons why managers reallocate training money and time to other projects. These monies and time are often bled away for more tactical applications. The result of the practice is ultimately evidenced by a loss of fire management expertise that impacts all aspects of a natural resource agencies program.

It is the practice of agencies to include funds for workforce development within the program allocations of the various units. This forces managers to make decisions on how much money and time will be spent for training and career development. Employee development competes for resources without the existence of some reasonable measure for allocation. Without this measure, many managers find reasons to provide little if any funds to professional development.

### **Ensuring funding continuity for fire management training & development**

Two possible methods of allocation can deal with this problem when they are based on a clearly defined career development program. They are the Training Budget Line Item and the Employee Development Percentage Allocation.

- ❑ The Budget Line Item - Training can be allocated to each unit based on the numbers of employees in that unit having full-time or collateral fire duties. Each of these individuals is allocated a certain number of training hours required to maintain and to develop new skills, however, this each manager is free to allocate the funds to various employees based on their particular developmental needs. It provides the most flexibility to the manager, but requires a designated amount of money and time be spent on employee development.
- ❑ Employee Development Percentage Allocation: Employees are allocated a percentage of their annual salary, as a benefit, for career development based on the individual’s level and the potential benefit to the agency. It relieves the unit administrator of having to

determine where funds will be spent for training and places the responsibility for career development upon the individual employee.

The Budget Line Item and the Employee Development Percentage Allocation are both dependent upon the existence of clearly defined career paths and an effective analysis system to determine career development needs. In both cases, employees are required to spend both time and money for career development in areas where the agencies have determined they will provide the most benefit. New Interagency Qualifications Standards developed by the federal wildland fire agencies and currently in review by the Office of Personnel Management, will serve to more clearly establish these requirements.

### **Create a National Coordination System to Fully Support Regional Training Efforts**

Coordination would inherently be integrated into all parts of the federal training system. This thread would be incorporated from technology to the strategy and vision. To fill the current vacuum, a Federal Fire Training Board would be established to oversee the training function, to evaluate and assess current practices, allocate interagency funds, and emphasize new systems to solve deficiencies in attaining the overall vision.

This national board – perhaps entitled the “Federal Fire Training Management Board” would consist of the National Training Officers from the USDA Forest Service and the Department of Interior Bureaus. Based on needs assessments conducted by the Geographic Areas, the Board will designate and support national training efforts to meet common agency needs. The Geographic Area Training Representatives will address local training needs.

This Board would:

- Redefine the role of National training components including NARTC, NJAC, FUTA, PFTC, etc. to allow for improved delivery and more rapid course development and modification. The NWCG Development Group would remain under the NWCG IOS working Team. Participation of the National Fire Training Directors on the Training Working Team provides continuity with NWCG curriculum.
- Establish a common system of determining fire and career training needs based on common competencies. Federal agencies are moving toward establishment of common competencies that will serve as a basis to determine common training needs.
- Establish standards for instruction and drive the centralization of nomination, registration, and course schedule dissemination.

The Board’s most important role is to solidify funding for training and sustain the strengths of the various regional training centers and academies to their best advantage.

If the coordination of training is achieved, certain aspects of the curriculum may be targeted to specialized centers. While many aspects of training are intended to be general so that they may

be taught anywhere around the country, certain aspects of advanced skills may be more efficiently taught only at certain centers so that so that excellence in that aspect of training is the focus of those centers. Some training, for example high-level simulation training may require sophisticated and expensive hardware or special expertise that could not easily be duplicated in many locations. This system is currently used with training centers such as NARTC, which is the only location to host some of the high-level national courses.

## **Future Strategy and Recommendations**

Strategies in training coordination and management include the following key steps spelled out in the recommendations below:

### **1. Creating a new Federal Fire Training Management Board and establishing continuity in budget funding for training**

Working for the Federal Fire Agency Leadership Council (FFALC), the Federal Fire Training Board would consist of the national training officers or training center directors from the Forest Service, Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and the Fish and Wildlife Service. The Federal Fire Training Board will monitor training needs assessments and designate and monitor federal training investments to meet common agency needs in both fire program management, related incident management and fire program support areas. The Board would play a standard setting role in helping geographic areas strengthen their training programs and development efforts.

### **2. Managing Training Demand (nomination, registration, needs assessment, instructor certification, schedule dissemination) from a central perspective**

Create uniform on-line nomination and registration process for all training programs (i.e. one central on-line training registration process).

Manage the national training database on educational and training accomplishments and course certifications.

Conduct regular federal training needs assessments in fire program management for course curriculum development planning, course scheduling, and training investment decisions.

Create a central process for registering and certifying instructors. The very best instructors should also be made available to support classes using technologies such as Tel-Net or other distance-learning platforms to increase the number of students they contact.

Create incentives, pay or otherwise, for subject matter experts and certified instructors so they continue to participate in training activities. Likewise, create incentives for home unit managers to allow employees to continue participation as instructors.

Facilitate the scheduling of courses locally among the geographic areas so that optimal scheduling and reciprocity among regions is promoted.

### **3. Setting Standards for Regional and Geographic Training Supply**

Set standards for establishing new classes, curriculum changes, and training innovations to include providing seed money to encourage new training local innovation technology transfer initiatives.

Set standards for academies and training centers to ensure that they represent “learning centers of excellence” and not just convenience.

Set standards for course equivalencies so that universities, institutes, contractors, and non-federal partners can offer courses or training that meets employee development needs and are of commensurate quality. This can be extended to establishing partnerships with universities for academic accreditation for agency provided training.

#### **(D) Continuing to promote interagency cooperation as the structural basis for all training programs.**

Helping Geographic Area Training centers and Academies, Learning Centers and Labs to be seen as Interagency Shared Resources for incident management and fire program management

Geographic Area Training centers and Academies, Learning Centers and Labs will be seen as interagency shared resources for incident management and fire program management. There will always be a need for coordination between and within Geographic Areas.

### **Strategy III- Curriculum definition and innovation.**

#### **Future Directions**

The proposed new employee development curriculum has many elements in common with the curriculum established at a typical university. While there will be differences between some aspects of the Fire Management curriculum and a university curriculum, the comparisons of the similarities are a useful starting point in describing the desirable future state.

This topic needs to address both definitions of curriculum-- both the issues of the total sum of courses offered in the field of fire management and the fixed sequence of training necessary to have the ability to perform in one of the identified fire management positions. The curriculum is linked into clearly defined career paths and competencies in fire management. This step assumes that the first step in developing a comprehensive Fire Management training curriculum is that the various positions that will comprise the Fire Management program are identified, competencies established for each position, and career pathways mapped out as addressed in core issue #1. It is essential that the competencies be mapped out first so that a curriculum can be developed that trains employees to meet the competencies.

The curriculum to be developed will be a comprehensive employee development program that addresses not only fire management topics such as suppression skills but also the skills and knowledge necessary to develop employees for all aspects of their jobs. For example, courses such as Leadership, Management and Supervision, Human Factors, Budget and Administration, Business Management, Mentoring, Writing Skills, Human Relations, Environmental Compliance, and so forth are not emphasized in the existing curriculums but are essential skills that our fire management leadership positions must obtain to be successful.

Each position mapped out in the career paths will have a set of courses identified to teach the skills needed to perform the job. The analogy to the university curriculum system is very useful here - a university course catalog contains a listing of courses necessary to obtain a degree or a major. Typically, a set of required core courses or alternatives is outlined in one college along with optional (elective) courses that serve to broaden the student's knowledge. In order to obtain the degree, a student must successfully complete all the required courses along with the required number of elective course hours.

The proposed curriculum will identify which courses are required, which are optional (electives), and any other requirements to meet the competency for the position desired. If board certification or similar programs are adopted as part of this program, the curriculum will identify the combinations of courses that will meet certification requirements when successfully completed and when these certifications must be taken. A variety of elective courses will be included in the career pathways and curriculum to offer alternatives in employee development. By having a variety of alternatives available the system will allow the maximum flexibility in course scheduling and also to give an employee the ability to pursue those courses most relevant to their career path and their career ambitions.

Courses and modules are targeted to different levels when necessary. Not all career paths in fire management will require a course of study similar to a "four year degree". Some may need only something similar to an "Associate degree" while others may need only some vocation/technical training. All will be incorporated in the new system. With the different levels of career pathways offered, there will be a need to offer courses at different levels within the curriculum. Also, the curriculum includes programs to enhance the development of upper management positions. In some cases these courses may be the equivalent of "graduate school" studies. Screening and/or competition are necessary for the top leadership and management courses.

Curriculum includes not only traditional classroom courses but also a variety of modules that teach knowledge and skills required by the competencies. Wherever possible, the curriculum will be designed so that training may be obtained on an as-needed basis through an alternative method such as distance delivery. These will be described in more detail in the section on new technologies. An employee will have the ability to take the next course or module when they are ready for it and will not have to wait until the next time it is offered. These types of formats are already being pursued by the Aviation area, which has recognized the opportunities for accelerating delivery and reducing travel through self-paced modular training units.

The proposed new curriculum will include not only courses but experiential training, for example, field assignments or details to gain hands-on experience, similar to field sessions or labs required for university courses. In addition, task books for skills outside of the suppression and prescribed fire positions could be developed to address things like leadership and management skills.

### **Curriculum Oversight and Innovation**

Oversight of the curriculum is done by an interdisciplinary group that looks at overall training needs. A key issue in the development of a new curriculum is the question of who is responsible for developing and coordinating the curriculum. Oversight of the curriculum is one area where the analogy to a university may not be the best model to follow.

One alternative would be to have a structure similar to a university with the Training Working Team or similar group providing general oversight and direction (equivalent to a Board of Regents), a newly created “Training Czar” position (filling the role of a university president), and a lead subject matter expert or other position established to oversee the development and delivery of training in each of the specialty areas (equivalent to a Dean of each college in a university). Under this system, the deans of each college would be in charge of the curriculum in their area of specialty. The president of the college would attempt to unify the curriculum of the whole university by having the deans work together to coordinate their individual specialty curriculums. Under this type of system, each college or specialty area may have the tendency to guard their area, that is, to view their courses as more important than other areas, put extra requirements on students in their areas, or not accept equivalent courses from other areas. This type of system can be resistant to change since the people who developed and promoted the courses in the curriculum often wind up in charge of them and have a vested interest in seeing the status quo continued. Individuals in any of the key positions can exert an undo influence on the development and review of the curriculum.

Another approach to coordinating the curriculum is to have an interdisciplinary group charged with the development and review of the overall curriculum. This approach provides a holistic look at the cross-disciplinary programs and prevents the leaders of the specialty areas from resisting change when it is needed. Such a group would look at the skills needed for each of the career paths and assign the training needs to the subject matter experts in each of the specialty areas. Under this system, the subject matter experts would have input into training needed to safely and effectively do the job. However, since they do not have the final approval, it will help prevent them from becoming entrenched in their program. The interdisciplinary group approach to curriculum development would also dilute the effect of personalities in the training program

It is proposed that a coordinated training curriculum will make the rigid and ponderous schedule for course development and review more flexible. The current cycle for suppression course development and review is too rigid to be extended to a comprehensive training and development system. Improvements in training coordination, with more authority given to the Training Board to determine which courses need to be reviewed and how often will enable new findings incorporated into courses quickly based on new information. It may be necessary to have steering groups for major courses or groups of courses to help provide oversight to the relevance

of the courses and incorporate lessons learned. Contracts will be used to fill in knowledge gaps quickly.

Certain fields or positions where the most current knowledge is necessary may require refresher courses as part of the curriculum. The need for continually updated knowledge through continuing education requirements is a well-established strategy in many professions.

### **Ensuring curriculums are clearly displayed and accessible**

The new curriculum proposes to follow the example of some of the most progressive companies in creating a training portal that will include not only the curriculum but will be the primary link to nearly all other training information. At this portal, an employee will be able to learn about careers, pathways to the career positions, training and experience required for each position, specific courses and modules, links to self-paced training, course schedules, and registration, and track their progress in relation to their goals.

Such a system sounds complicated, however, private industry has already developed the software necessary to build such systems and have proposed that a comprehensive training portal can be built for the federal government with off-the-shelf components for a relatively modest investment. Improving the coordination of training (as described in the Training Coordination Issue) will be required to develop a comprehensive training portal.

A comprehensive training portal would offer a number of advantages. Any employee could easily look at a brief description of jobs they are interested in and figure out which courses are needed to accomplish their career goals, the prerequisites, optional courses suited for a particular position, when and how the course is offered, and what approvals are necessary. Managers would be better able to understand career pathways, which would allow them to counsel and mentor employees, build individual development plans, and groom employees to fill upper-level management positions in the future.

### **Engaging Institutions of higher education in partnerships with the fire community**

Educational institutions should be engaged as partners to play a key role in the development, delivery, and accreditation of training in the future. A variety of models for cooperation with educational institutions currently exist, each of which may be suited to a different situation. In some cases the partnership consists of an educational institution offering credits for training that is completely coordinated and taught by government fire personnel. In other cases, educational institutions develop, coordinate, instruct, and offer credit for their fire management training programs. As fire management career pathways are mapped out and curriculums established, educational institutions would be expected to play an even larger role in development, delivery, and accreditation of training. The establishment of standards and certifications for courses will allow educational institutions to take on the delivery of training to a greater degree than they are doing presently in order to tap the market of current and potential fire management personnel who will need this type of training. As the overall coordination of training is improved, it will be easier for the federal agencies to establish contracts or agreements with educational institutions to develop new training courses to meet all agencies needs.

Existing federal agency training programs, courses, and training centers such as the USDA Graduate School, the Fish and Wildlife Service National Conservation Training Center, or Bureau of Land Management's Phoenix Training Center will continue to be utilized to meet non-fire training needs for employee development. The new training curriculum would not try to compete with these types of training centers but would identify which of their programs should be a part of the career development needs of our employees as part of the fire management curriculum. Equivalent courses will be identified to maximize opportunities for students to meet the requirements. It will probably be necessary to develop even closer ties to these centers in order to send larger numbers of fire management personnel to training sessions, develop new courses to meet employee development needs, and use their expertise to deliver some courses. Embracing these training centers as partners is likely to enhance acceptance of the fire management career development program by non-fire management personnel; some agencies have made substantial investment in their training centers and would not view a competing system of management training favorably.

The curriculum that will be developed focuses on common missions and goals of the fire management agencies. Where knowledge and skills common to all agencies are needed, similar agency-specific courses will be merged into interagency courses to avoid duplication and confusion. Agency-specific courses will be managed by agencies when truly needed.

### **Strategy and Recommendations**

Strategies in curriculum development and management training include the following key steps spelled out in the recommendations below and shown in the Executive Summary of this document:

- 1. Defining core curricula for incident management and fire program management that follow skill based competency models for these professions. These Curriculums will include training and academic course road maps.**
- 2. Curriculum oversight and assessment is to be accomplished at regular intervals by a chartered group of subject matter experts, professional educators or trainers, and organizational leaders – not by standing committees or course presenters. New processes will be created to sponsor establishment of new courses, major changes to curriculums, and new approaches to learning. The Federal Fire Training Board will oversee this process, but training innovation will be encouraged at all levels.**
- 3. Curriculums will increasingly be “professionalized” to include certification, accreditation, and academic/institute equivalencies. Course equivalents will be accepted across agencies.**

## **Strategy IV- Training Delivery and Technology**

### **Future Directions**

The next generation of wildland firefighters will be well versed, comfortable and expectant of learning through digital platforms as opposed to traditional classroom environments. Information technology can provide continuous access to training materials in a variety of formats and pathways such as internet classrooms, real time data feeds from the fireline and remote sensing platforms, online knowledge management modules, satellite transmission of training sessions, workshops and symposiums. Digital archives of training sessions, equipment demonstrations, workshops, meetings, presentations by subject matter experts, and interviews with firefighters will provide a multi-tasking interface that firefighters can access in a self-paced and accelerated training environment. E-learning will decrease the amount of time it takes to complete training sequences for various positions and qualifications while simultaneously reducing training costs associated with travel budgets and maintenance of large training facilities.

The fire management agencies have failed to utilize the current capabilities of information technology to increase the number of training courses offered, number of students trained, the scope of training content and methods for access to training material. In the near future, logarithmic evolution in the hardware of technology and increasing bandwidth capabilities will create paradigm shifts in the ways information is utilized, received and shared. The fire training community must immediately begin to prepare for the impacts of "third generation" technology on the future of fire management.

Future training strategies must look beyond traditional educational models of students sitting in a formal classroom environment listening to instructors delivering lectures. The best of what we have learned as wildland firefighters is through the observation of other firefighters, taking what we observe and incorporating it into our own actions, becoming what we call experience. Fire training, qualifications and experience are long in development due to the limited access most have to a variety of both wildland fire field and management situations. With digital video and audio, students could observe real time fireline operations, air attack, dozer line construction, structural protection, burnout operations, prescribed burns, ICS planning meetings, and MAC groups. These images can be received from various platforms ranging from a crew boss helmet camera to a remote satellite image of plume dominated fire behavior. New technologies, including hand held devices, could potentially provide interactive pathways for trainees to ask questions in real time of various elements and phenomenon being observed without interfering with the environment (i.e. remote commentators or instructors).

Technology can be used to accelerate the student's experience base. This can be done via simulations and scenarios that require students to make real time decisions and demonstrate the ramifications of those decisions. In fact, current examples of scenario based training are classes such as S-420 Command and General Staff, S-520 Advanced Incident Management, and S-620 Area Command. Modeling the fire environment with integrated three-dimensional digital terrain, fire spread algorithms, values at risk, tactical resources and interactive control by a student is within the realm of current technology.

Likewise, technology can be used to improve the performance of fire managers in their day-to-day responsibilities outside of the operational arena. Software is available which requires the student to make financial and managerial decisions. The adaptation of this type of technology would provide fire management officers, fire program assistants, fire ecologists, and crew leaders among others, the opportunity to deal with various supervisory and managerial problems in an accelerated manner. This would provide these employees with an experience base on which to draw in real life situations.

Instructors are crucial to the effective delivery of fire management training whether it is an operational class or a business management course. A certification process for instructors would ensure that those individuals that provide training are not only competent in the subject matter but have prerequisite skills in training delivery. Use of contract instructors in certain situations may be beneficial to the student, however these instructors should meet certification requirements.

In a professional organization such as the one encompassed by the fire community, it is critical to provide only the best, most challenging training available. Training should prove to be more difficult than most real life situations faced by our employees. Therefore only the highest quality instructor should be delivering critical information. Students should be screened effectively. There must be a new realization that not all students will be able pass every course they attend.

The movement to more computer-based training must be accomplished with care in order to ensure students are gaining the knowledge and experience required. Technological advances should be adapted into the training regimen quickly. Delays in implementing technological advances will mean that training opportunities will be lost as that technology rapidly becomes out of date. Quick turn around in the development and implementation of updated technology or course materials should be mandatory and training managers should recognize this and strive for the fastest implementation possible.

Only the individual instructor and the course material to be covered will limit the use of technology in the instruction of classes. In the future teleconferencing, satellite broadcasting, and other means of delivery may become instrumental in the delivery of course materials. The use of technology may assist in the reduction of travel costs induced by training attendance and allow students a greater flexibility in training participation.

The federal fire agencies are not leaders in the development of technology, nor do they want to be. But, they do want to be able to adapt technological advances into training programs quickly, efficiently, and effectively. Enabling all members of the fire community to make better decisions based on experience is a must. The use of advanced technologies in the form of simulations, satellite broadcasts to a broad audience, and instructor aids is an important and urgently needed step.

## **Future Strategy and Recommendations:**

Strategies in training delivery and technologies include the following key steps spelled out in the recommendations below:

### **1. Using technology to impact the quality of training and increase the challenge presented in realistic learning opportunities for the workforce.**

Training should be refocused and reframed so that courses and learning exercises are more realistic (i.e. keyed to actual work life situations) and wherever possible - more difficult than work situations.

### **2. Applying New Technology Platforms (i.e. E-Learning, Distance Learning) To substantially impact the reach, the breath while concurrently reducing the cost of training interventions.**

Increase the number of learning opportunities in both fire program management and related incident management as measured by both the number of classes and number of students.

Increase the Scope and Content of what is offered in courses to include more pre-work, more problem-solving and peer interaction, and more subject coverage.

Faster turnaround on course development cycles by using a Rapid Prototyping process that assumes new e-courses and blended classroom training upgrades will be completed in weeks not months or years.

### **3. Establishing wider practice and experience in training formats using Simulation by creating a simulation strategy as an integral part of incident management and fire program management learning**

### **4. Prioritizing technology investments in training and learning by focusing on the learning path of new generation workers.**

The key courses and training needs of new hires since 2000 will be plotted for and serve as the main targets for new technology platforms. A significant percentage of training technology investments (70%) would be ear-marked to develop e-learning platforms for these courses either by the agencies or through partnerships or strategic alliances with existing institutions. These courses, as they are developed and upgraded, will have open access for other “students” and “instructors” to serve as innovation benchmarks.

## **Strategy V - Learning Evaluation**

### **Future Directions**

In order to continually refresh and adapt a training program in the future, agencies must move past the traditional ways they have addressed course evaluations in the past. The federal fire agencies change courses based on either individual course or lesson critiques that only address customer satisfaction on the material presented and may have little relevance to field application. The federal agencies like private industry have long tried to evaluate training programs from a “return on investment” approach or an “improvement of organizational performance” approach, and neither approach has been successful because of the many variables outside of training that also directly affect the results.

Rather than creating a new system of reports and forms that have never proven to be successful and accurate evaluation tools, the future strategy should incorporate new approaches for evaluating the training investment and measuring the training result. The training investment must be evaluated to ensure that funds are being applied to the areas of highest priority for all of the agencies and not just to certain special interest areas. The greatest portion of the investment needs to fund areas where the greatest good can be achieved. The training result can then be measured in terms of access and content mastery, which will contribute to workforce quality.

Customer satisfaction is still very important to training’s future state, but this is currently being addressed adequately and would only need to be updated to include new technologies for acquiring the information needed. The new strategy would ensure that the Federal Fire Training Management Board would manage training budgets or funds. Training investments would be evaluated according to a standard set of principles for ensuring that agency training priorities are being met.

### **Evaluation Focusing on Improving Workforce Quality**

Training results would be measured in terms of workforce quality rather than organizational performance. This would mean assessing the number of competent and highly skilled employees who are enrolled in quality developmental programs and who will be able to address the future needs of the organization. Two basic metrics would be established:

- ❑ Training reach would be measured in terms of the ability of the program to instruct the greatest number of people in the shortest amount of time, incorporate existing “non-fire” training programs, and continually refresh the learning of the trained workforce.
- ❑ Content mastery would be evaluated in terms of building a skills base within the workforce at various levels. Metrics would be established in regards to effective testing mechanisms, degrees or certifications earned, and numbers of skilled employees at various levels in the workforce.

Once the evaluation factors (training investments, training results, training reach and content mastery) are identified and metrics established, then the Federal Fire Management Training Board would be in a position to adequately judge results and make appropriate improvements to coordination efforts, curriculum development, delivery methods, new technology applications and evaluation standards. Concentrating on the establishment of centralized databases would provide easy access to information needed to complete the evaluations for each factor. The board would be able to quickly access the results of the training program at any interval desired. The information could then be provided to agency heads for determining future states of the workforce and the ability of the agency to meet the demands placed upon them.

## **Future Strategy and Recommendations**

Strategies in learning and training evaluation include the following key steps spelled out in the recommendations below:

### **1. Assuring there is continuity in the interagency training investment – either by dedicating a percentage of operating budgets by a formula or linked to numbers of employees by category (per core issue 2).**

Dedicating a percentage of operating budgets by a formula, or linking to numbers of employees by category the agencies can ensure that training and development spending is not “skipped over” in lean budget years, or improperly maintained. Training investments will be managed by the Federal Fire Training Board to ensure that the budget tracks actual training and educational costs and that these investments are diversified, i.e. they have both their fire program management and related incident management segments.

### **2. Developing Metrics for Training Results focusing on “workforce quality” i.e. the number of competent, properly trained workforce in place. Two Core Evaluation Criteria would be: Access to Training and Content Mastery.**

This requires that an appropriate number of competent and properly trained employees be in place. This will involve two core evaluation criteria as follows:

- (1) Assessing Access (Training Reach)—metrics involving:
  - How many people receive effective refresher and subject updates?
  - How much training bridges fire and non-fire communities?
  - How many people access and complete necessary courses each year?

*This metric must be related to training needs; it is not simply a sum of all education efforts in the fire management and related incident management arenas.*

- (2) Content Mastery (Building the Skills Base) – metrics involving:
  - How many courses have effective testing for content mastery?
  - How many students pass, fail or fail to complete these courses?
  - How many certificates, degrees, etc. are earned?

*This metric must be related to some form of quality standard in testing in terms of content learning, so it is not subject to grade inflation or passing rate adjustments.*

## **IV Plateaus and Action Items**

The concept of “plateaus” refers to a method of establishing goals to be obtained at various time periods over the life span of the accepted strategy. Upon acceptance of the five strategic areas by the five federal wildland fire agencies, “plateaus” will be established by this task group in each of the strategic areas as written or as modified by the agencies that address the logical sequence of actions that will need to be taken over the course of time to achieve the overall federal fire training strategy and create a training program. Tasking and completion of actions will be coordinated and managed by the newly established Federal Fire Training Board as the coordination organization.

The task group for the first plateau (9 to 12 months) recommends the following action items for each strategy:

### **Strategy I**

- (1) Create Career-Quest, an interactive website for realistic career mapping, providing career steps, training, and “KSA” advice from current position to a target position.

### **Strategy II**

- (1) Constitute a Federal Fire Training Board for the coordination of training and the establishment of groups to complete the action items identified in the strategy.
- (2) Formalize an instructor certification process.
- (3) Improve Training Needs Analysis and Coordination.
- (4) Provide a “National” registration of courses and online nomination process.

### **Strategy III**

- (1) Develop curriculum maps tied to agency job needs.
- (2) Commission an external curriculum review group to review and revise multiple fire management courses to integrate new subjects, training methodologies, and learning assessment.

### **Strategy IV**

- (1) Prioritize technology investments in training and learning by focusing on the learning path of new generation workers.

## **Strategy V**

- (1) Create a community fire management training budget for FY-03
- (2) Track the number of course offerings, subject hours, and number of participants
- (3) Establish an examination standard for courses offered by academies, NIFC, NARTC and other Training Centers.
- (4) Publish an annual report on baseline metrics, such as pass/fail rates, costs, etc.

# Appendices

# Appendix A

## Comments Review

The Task Group wishes to acknowledge the comments and suggestions submitted by numerous organizations and individuals during the comment period. Over 20 individuals sent specific comments along with several regions and training groups who provided group summary comments. All totaled, the Task Group reviewed more than 45 pages of comments and several edited reviews of the entire draft report.

Many of the comments asked for major revisions of the graphics, which has been done in this version of the report. Likewise, the report has been completely reviewed for clarity, style consistency and final editing for publication. The comments that resulted in the Task Group making changes to the recommendations and text are listed in this appendix, first with a quotation from the commentator followed by the Task Group's response.

Other substantive comments are dealt with in the preface by reinforcing both what the intent of this strategy document is (and is not) and what the domains of the task group's charter encompassed, i.e. the relationship to NWCG curriculum, federal versus state involvement, fire management versus incident management.

The Task Group would like to express its appreciation to all those who commented, formally and informally.

### *Substantive Comments*

#### (1) Dual Career Paths on the Career Ladder Map?

“Right now a person has to climb two career ladders- fuels and fire. There should be more credit for fuels qualifications to cross over into fire quals-i.e a type two burn boss should be equivalent to Division Sup. Also a squad boss should be equivalent to ICT5, not a separate path”

Response:

We redrew the career map for ease of understanding, but it is not within our scope to develop the crossovers between prescribed fire and suppression. This is an important issue however, and we recommend the appropriate working team or program managers address this issue.

#### (2) Career Quest – Creating a Web-based Career Map?

“We should have a web-based career map -...where an employee could go on the FireCareerQuest website and look at a position –it would show how to get to this position from an entry level and also where this position might lead.”-

Response:

Reference the new career path graphic. In the Executive Summary the development and use of software, which allows employees to map out a career path, is recommended.

### (3) More Emphasis on Task Books and OJT?

“The next issue I would pose to you - which may be outside the scope of your task force is the use of task books. Currently, I see these task books being issued and signed off at the whim of management. Some people track right through the system without a second glance (maybe one assignment) while other people have put artificial time limits /assignments (minimum of three assignments) set upon them. I think their needs to be some standardizing of this system which tracks right with training.”

“The most important thing that I believe your draft report did not hit on strong enough was OJT and task books. I don’t care if a person learns how to be a facility unit leader from a book, or a time recorder, or from a cbt (computer based training). But, you cannot teach a division group supervisor how to do that job in a classroom, cbt, or simulation. It needs to be done in the field under quality assignments. You might be able to complete some refreshers in a simulator but all of the operational positions require time on the line.”

Response:

We Concur, we’ve added a sentence to Strategy IV’s issue statement saying, “A curriculum in parallel means that current and future programs using On-the-job training and demonstrated performance based skills (Position Task Book system) will be continued.”

### (4) OJT and Technology Limitations?

“Use of new technologies in training (web-based, self teach, simulators, etc.) Can be a positive step in the right direction; however, we must never lose site that OJT is the most valuable when it comes to training. Anything less and we will and/or can expect accidents, lives lost, etc.”.

Response:

We concur again, we hope the sentence added to Strategy IV reinforces this.

### (5) Demarcation between NWCG and NBTO?

“It’s hard to understand “where NWCG responsibilities end and where the FFALC/National Board of Training Officers responsibilities begin. ... Who is responsible for what and how will

this be clearly delineated so that everyone understands from the firefighter in the field to the agency director”

Response:

This version adds the following in the preface with Figure 1, Fire Management Training and Development Program Relationships; “The task group added a chart created by the NWCG Training Working Team illustrating the overlap between the NWCG responsibilities and those belonging to the Federal and State wildland fire agencies. Recognition of this concept by all agencies provides the NWCG freedom to address qualifications needs. The Federal and State agencies are then free to pursue job related knowledge, skills, and abilities specific to the agency workplace. Preface also addresses Federal employee development and the areas of overlap with NWCG that are applicable to Federal employee development.”

#### (6) Impact of the New IQCS data system?

“I would suggest that we look at other efforts within portions of our organization which will supply some of the tools we seek. The proposed Interagency Qualifications System (IQCS) is already working toward some of the goals identified in the “Strategy.” I’m aware of a few other goals identified that are currently being pursued.”

“A national training database is mentioned. It appears when implemented, the IQCS will provide this database. Is this proposal redundant with what’s being proposed under IQCS, in which government is already heavily investing”

Response:

We concur, this version adds to Strategy V at the end of the first paragraph:

“The proposed Incident Qualification and Certification System (IQCS) promises to offer the answer to a national database allowing the collection and evaluation of training and workforce development. The Strategy fully supports the development of such a system.”

#### (7) Clarifying Structure in Figure 2 – What’s national -- what’s local?

“GATRS report to the National Training Officers. These folks (regional training centers) currently work for the GACG via a training committee. We believe the customer is best served by maintaining the GACC oversight of the regional training centers and not by having a national level group provide that oversight.”

Response:

The figure has been reworked for clarity as a network diagram—and we have added the following sentence just before Figure 3; “There will always be a need for coordination between and within Geographic Areas.”

(8) E-learning is not the only way.

“Numerous concerns about relying exclusively on e-learning and Internet based access to training. We need to ensure there is some measure of parallel pathways to get training and that the strategy not lose sight of the fact that there remains a digital divide within the wildland fire community”

Response:

We concur, a statement was added after Strategy IV, Issue statement, 1<sup>st</sup> paragraph.  
“While some units will not have access to the most up to date technology it is recognized that other units will have emerging technologies. Therefore it is recommended that e-learning should not exclude classroom training nor be a substitute for experience and proven performance on the job.” If e-learning becomes the norm, the strategy likewise advocates providing the broadest access possible.

(9) Is e-mentoring proven?

Question-“What evidence is there to support the proposal that on-line mentoring will be effective?”

Response:

The Task Group maintains that initially an online mentoring system is an add-on feature, it would also be monitored for the number of hits on the site by both mentees and mentors, the program could be reinforced or abandoned after the first year based on its success.

(10) Likewise- is e-learning valid?

Question- “are we sure that e-learning is a validatable and proven training methodology?”

Response:

There is still debate within the academic community about the potential validity of e-learning. However, the vast preponderance of the literature and corporate experience suggests that e-learning will be the industry standard within 3 years. Given the potential, the strategy’s recommended approach to focus E-learning investments on new generational employees primarily (where receptivity is presumed to be highest) and a robust strategy for learning evaluation should be sufficient to validate potential. In the interim, there is also a federal executive order mandating maximum feasible conversion to virtual training.

(11) On core curriculums - what are the differences?

Question- “what’s the demarcation between professional & program management- are the four divisions arbitrary or???”

Response:

The curriculum maps have been modified to show the general differences intended and to focus on those differences. The intent of the strategy is not to focus on these four curriculums, since they are hypothetical, what is essential is to have curriculum maps that detail courses within fields of study and show progressive levels of learning.

### (12) Difference between leadership & management?

“The 1st strategy is called "Career & Leadership Development". The Document is named "Training for the Next Generation of Federal Fire Managers". We interchange these terms, when they are not even close to being the same. If you base the training curriculum on developing managers, you get this (Webster’s):

To Manage: To make & keep submissive  
To alter by manipulation  
The training of a horse  
To succeed in accomplishing  
Contrive

If you base it on developing leaders, you will get this:

To Lead: To direct a course of action  
Position at the front  
To guide on a way, especially by going in advance  
To bring to some conclusion or condition

I heartily believe we must develop leaders. I believe we should start the new strategy plan in one direction, not two. I recommend to remove the word management from this document, and instill leadership. They are not the same.”

Response:

We concur, but note that it is not the function of training to decide such boundaries. We have added under Strategy I, Issue at the end of the first paragraph: “The strategy recognizes the difference between leadership and management and supports the development of both within the appropriate roles. Our challenge is to ensure an adequate pool of qualified candidates able to fill both types of positions.”

### (13) Potential Impact on Enhancing Diversity?

Need to ....”Also to ensure that CR is integrated into the other topics, e.g. supervision, public affairs, procurement. Concerns that there are issues related to women, minorities and people with disabilities in how the training is delivered.”

“Does the strategy help, deter, or remain neutral with improved diversity – does it attract diversity?”

Response:

Again, we concur, a robust workforce development strategy should enhance an organization's commitment to diversity. To reinforce this point, we have added to Strategy I, A at the end of the first paragraph; "The Training Strategy can be utilized as a recruitment tool and career maps emphasizing the effective use of target groups, i.e. people with disabilities, would be created to promote diversity within the workforce."

(14) Potential Impact of new 401 Series?

"The lack of a 401 series below the GS-13 level has been a long term frustration for FS employees, in particular for Fire Management. The WO-FAM has been in serious discussions with OPM over this issue and is strongly supportive of establishing the 401 series. Do we have a status on the workgroup that was dealing with OPM and the 401 issue?"

Response:

The Supplemental Standards to the GS-401 series are currently still with the Office of Personnel Management. The federal agencies anticipate the approval of the Supplemental Standards and this version fully supports the adoption of the 401 series.

(15) Is the proposed Board of National Training Officers adding More Bureaucracy?

"Our regional based training partners best understand what our needs are and make them happen. A national level governing body will only add another level of bureaucracy to fire training. FSH 5109.17 states that fire training from levels 100 to 400 is district, forest, and regional responsibilities. We believe they should be left that way. "

Response:

In Strategy II, B (4) the strategy addresses the Federal Fire Training Board. In this same paragraph training investments to meet common agency needs are discussed. The Board members are currently in place as national training officers, however the Board as conceived would be empowered to move funds across agency boundaries to meet common needs. The linkage to continuity in training budget is a key factor, another layer could be a burden if they were simply a regulatory body. However if they monitor and ensure continuity in funding, they would add a higher perspective, to be able to recognize national needs and disseminate best practices that no region could provide.

(16) What's the Role of New Academies?

We are in the process of "...Developing "position competency" academies to better develop and prepare fire employees for benchmark positions in FAM. A series of four academies are being developed, all of which will share and build upon curriculum areas. The curriculum areas include:

Management, leadership, supervision  
Incident management

Fuels Management, Fire Ecology  
Writing, public speaking, computer, budgeting, math

This approach will better prepare our Fire and Aviation Management workforce for success, will accelerate the training process, is cost effective and will reduce the duplication in training, cadres and course materials”

Response:

The strategy recognizes the importance of regional innovation. We have added to Strategy III, “The report further encourages innovation in the establishment of academies and training entities to improve delivery of approved curriculum. These training institutions will help ensure the capabilities of graduates. The report assumes that innovation will occur locally, however it recommends approval of emerging academies by the Federal Fire Training Board. This will ensure that best practices are shared nationally.

#### (17) Concerns about Developing Instructors?

“The big issue will be instructors. In the “real” world teachers have years of formalized training, as well as experience as a student teacher. We put instructors in front of classes with NO instructor training, which is unfair to the student as well as the instructor. I would have to say that the percentage of good instructors I have observed in my classes is well under 50%.”

“To teach this curriculum, instructor courses have been created. And to evaluate the competence level of those in the field that have done the curriculum work, evaluators have been trained to review and critique completed work. It's a long, comprehensive process that I can't justly describe in an email. The point being, there's a model out there that would be worth exploring.”

Response:

The instructor issue is critical, we have reworded Strategy II, B (4) a as follows:  
The strategy recommends that we .... “Create a central process for registering and certifying instructors. The very best instructors should also be made available to support classes using technologies such as Tel-Net or other distance learning platforms to increase the number of students they contact.”

Also we have added to Strategy II, a statement advocating as follows that we:  
“Create incentives, pay or otherwise, for subject matter experts and certified instructors so that they continue to participate in training activities. Likewise, create incentives for home unit managers to allow employees to continue participation as instructors.”

#### (18) Role of Training Officers in Resource Management?

“Having a training officer that concentrated on developing a personal development plan, recommending courses to fill voids and overall being a career counselor would help the employee. “

Response:

We note, with great interest, that a number of high tech and defense industry firms have identified this issue as a major problem. At a recent Brookings Innovative Practices seminar, one firm indicated that they had created a system establishing training and coaching personnel as “resource manager” personnel who are assigned 50 employees to assist and advise on personnel development and career issues. The sole reason for this is the lack of time that program managers and supervisors have to advise employees on personnel matters.

(19) The potential role of contractors?

Question- “if our workforce were to include significant numbers of contractors in the future- how does the training strategy address this?”

Response:

This may well be a major area of future interest. For now, we simply note that contractors being utilized as instructors for agency personnel must meet the standards of the appropriate audience. Secondly, contractors being utilized in an operational capacity should meet the appropriate standards as outlined by the agency or NWCG.

(20) Including All Risk Training in the Strategy?

“Consider some discussion on All Risk Training in your final report. As we know, like it or not, the events of Sept. 11 reinforce the need for this type of training”

Response:

All Risk management is an area in which there is a recognized need for development of training, qualification standards and certification standards. This strategy addresses many issues, which could be relevant to All Risk Management, however this is an issue that is currently beyond the purview of this version of the training strategy.

***Individual Comments***

Doug Alexander	Wildland Fire Specialist, Midwest Region, NPS
Dewey L. Arnold	AFMO, Stevensville Ranger District, USFS
Jim Barnett	Training Officer, Great Basin Region, USFS
Renie Beams	Training Officer, Pacific Northwest Region, USFS
Kole Berriocha	AFMO, Boise NF, USFS
Fred Bird	FMO, Midwest Region, NPS
Beth Card,	FMO, North Dakota National Parks, NPS
Bob Cunningham	Northern Training Center Manager, USFS
Roberta D’Amico	Communications/Education Specialist, NIFC, NPS

Ed Daniels	Oregon Department of Forestry
Charlie Denton	ERI, Northern Arizona University
Guanda Fitch	Civil Rights Training Officer WO, USFS
Doug Gantt	Engine Captain, Point Reyes Natl. Seashore, NPS
Kathleen Harter	Information, Education, & Prevention, Midwest Region, NPS
Richard Hafenfeld	Salmon Challis NF, USFS
Shaun Larson	Black Hills Fire Use Module Leader, Jewell Cave NM, NPS
Jeff Pendleton	FMO, Malheur NF, Oregon, USFS
Chris Revels	Chief Ranger, Kings Mountain National Military Park, NPS
Julie Vogan	Lassen NF, USFS
Nancy Lee Wilson	DAFMO, Willamette National Forest, USFS

### ***Organizational Comments***

#### **BIA**

Rich Schwab (FFTTG Group Member)

#### **Medford District, BLM**

(No name provided)

#### **NPS, Fire Management**

Sue Vap, National Fire Management Officer & Acting Deputy Chief Ranger, NIFC  
Merrie Johnson, National Training Officer, NIFC

#### **Northeast Forest Fire Supervisors**

Eric Jager, Center Manager, GACC, Northeast Area, USFS

#### **BLM Fire Management Training Group**

Jim Glenn, Group Leader  
Larry Sutton, BLM Project Manager Leader  
Deb Epps, NWCG Training Development Unit Leader  
Lamar St. John, NWCG Standards Unit Leader  
Wendell Welch, Distance Learning Specialist  
Bob Kambitsch, Audio/Visual Unit Leader  
Rich Caballero, Great Basin Training Unit Leader

#### **Pacific Southwest Region, USFS**

Greg Power, Director, Wildland Fire Apprenticeship Program

#### **USFS, Fire & Aviation Management**

Tom Harbour, Deputy Director, WO, F & AM

## Appendix B

### Benchmark Summary

This section of the report provides brief overviews of the organizational benchmarks conducted by the Task Group. Benchmarking is hardly a new methodology for the federal fire management community. Many in the federal wildland fire training community regularly visit the military, leading universities and research labs, and top contractors to discuss and assess training innovations. There is an active network within the regions and among the various academies and training bodies to do “qualitative benchmarking”.

The Task Group chose eight public sector agencies and corporations to gauge the pace of change and assess trends and developments. Selection was partly based on corporate connections through Brookings, as the Task Group was able to take advantage of three corporate university presentations given recently at the Brookings Innovative Practices in Business seminar series.

The Benchmarks were:

Internal Revenue Service – Office of Corporate Education  
Naval Aviation System – Navair Career Development Program Office  
University of California San Francisco – Medical School- Library Systems Group  
Microsoft Corporation – Federal Corporate Account Group- Northern California  
Cigna Technology Institute – Cigna Systems Consultant  
Motorola University – Brookings Corporate Briefing  
Grainger Learning Center – W.W. Grainger Corporation  
Sun University – Sun Microsystems

The Task Group would like to acknowledge the generous support and assistance provided by these organizations. The summaries that follow are selective excerpts or innovations that the task group found of particular value in compiling this version of the strategy.

#### ***Internal Revenue Service – Office of Corporate Education***

IRS has structured its corporate strategy for development along two axis. One axis is learning & evaluation, the other is career development & management. The goal for learning and evaluation is discard the current centralized structure, based largely on class room approach to learning, because it is too expensive and fails to leverage technology and external capabilities. The goal for career development is refine career pathing and investments in life-long career development within key occupations. A key part of that goal is their development metric of decreasing the amount of time (now estimated at 5 years) it takes a new IRS employee to reach full performance levels.

IRS has an extensive historical budget base on training costs and estimates that the majority of the training budget is expended on travel (78%). Their commitment to e-learning is major, they plan to move 70% of their training over 3-5 years to an e-learning base. They do not intend to

develop their own training internally, but seek to create strategic alliances with a consortium of accredited academic and corporate universities and colleges. Their preferred model is multiple learning delivery options leaning towards a “blended e-learning solution”. In the process, their future strategy for e-learning calls for:

- Providing access to technology based learning to 100% of the workforce in 2 years
- Realigning training costs to support e-learning
- Building and storing 100% reusable internal training content for retrieval and reuse
- Developing technology enable individualized learning maps

### ***Naval Aviation System – Navair Career Development Program Office***

Navair’s Career Development Program illustrates one leading organizations efforts to reduce dramatically the cycle time for developing employees. Their future environment is highly dynamic, heavily influenced by changing technology and changing employee expectations. They have changed their concept of career development to demonstrate that is not just training, qualifications, or guaranteed promotions. The system is aided greatly by Navair’s pay banding and performance based pay system.

Of particular interest was their conceptualization of the critical elements of development. They have designed and are constantly adjusting how career development entails four major elements

Functional & Technical KSA’s  
Team Skills  
Management KSA’s  
And Leadership KSA’s

They also have elaborate formal mentoring programs and career mapping and IDP on-line templates.

### ***Microsoft Corporation – Federal Corporate Account Group- Northern California***

Microsoft’s approach to training begins with a “B2E”, business to employee foundation tied to their Human Resources Portal. This HR Portal eliminates all paper forms, reduces postal and material costs by 75-90%, and puts the entire workforce on one worldwide, integrated data base. All of the administrative processes for training support as well as benefits, payroll, performance appraisal and feedback, time and attendance are conducted by self-service menus (backed up by protocols and task-driven programming logic, i.e. “I need to....register for a training course”. Training courses on-line are well scoped out

Similarly, online training is not an optional, but the preferred mode for training delivery. Two goals are met, one allowing the workforce universal access (as appropriate, they still have be qualified to take courses at right level and with approval of their supervisor) to live courses,

programmed learning courses, live talk talks and events, past talks or events, and other customized product & management training. The other goal is to have an integrated learning tool that captures intellectual capital. Essentially, training content is an integral part of Microsoft's knowledge archive and knowledge sharing.

Another key benchmark possibility was Microsoft's e-mentoring approach. Not only are new employees given an e-mentor but also they have access to a network of counselors for work and career planning advice. Mentors can take an on-line mentoring counseling with frequently asked questions and updates.

### ***Motorola University – Motorola Corporation***

Motorola University was benchmarked in 1999 by the Advisory Board for the NARTC BPR study. The opportunity to see where Motorola University was 3 years later was of interest. Now in a downsizing mode, Motorola has changed many of its corporate policies on training including the long cited practice of ensuring that every Motorola employee received a minimum of 40 hours of training yearly. In 1999, Motorola was still using class room training extensively to be supplemented with training courses on CD-ROM. Motorola is now focusing on internet-based training solutions and rethinking the use of classrooms.

The innovation of greatest interest was Motorola's new strategy on leadership supply. To ensure the next generation of managers in Motorola, they have identified the top 1000 plus executive positions in the corporation, created position profiles, talent profiles on current and potential organizational leaders, and put the entire system into a talent management data base, called talent web. Part of the leadership effort also calls for rigorous reviews of current executives and 10% reassignment of top executives to ensure that there is room for new talent to move into the executive ranks.

### ***Grainger Learning Center – W.W. Grainger Corporation***

The Grainger Learning Center provided an interesting benchmark for curriculum development in an e-learning context. Grainger is currently aligning its learning solutions to its business objectives. It's conducting a fast track effort to transform most of its training to technology based learning platforms which include a variety of simulations and video-enhanced learning. All of the training programs have extensive content testing and self-assessment on potential applications of content to enhance organizational performance.

Of special interest were the organization of core curriculum, curriculum integration models, and the development of actual course road maps and learning progression sequencing. These curriculum maps are continually reassessed against test scores and pass/fail rates. Their conclusions on e-learning were:

- Gradually replace and revise current curriculum with new curriculum in parallel
- Design to development cycles are greatly compressed
- Multiple technology based learning platforms are critical
- Learning must anticipate and respond in Internet Time

## APPENDIX C

### Geographic Area Training Coordinator (GATR) Comments to Training Survey

□

**The following letter was sent to the Geographic Area Training Coordinators (GATRs) asking specific questions on training coordination. The consolidated responses of the six GATRs responding to the survey are shown following each question in bold. Responses are in italics.**

To: Geographic Area Training Representatives Sept. 17, 2001

Subject: National Fire Training Strategy Task Group  
GATR Survey

At the Fairbanks Meeting of the Geographic Area Training Representatives, I made a presentation concerning a task group that was being formed to address a National Strategy for Fire Training. Since that meeting, the task group has been formed and has been diligently working on the project. A current assessment of core training capabilities and processes is just being completed and work has begun on addressing strategies for the future. Once these strategies are developed, the task group will then be proposing recommendations that are needed to address our organizational investments in the workforce development

As you may remember, the task group is focusing on eight key issues surrounding training. The eight issues that have been identified concern --career tracks, coordination, curriculums, delivery, use of technology, databases, evaluation and assessment, and partnership with other learning institutions. The task group hopes to be finished with this project in late November with a final presentation being made to the National Fire Directors sometime in December or January.

As the project enters into the critical area of “future strategies”, the task group feels that input from the Geographic Area Training Representatives is absolutely vital. There are a number of key issues we would like to get your perspectives and recommendations on. To accomplish this—we’ve developed a survey form and attached it this email to solicit your views.

It would be very valuable for the task group to hear your comments, so that they can be addressed. And if you feel that the survey is inadequate in terms of capturing your ideas and thoughts—please let me know and one of the task group members will call you to do a follow-up interview. We would greatly appreciate if you could complete the survey and return it to me via e-mail (□ [HYPERLINK "mailto:rwands@fs.fed.us"](mailto:rwands@fs.fed.us) □ [rwands@fs.fed.us](mailto:rwands@fs.fed.us) □) prior to our next meeting on October 2<sup>nd</sup>.

Rich Wands, NARTC Director

**GATR National Fire Training Strategy  
Survey Form**

The purpose of this survey is to solicit information and ideas from the Geographic Area Training Representatives for inclusion into the National Training Strategy. The Training Representatives have spent considerable time assembling and assessing the current state of affairs in regards to fire training. Equally important are your insights on what the future of fire training should be.

Please take a few moments and provide us with your comments on the following questions on where fire training should be in the future. [Note- because the survey is being sent to you electronically- please use as much space for comments as you desire.]

---

*1. Do you feel that the scheduling and presentation of courses has been or soon will be a problem for your geographic area?*

**Response:**

*No*     *Yes, Minor Problem*     *Yes, Major Problem*

**Comment:** Due to the fact that we find it takes longer to get the new course materials on the shelf. So we end up trying to get a copy from someone in development and make are own copies for the courses.

*No*     *Yes, Minor Problem*     *Yes, Major Problem*

**Comment:** Lack of established field level training programs to identify training needs, resulting in a reactive, inefficient training program. With the additional staff hired as a result of the National Fire Plan, and no funding requested to meet the need to host additional training courses we will continue to react to training rather than plan for training.

*No*     *Yes, Minor Problem*     *Yes, Major Problem*

**Comment:** Due to NFP hiring the major immediate impact for R5 is in the lower level (100-200) courses. We anticipate that as this workforce matures and develops that the impacts will shift upward proportionately

*No*     *Yes, Minor Problem*     *Yes, Major Problem*

**Comment:** None

*No*     *Yes, Minor Problem*     *Yes, Major Problem*

**Comment: Due to NFP hiring the major immediate impact for R5 is in the lower level (100-200) courses. We anticipate that as this workforce matures and develops that the impacts will shift upward proportionately.**

---

***What do you feel are the key issues or problem areas that need to be addressed in the strategy for the future?***

Response:

*Course rewrites being out more timely.*

*R5 will need to increase the number of course offerings, instructor cadres, and locations for training. We feel that we are in a position to expand without impacting other regions.*

*Scheduling – It appears that scheduling could be based more on a planned need versus perceived need that’s reactive in nature. I question how much effort is spent in analysis of the fire suppression workforce, where the shortfalls are, and how to mitigate these. Scheduling is much bigger than just scheduling itself. How do we get participants in all phases of the fire operations (including Rx fire) rather than just those areas (Operations) that personnel easily migrate to? Scheduling as near as I can tell is based on current personal need, rather than organizational, and is very narrowly focused.*

*Presentation – We utilized our best SME’s to present educational materials. The best SME’s do not make the best presenters of educational material. Communications and continuity of operations are of utmost importance in the nature of the business we expose so many people to annually. Are we doing all that we can to ensure that the message is delivered in a manner that promotes sound communications and continuity of operations?*

---

***2. Do you feel that coordination among the various levels (National, Regional and Local) needs to be improved?***

**Response:**

***\_\_\_ No \_\_\_ X \_\_\_ Yes, Minor Improvement \_\_\_ Yes, Major Improvement***

**Comment: I feel Regionally we have done some great things, as in sharing courses and cadre to help each other out. But we still have some training areas that get left out.**

***\_\_\_ No \_\_\_ Yes, Minor Improvement \_\_\_x\_\_\_ Yes, Major Improvement***

**Comment: The local level training programs have not been established to provide for communication between the field, regional and national programs**

No  Yes, Minor Improvement  Yes, Major Improvement

**Comment:** The existing coordination is adequate, however we feel that there could be improvement.

No  Yes, Minor Improvement  Yes, Major Improvement

***What do you think should be most important means of improving coordination between all the levels?***

Response:

*Establish funding and dedicated staff at the local levels. Dedicated Interagency training staffs will coordinate and manage their local training programs, increasing efficiency and information flow of the Area training needs analysis process. They will participate as members on Geographic Area TWT's and forward issues from their programs to the GATR's and upwards through the National Level.*

*Communications at all levels and geographical areas.*

The busier that the agencies get, the less apparent interagency cooperation seems to work. The national fire plan is a good example where the agencies could not coordinate the hiring of resources in order to meet MEL. Programs that automate our business on an interagency basis are essential to developing sound, coordinated business practices designed to meet current and future needs.

***3. Do you feel the availability of instructors and subject matter specialist is now and will in the future be a growing problem for the training community using the current system of recruitment, selection and use of instructors.***

Response:

No  Yes, Minor Problem  Yes, Major Problem

**Comment:** We as an organization do not have the skills coming up behind us. So it will get harder to find strong instructors and SME

No  Yes, Minor Problem  Yes, Major Problem

**Comment:** We continue to use the same instructor pool and are doubling our course work load. This will result in availability problems and instructor burn out.

*No*     *Yes, Minor Problem*     *Yes, Major Problem*

**Comment:** As the NFP implementation increases (mostly Rx fire) there will be increased competition for individuals, who otherwise were available to serve on cadres. If you couple that with an aging workforce, closing in on retirement, then we need to begin to cultivate new cadres.

*No*     *Yes, Minor Problem*     *Yes, Major Problem*

**Comment:** None

*No*     *Yes, Minor Problem*     *Yes, Major Problem*

**Comment:**

As the NFP implementation increases (mostly Rx fire) there will be increased competition for individuals, who otherwise were available to serve on cadres. If you couple that with an aging workforce, closing in on retirement, then we need to begin to cultivate new cadres.

---

***What options or alternatives would you like to see further explored for providing quality instructors for courses being presented?***

*Response:*

*We need to have instructors training their replacements, people shadowing them and when the time comes handing it off to the new instructor.*

*Dedicate funding and staffing at the local level to build instructor cadres. We may have to develop a National Cadre pool to mentor the new instructors and take on the increased workload in the interim.*

***Buy in and support from the forests to make more individuals available to serve on instructional cadres. Look at requiring individuals to serve on cadres. In R5 we are looking at additional permanent positions that would be exclusive course coordinators, similar to the model currently in place in the Northern Rockies.***

***Look creating more of a professional workforce. Again, using the master performers does not always make the best presenters or SME's. The method in which we use SME's causes duplication of effort and confuses the roles that are being performed. We used SME's as developers, developers as project managers. Roles and preparation and training for individuals in those roles become inadequate in some cases non-existent.***

---

**4. With the implementation of the National Fire Plan and the subsequent hiring of personnel at the entry levels, many are projecting a much higher demand for training and that student selection will be an emerging issue to deal with.**

**A. Do you anticipate higher demand for training in your region over the next 5 years?**

**Response:**

**No**  **Yes, Minor Increase**  **Yes, Major Increase**

**Comment: I do not feel it will be any worse then it is now, we have already trained a lot of the new hire people from when they were temps. Now if we keep seeing an increase interagency wise then it could impact us more.**

**No**  **Yes, Minor Increase**  **Yes, Major Increase**

**Comment: At the 100-200 level courses we saw double the numbers and courses in the past training season. Agency folks moving amongst agencies and the 5109.17 augmentations have increased the workload as well. We anticipate doubling many of the 300-400 level courses in this training season.**

**No**  **Yes, Minor Increase**  **Yes, Major Increase**

**Comment: We anticipate that a permanent facility for the Wildland Firefighter Apprenticeship Program will greatly enable us to train greater numbers of employees in the future.**

**No**  **Yes, Minor Increase**  **Yes, Major Increase**

**Comment: Not sure what the demand increase will be. But do feel that the problems that have been discussed previously will increase due to the impacts of the National Fire Plan.**

**No**  **Yes, Minor Increase**  **Yes, Major Increase**

**Comment: We anticipate that a permanent facility for the Wildland Firefighter Apprenticeship Program will greatly enable us to train greater numbers of employees in the future.**

---

***B. Do you feel the existing systems are adequate for student selection and what future improvements or changes would you recommend?***

Response:

I feel it would work fine, if the home units would really screen the people and truly pick the right students for the course.

Electronic nomination system, tied to the Registrar database and IQS systems in the future. GA databases (registrar) will need to be tied to a National database as well.

National Office support for the WFAP has been excellent. We believe that when we are in the permanent facility and have it staffed as planned, that R5 will be in a position to not only handle our own needs, but also the career entry level needs of the wildland agencies.

No. This is difficult to nail down because there are so many things that are interrelated and need to be. There needs to be a hard look at the way we do business in all areas. We have a collateral workforce in most cases that is not meeting needs or expectations.

---

***5. Would you like the opportunity to comment further or discuss your views with a member of the Task Group via a follow-up phone interview.***

\_\_\_ Yes \_\_\_ No

Response:

*Would you like the opportunity to comment further or discuss your views with a member of the Task Group via a follow-up phone interview.*

\_\_\_ Yes \_\_\_X\_\_\_ No

*Would you like the opportunity to comment further or discuss your views with a member of the Task Group via a follow-up phone interview.*

\_\_\_ Yes \_\_\_x\_\_\_ No

I don't necessarily feel the need for a follow-up interview, but would be willing to clear up any questions you may have on the comments made.

*Would you like the opportunity to comment further or discuss your views with a member of the Task Group via a follow-up phone interview.*

\_\_\_ Yes \_\_\_X\_\_\_ No

---

**Optional Questions:**

***A. Within your geographic area, what do you feel have been your greatest successes and could have national application?***

Response:

R5 has a formal process to get trainees on fire assignments. This has worked well and could have national application. The WFAP was a regional success and is now the primary academic institution for the training of career entry-level wildland firefighters.

Sharing courses with other GEO areas. Lead Instructors mentoring program. The training web pages. Nom due dates being all the same, Nov 1.

Greatest successes would be the Area training web page and the National Training web page.

---

***B. What have you found to be the greatest barrier(s) for fully implementing or expanding training programs?***

Response:

Facilities

Staffing, \$\$\$ and finding qualified Lead instructors.

A lack of communication, education, and recognition that training is a casual if not the primary factor sited in every incident or fatality in our business. Training should be a planned process, but I see a reactive approach to meet the need. The agency augmentations of the 310-1 are also creating a problem within the interagency training community. There seems to be managers that look at training as a privilege and not part of employee development.

Resources. The National Fire Plan was a good illustration of how money is not the answer. We need the resources (people) to get the job completed.

---

***C. What other issues (not mentioned in this survey) do you feel need to be addressed in a National Training Future Strategy?***

Response:

There seems to be a lot of trainings being developed amongst the agency outside of the NWCG curriculum. How do we effectively coordinate, implement and deliver the training. Why are the agencies developing their own trainings? Is it too difficult to work within the NWCG organization???

## APPENDIX D

### BIBLIOGRAPHY

**The following key sources were determined to be the most helpful references that contributed to the formation of the strategy:**

Adams, Bill. 2001, NPS Intake/Intern Programs. Personal Communication, August 2001. This competitive program provides extensive training and experience to selected individuals followed by placement into positions where the training investment can be utilized. This is an established agency program that is beginning to be used by the fire management program.

Alaska Wildfire Coordinating Group. Alaska Interagency Fire Training Committee Charter, July 2001, Interagency. Example of a charter that establishes a body to coordinate fire and all-risk training within a geographic area. Does not address management skills training, needs analyses, relationship with Geographic Area Training Representatives, or inter-geographic area training coordination. Other geographic areas have similar documents.

Brookings Institution. “Where Have All The Firefighters Gone?” Report to the NWCG- on Wildland Fire Fighter Participation Survey – Washington D.C. 2001. Survey administered from summer 2000 to Spring 2001 to sample of 1500 employees in five federal agencies in wildland fire fighting assessing 11 factors that affect willingness of employees to be involved in and volunteer for fire. Survey report concluded that while a significant percentage (30%) of agency employees are involved and passionate about fire, the majority of employees are not so inclined – citing work overload, resource shortage, and compensation and training issues as major barriers for participation.

Federal Fire and Aviation Leadership Council. Interagency Fire Program Management Qualifications Standards and Guide, 2000. This guide is a listing of core competencies that would establish minimum, standard qualification levels for a variety of fire management positions and program complexities. Standards are set for suppression and non-suppression knowledge, skill, and abilities. The document was developed by the wildland fire community and are pending adoption by the Office of Personnel Management (OPM). Core competencies will be an important basis for future fire training and development efforts.

Federal Fire and Aviation Leadership Council. Draft Supplemental Qualification Standard for Fire Management Positions, 2000. These proposed standards will establish standardized alternative pathways for fire management professional positions (GS-401 Series) based on fire management experience and training.

Geographic Area Training Representatives group. Geographic Area Training Representatives Charter, 2001, Interagency. Formalizes the ad hoc group that was formed to provide implementation, coordination, and evaluation of fire management programs for Federal and State agencies at the Geographic Area level as a link with the Training Working Team. Includes representatives from some non-suppression fire management areas, e.g., aviation, Apprentice programs, etc. This document does not outline a vision of overall coordination of fire management training.

Geographic Area Training Representatives group. Inter-Geographic Area Course Rotation Plan, June 2001, Interagency. This document is an attempt to coordinate schedules of upper level courses between Geographic Areas. It doesn't address how training needs are identified or how academies fit into the picture.

McDonald, Lark. Mission-Centered Solutions. Fireline Leadership, *The principles and techniques for building, preparing and leading effective fire crews.* Presentation for the Joint Apprenticeship Academy Curriculum Committee, October 2000. A detailed outline of the Fireline Leadership course and the learning objectives of the course.

National Advanced Training Center (NARTC), USFS – “A Framework for Learning” Business Process Reengineering Study – The Brookings Institution, Washington DC 1999. This six-month study recommended a new structure, complete reorganization of curriculums and major development of in-house training support processes for NARTC. Most of the study was not implemented because of leadership changes and failure to staff internal capability requirements.

National Fire and Aviation Training Support Group. Course Development/Revision Status, May 2001, Interagency. This schedule outlines the schedule on which the S, I, J, and a few RX courses will be revised. This document doesn't evaluate whether the revision cycle is adequate and doesn't address courses outside of this field of focus.

National Fire and Aviation Training Support Group. Organization Chart. This document demonstrates that the group is focused on NWCG curriculum only, not on training related to other aspects of employee development. The role of this group in training coordination is not specified

National Fire Protection Association. NFPA 1051, Standard for Wildland Fire Fighter Professional Qualifications. 1995 Edition. This standard identifies the minimum job performance requirements for wildland fire suppression duties.

National Park Service. NPS Essential Competencies, 2001, [www.nps.gov/training/npsonly/1UC/univcomp.htm](http://www.nps.gov/training/npsonly/1UC/univcomp.htm). These competencies have traditionally been addressed in two courses, Compass I and Compass II. This program is being changed to NPS Fundamentals. New employees learn about the National Park Service, the agency's core values, and the competencies needed to best meet the agency mission.

National Wildfire Coordinating Group. Training Working Team Charter, posted as of 9-17-01, Interagency. The Charter is vague on what its mission of “develop and coordinate fire management training programs” entails. It is not specified whether this means coordination of ALL employee development training, not just fire suppression training. Coordination of training development needs analysis, training delivery, and scheduling is not specified.

National Wildfire Coordinating Group. Training Working Team Notes, May 8-10, 2001. Example of a variety of issues regarding the fire training needs of just the federal agencies, problems with database tracking, the difficulties of coordinating upper level courses among geographic areas, and new technologies.

National Wildfire Coordinating Group. Wildland and Prescribed Fire Qualification System Guide PMS 310-1, January 2000, Interagency. The “310-1” provides the standards for the performance based qualification system currently in use by the members of the NWCG. The flow charts for qualifications progression are useful maps but are limited to suppression and prescribed fire qualifications only.

Prescribed Fire Training Center (PFTC), Interagency. National Interagency Prescribed Fire Training Center Annual Report, July 2001. A summary of the PFTC’s 2001 program including accomplishments, participants, and hosts.

Putnam, Ted. Wildland Firefighter Human Factors Workshop: Findings, July 1996. United States Forest Service. Human Factors issues such as decision-making and crew resource management are presented in article format from speakers acknowledged as experts in the field.

Romero, Francisco. 2001. Workforce Diversity Program: A Progress Report from the Payette National Forest. Fire Management Today, Vol. 61. No. 3. This article describes the program that the Payette National Forest has implemented to develop fire managers.

Rocky Mountain Geographic Area Operations Committee. Rocky Mountain Priority Trainee List, 2001, Interagency. Example of a training priority list within a Geographic Area. Provides prioritized trainee lists for candidates to coordinate fire assignments within the Geographic Area. This list does not apply across Geographic Areas for national assignments although there has been some discussion of trading lists between Geographic Areas.

Sutton, Larry. Report of the Leadership Task Group to the Training Working Team, 2001, Bureau of Land Management. The Parent Group of the National Wildfire Coordination Group commissioned a Task Group to study the need for Leadership Development within the Federal fire workforce. The Group presented 14 recommendations outlining a comprehensive plan to incorporate leadership development at all levels of training.

United States Forest Service. Aviation Supervisor’s Desk Guide to Career Planning, Succession Planning, Counseling, & Mentoring, no date. This guide furnishes information aimed at improving supervisors’ skills in counseling and career development of employees.

## Key Websites Referenced:

Bureau of Land Management. BLM Leadership Competencies, [www.ntc.blm.gov:80/leadership/manage\\_overview.html](http://www.ntc.blm.gov:80/leadership/manage_overview.html)

Bureau of Land Management. Great Basin Training Center, [www.fire.blm.gov/training/great\\_basin/GRT\\_basin.html](http://www.fire.blm.gov/training/great_basin/GRT_basin.html)

Bureau of Land Management. Training Development, [www.fire.blm.gov/training/blmtrng/blmtrng.html](http://www.fire.blm.gov/training/blmtrng/blmtrng.html)

Colorado State University, College of Natural Resources, Academic Programs website, [www.cnr.colostate.edu/programs/undergraduate/index.htm](http://www.cnr.colostate.edu/programs/undergraduate/index.htm). An example of a comprehensive professional curriculum and training map in a web-based format.

National Advanced Training Center (NARTC), [www.nartc.net/](http://www.nartc.net/)

National Wildfire Coordinating Group, [www.nwcg.gov/nwcg\\_admin/organize.htm](http://www.nwcg.gov/nwcg_admin/organize.htm)

Prescribed Fire Training Center (PFTC), Interagency, <http://fire.r9.fws.gov/PFTC/>

National Park Service. A new employee orientation system utilizing a web-based format

Technical Fire Management (TFM), Washington Institute, [www.washingtoninstitute.net/](http://www.washingtoninstitute.net/)

USFS, Southwest Region. Fire Use Training Academy (FUTA), [www.fs.fed.us/r3/resourses/aviationandfire/firetraining/FUTA/index.htm](http://www.fs.fed.us/r3/resourses/aviationandfire/firetraining/FUTA/index.htm)

Wildland Fire Training Website, [www.fire.nps.gov/firetraining/](http://www.fire.nps.gov/firetraining/)