

## CHAPTER 2. METHODOLOGY

This chapter describes the starting point and the processes used to develop the recommendations in this report.

The basic approach taken in Phase III was to review each goal developed in Phase II, identify actions or programs that were already underway in the agencies toward implementing that goal, and then identify additional actions that needed to be started. Many ideas for implementation were raised in Phase I and Phase II of the study and they were resurrected for review in this phase. The original literature review in Phase I also raised many useful ideas that were drawn upon for Phase III.

### Principles and Goals

The set of goals that were the starting point for implementation were those in the Phase II report. Because there were so many goals, and it is difficult to group the major themes, we made an attempt to abstract a smaller, higher level set of "principles" under which the goals - or at least the goals and actions thought to be the most important could be grouped. This was attempted first at a joint working session in August 1997 with members of FFAST and the chairman of the Project Advisory Group, and two project team members. It was further developed as we produced the final report.

The problem in discussing principles and goals is that it is difficult to get a consensus on what constitutes a goal versus a principle - it is at least in part a semantic issue. The principle is the higher level idea. Rather than get bogged down in that exercise, there was a consensus of the FF AST, the Project Advisory Group, and the project research team that it was more important to concentrate on the specific actions needed than the taxonomy of organization. The 19 principles we identified under which all 86 goals could be placed are listed below.

The starting principle (#1) was to preserve the strengths of the current system of Federal wildland firefighting ("Physician do no harm"). The existing strengths of the Federal wildland firefighting system should be built upon. There is no need to start from scratch - much is working well. To move forward and overcome the many problems identified, the following additional principles were identified:

**Leadership:**

2. Assure that people in leadership positions are qualified and well trained. 3. Promote accountability for safety at all levels.
4. Practice safety day-to-day.

**Experience:**

5. Rebuild the level of firefighting and fire management experience.

**Training and Certification:**

6. Realistic, high-quality training must be used to compensate for lack of experience. Proper training also is critical for safety by teaching safe practices and developing proper attitude.
7. Ensure the integrity of the Red Card qualification system.

**Communications:**

8. Communications must be clear and understood.

**Human Factors:**

9. Crews and people must not be used or pushed beyond their capability.
10. Unit cohesion should be fostered and attention given to developing good crew dynamics.
11. Develop an attitude and ethic of professionalism that encourages retention and promotes safety behaviors.
12. Maintain situational awareness.
13. Foster physical fitness for the job.

**Safety Data:**

14. Collect reliable safety data and use it to target, prioritize, and evaluate safety programs.

**Prevention:**

15. Promote prevention and fuel treatment programs for their impact on firefighter safety as well as for their land management results.

**Equity:**

16. Promote safety for all who work at Federal fires (regardless of gender, ethnic group, and whether private sector, local or state government, or agency affiliation).

**Technology:**

17. Provide firefighters with safe and adequate protective gear, tools, equipment, and transportation (i.e., good technology).

**Medical Care**

18. Provide quick, high quality care for the injured.

**Intergovernmental System**

19. Continue development of integrated, intergovernmental, interagency system.

**Wording of Goals** - In almost every case, we left the wording of the goals the same as they were in the Phase II report. There was a consensus among reviewers that this set of goals spanned virtually all of the safety concerns raised in Phase I. Some minor rewordings of goals are shown in brackets in the goal statements.

**Aggregation and Desegregation of Goals** - The goals stated in Phase II were regrouped in the course of Phase III by areas of expertise needed for implementation rather than under the headings they originally appeared, and assigned to different members of the project team. There are some implementation concepts that apply to more than one goal or groups of goals, such as increased realism of training, use of crew resource management (CRM) concepts, and increased accountability. Implementation ideas that apply to more than one goal usually are addressed under the first applicable goal, and then cross-referenced in the later goals. In a few cases; we grouped like goals, and discuss their implementation strategies together.

**Priorities** - We provide recommendations for implementing all 86 goals. However, we did not just treat all goals and implementation ideas equally. More time was given to critical needs and to innovative new strategies, and less to those areas where implementation was more straightforward or within the normal expertise of the agencies. Our recommendations on the priority of the goals and implementation strategies are given in the summary (Chapter 7).

**Universality of Implementation**- In some cases, ideas suggested here are already being done in one place or another, but are not yet adopted across all agencies (e.g.,

suspending people from firefighting for violating safety directives). In some cases, policy directs an action, but it is not performed as directed by part of the workforce. In both cases, recommendations are made to extend a practice to all agencies or all of the workforce. These are not new ideas, but are practices that need to be implemented more widely.

***Keeping Up With Change*** - There is a great deal of change continually going on in the agencies. Some changes were stimulated by earlier phases of this work, but many originate independently. We have flagged, in footnotes or the text, the recommendations for which action is already underway, to the extent we knew of them. There may well be other recommendations presented in this report that are already Underway. We did not drop recommendations that we heard were already in progress, both to avoid breaking up the logic of the recommendations and because we did not know the extent to which the reported changes were in fact implemented versus planned.

***Tailoring Goals and Strategies to Subcultures*** - In general, implementation strategies are suggested with the whole workforce in mind. In practice, some tailoring will have to be done to reach different subgroups, such as Emergency Firefighters who are much more difficult to reach off-season than the others. We note some recommendations for particular groups, but it will probably be necessary to do another level of detailed planning and adaptation of some ideas for EFFs and others.

## **Processes**

***Meetings*** - During Phase III, three major review and brainstorming meetings were held in 1997, two in Boise and one in Denver. The first Boise meeting was comprised mostly of FFAST committee members, who provided input on almost every goal as to things already underway. A Fire Program Director also attended. The Denver meeting included both members of the FFAST team and those of the original steering committee who were still active on it. They reviewed a tentative set of "pillars of wisdom," the principles and specific strategies chosen for most emphasis. This meeting also provided further input from each of the five agencies on things already underway. A second special meeting was held in Boise with a group of training officers knowledgeable about the development of new training curricula. This meeting focused on suggestions for improving training that cut across many of the new goals.

***Presentations*** - Additional feedback was received on tentative recommendations in the course of several presentations made during Phase III. These included a Forest Service Regional Fire Directors meeting; Agency Administrators advisory group; International Wildland Fire Conference in Vancouver, Canada in 1997; National Wildfire Coordinating Group meetings; two presentations to the Federal Fire and Aviation Leadership Council (FF ALC) in January and February 1998; and a presentation to the Region 5 Hotshot Workshop, (Reno, Nevada, February 1998).

***Use of Expert Consultants*** - TriData's consultants were used to brainstorm and ' provide recommendations on certain groups of goals. Of special importance were Michael DeGrosky, wildland fire and strategic planning expert, who contributed ideas throughout; Professor Charles Perrow, sociologist, Yale University, who assisted with ideas for improving communications, investigating injuries, professionalism, and other aspects of changing the culture with respect to safety; Gary Klein and Marvin Thordsen of Klein and Associates who summarized research in decision making, realistic training, on-the-job training, and other areas; Lark McDonald and Patrick Withen, who added key ideas from their own experience and research on crew resource management and crew dynamics and professionalism, respectively; and Dr. Jason Greenlee who provided ideas and literature research on a wide variety of topics.

***Contacts with Agency People*** - Project team members spoke with many experts at various levels in the five participating agencies to get current on what was already being implemented and to get preliminary reactions to various ideas.

***Further Literature Review and Internet Search*** - Much "mining" was done of the literature, especially information available in searching the Internet and World Wide Web. The footnotes indicate important references for specific recommendations.

***Reviews of Drafts*** - The drafts of this report were reviewed by various members of the Project Advisory Committee, the Federal Fire and Aviation Safety Team, and Federal Fire and Aviation Leadership Council, and consultants to the project team. This was a dynamic process, with dialogue between the authors and reviewers. It produced many substantive contributions, and helped sharpen, improve and augment the set of recommendations. It also helped keep the terminology used here consistent with the latest Incident Command System usage. We considered all of the comments received, but ultimately the recommendations here are those of the project team, which was contracted to provide an outside, third party assessment and recommendations on the

organizational culture, leadership, human factors and external factors that underlay and influence Federal wildland firefighter safety.

The next chapter starts the discussion of the 86 goals and the implementation strategies proposed for each.