

Leadership Conferences

USFA periodically conducts leadership conferences for fire and related disciplines to address emerging fire trends on specific issues. USFA held an invitation-only conference of selected leaders to address the current fire problem. A report of the conference, *America Burning Revisited*, was printed for national distribution. In December 1989, the USFA convened a meeting of executives of the national fire organizations and key public/ private organizations to discuss the potential for a national accreditation program for fire departments.

In 1992, USFA conducted leadership conferences of fire and related disciplines to address emergency fire trends and issues. Two other specific examples were a conference on civil unrest following the Los Angeles riots, and another on Urban/Wildfire following the Oakland, California, fire.

The USFA co-sponsored along with the International Association of Firefighters, the Redmond Symposium on Firefighter Health and Safety in 1989. The results of Project Firesmoke were analyzed and a final report prepared. Field tests of actual fireground off-gases were conducted in fire active fire departments in a joint effort with the National Institute for Occupational Safety and Health (NIOSH).

Major Fire Investigations

The Major Fires Investigation Program, begun in 1982, continued with independent technical reviews of major incidents focusing on identifying how the incidents were addressed by the responding units and on the "Lessons Learned" to promote hazard identification, improve fireground operations and firefighter safety. As a result, USFA has seen significant policy changes and code modifications that assure a safer environment not only for citizens, but also for the first-line firefighters

Disseminated dozens of Major Fire Investigation Reports from USFA's Technical Report Series to the fire service, trade publications/journals and to individuals, fire departments and other organizations on request. Among these were a number of incidents in adult retirement/nursing home facilities, multiple fatality residential fires and selected hazardous materials incidents, all of which target a "lessons learned" information exchange. These reports included incidents in large, medium, and small municipalities from different causes including earthquake, structural failure, flooding/rainstorm, tornado, explosion, and vehicle accident. The focus of these investigations was lessons learned. There are currently 86 reports available.

Master Planning

Work began toward the development of a set of procedures for use by local governments and fire department in preparing master plans. In 1976, the NPFCA provided technical assistance and materials to these newly involved cities. Procedures were prepared for rural areas where Standard Metropolitan Statistical Areas do not exist, as well as at state-

level, where an overview of fire protection in the state was necessary for legal, fiscal or management purposes. In 1977, the planning procedures for community planning was refined and preliminary exploration of methods for forecasting fire protection situations was undertaken.

There was little firm data at that time regarding adequate levels of protection, reasonable community costs and acceptable risks. Likewise, allocation of fire department resources among the major functions (suppression, paramedic, prevention, education, inspection, data collection, community relations, and regional coordination) was usually neither objective nor optimum. In 1976, several pilot studies were initiated to identify, define and categorize emergencies to which the fire services must respond. In 1977, the resulting information and database was reviewed and refined so that expansion of this database would provide useful measures of fire service effectiveness. Also in 1977, management research areas with high pay-off in cost-effectiveness were identified and defined, e.g., fire services centralization and staffing levels of fire apparatus.

The NFPCA held its first national conference with master planning as its theme in October 1975. The conference briefed fire interest groups on the master planning process that was developed by the NFPCA. The interest in fire protection master planning for communities, rural areas and states was high, representatives from all 50 states attended.

Specific and tangible support to communities desiring to participate in a master planning program was supplied through the development of self instructing manuals that provided guidance to their efforts. In 1976, ten communities were selected to field test a Community Fire Protection Master Planning Manual. In order to bring a local government management review of this community master planning manual and its transferability to communities in general, the NFPCA awarded a grant to the International City Management Association in 1976 and continued in 1977. The field validation of the procedural manual was completed in 1977, and the validated procedures manual was available in the first quarter of 1977 for nationwide distribution.

Recognizing that a single community master planning manual would not answer the needs for all types of governmental jurisdictions, two additional grants were awarded in 1976. The State of Oklahoma was awarded a grant to develop a procedural manual for small communities and rural areas. The field validation of this manual was completed in 1977. The State of Illinois was awarded a grant to develop the concept of a statewide master planning manual, and experiments in the field using this manual were begun in 1977.

In many areas, the county assumes more and more public safety responsibilities and often includes a unique combination of rural and municipal fire protection services. For example, a single county may coordinate disaster planning, represent a coordination arm for statewide programs, participate in carrying out programs with the Federal and state forest services and municipal governments in controlling wildfires, provide a point of coordination between county volunteer fire programs and municipal paid fire programs, and provide local code enforcement and fire protection contract services. Beginning in

1977 and continuing into 1978, the development and field testing of a county-level master planning procedures guide were completed.

In conjunction with its revised master planning initiatives, in 1996 USFA entered into a cooperative agreement with the International Association of Fire Chiefs (IAFC). The agreement called for USFA to provide funding assistance for the development of a computer-based community fire risk, hazard and value evaluation model (RHAVE). When completed, communities who wish to conduct evaluations and assessments of their local fire hazards and risks may use the program. The program is being designed as a stand alone, or may be used in conjunction with IAFC's self-assessment and accreditation program or may be used by communities who wish to conduct fire defense master plans using the revised USFA master planning program.

In 1997, USFA hosted a fire prevention and control master planning forum. The objective of the forum was to obtain insight from those within the fire service and city government regarding the applicability and validity of USFA's fire defense master planning model for today's fire service. In addition, the forum participants were tasked with determining if there was a need for USFA to revitalize its master planning initiative and, if so, what should be incorporated within the revised master planning program.

Based on recommendations of the master planning forum, in 1998, USFA began to review and revise, where necessary, the original master planning concept, its planning process and supporting methodology. As part of the project, USFA created a Project Technical Advisory Group (TAG). The TAG represented various disciplines that either impact, or contribute to a community's fire defense master plan. These included representatives from city management, city planning, fire protection engineering, academia, insurance industry and the public fire services. Revisions of the revised program have been pilot tested in two communities across the United States.

Based on these revisions, USFA began in late 1999 to create an updated master planning guide, which will be made available to local officials who wish to conduct long-range fire defense master plans. Based on findings from the work conducted in 1998, the revised guide will vary slightly from the original master planning guides. This consists of the guide containing modules, which allows for a community to conduct long-range plans for specific components of the local fire defense system, or, if desired, conduct a comprehensive plan, which incorporates all of the guide's modules.

Motel/Hotel

USFA worked toward the implementation of PL 101-391, the Hotel/Motel Fire Safety Act of 1990. Specifically, developed materials were provided to State and local officials, hotel/motel officials, and others on the Act's requirements. The USFA worked closely with the National Association of State Fire Marshals (NASFM) in providing a variety of support to the States who were required to provide the final, approved list of hotels/motels to be published by the USFA. A three-party effort of the USFA, NASFM, and the American Hotel/Motel Association provided the effort to develop the appropriate

forms and procedures for States to identify hotels and motels to use in meeting the act's requirements. The first composite list was published in the Federal Register on November 24, 1992.

Developed a guide listing hotels and motels that comply with the provisions of the Act. This guide is essential for Federal agencies and travel representatives. USFA also produced a brochure for Federal travelers explaining the Act, and began work on a videotape explaining the new requirements. The Act requires government personnel to use facilities equipped with sprinklers and smoke detectors for official lodging and meetings. The list helps government employees in making travel arrangements. The list is updated monthly, with a master listing produced annually.

National Community Volunteer Fire Prevention Program (NCVFPP)

In 1984, this was the first concentrated federal effort to combine the resources of government at all levels with those of community volunteers, the fire service and the private sector to build and support successful fire prevention programs. Projects supported through NCVFPP were community-wide action projects targeted at fire prevention awareness, fire safety and survival, and fire protection. The NCVFPP, a partnership with the National Governor's Association, was completed in all the States. A directory of the 106 local prevention projects was published.

The NCVFPP Successful Demonstration Project Series was released April 17, 1991, at the annual meeting of NCVFPP State Coordinators in Washington, DC. This program, sponsored in cooperation with the National Criminal Justice Association, was a key tool in promoting community involvement in fire prevention and public safety. This program sought to merge resources of the Federal, state, and local governments, fire departments, the private sector, and individuals to create community-based fire prevention programs. The guide outlines the formation and maintenance of working fire prevention programs targeting schools, residences, commercial sector, specific population such as the elderly, and specific fire problems.

National Fire Incident Reporting System (NFIRS)

In 1976, statistical research was performed on ways to make the initial national fire estimates using data from existing diverse sources and the small amount of new data collected by the first stage of the national fire incident reporting system, and the first national estimates were made. The existing data analyzed included fire data from the Center for Health Statistics, socioeconomic data from the Bureau of the Census and economic loss data from the insurance industry; the elimination of overlap among the data sources was the major problem addressed. Data collected from a national fire household survey of 33,000 households was analyzed in-depth. This data revealed information on fires not reported to the fire departments, and it also provided identification of characteristics of household fires. Studies were initiated to further explore and validate the strong relationships found in earlier studies between fire rates and community characteristics such as income, family stability, and educational level.

The findings of these studies could be used by local jurisdictions to measure the effectiveness of prevention programs relative to community conditions, and they also provided a means for more efficient upscaling of local data to state and national estimates. Another study developed insights into reasons for the significantly worse fire experience of the U.S.

In 1977, the second annual national fire estimates were made based on the expanded national fire incident reporting system and other sources. Studies of relationships between fires and community characteristics were continued. Using data from the incident reporting system and other sources, the most frequently occurring chains of events that result in injury or death by fire (for example, a late night, heavy smoke-producing small fire resulting from ignition of an upholstered piece of furniture by a dropped cigarette) were identified in order to determine priorities for remedial programs. The first NFPCA national estimates of indirect losses, such as medical expenses, were developed. A validation study of local input to the fire data system was completed.

In 1978, the program produced the third annual national fire estimates and performed exploratory validation studies. Also, it developed the second annual set of chains of events of the leading causes of fire deaths and injuries and the first such study of the leading causes of property damage. A prototype package of techniques and examples of how local governments could routinely analyze collected fire data was developed to help local jurisdictions make more efficient use of the large amount of data they collected or received from others. Continued analysis of the relationships between fire losses and community characteristics (identified in master plans) was also planned to further improve our ability to scale up local data to national estimates and identify trends relative to conditions.

In 1981, USFA pilot-tested a firefighter death and injury data system add-on to NFIRS in two states, collected actual data on firefighter duty-caused deaths and injuries from a sample of communities, and published findings on the severity and major characteristics of firefighter health and safety problems to increase awareness in the fire service of such things as the most dangerous types of buildings, what injuries occur at what ages, and what specifically causes most injuries. USFA also developed an analytical method fire departments could use to identify their most serious long-term occupational health hazards.

A Fire Incident Reporting System Handbook was developed in 1977 to be utilized in the training of state and local officials participating in NFIRS.

Completed the Residential Fire Fatality Study, a sample in-depth study of fatal fires and their victims in four localities in 1987.

Two additional Management Application Project Data Collection/Information Systems were completed:

- 1) the EMS Incident Reporting System (1989)

2) the Fire Prevention Management Information System (1989)

The Hazardous Materials Reporting component to NFIRS was completed in 1991 and released in both the mainframe and microcomputer versions to the NFIRS system participants. The Arson and Wildland Fire reporting components were incorporated in this future NFIRS version, along with the recently revised Firefighter Casualty Report.

In 1991, the National Fire Information Council (NFIC) produced a special report entitled Arson in America, a profile of incendiary fires in metropolitan fire departments and in the nation focusing on residential incidents and the overall magnitude of the problem. This topic received continuing attention in the 8th edition of Fire in the United States.

In 1998, pilot tested and distributed a new Internet-based 5.0 version of the standard NFIRS mainframe software to all NFIRS state program managers, designed to run on a personal computer. This system expanded the use of data at the local level, increased the completeness of the national incident database, sped data collection and analysis, and enhanced the utility of the information. The no-frills software was used by fire departments that could not afford the more sophisticated and expensive versions distributed by vendors.

Continued work on specifying an optional, stand-alone Fire Investigations Module to provide a standard interface between NFIRS and crime-based incident systems such as the FBI's National Incident-Based Reporting System.

Completed design specifications for the revision of the Basic Incident and Fire Modules of the reporting system.

In 1999, the 11th edition of Fire in the United States 1987-1999, and companion Profile of Fire in the United States 1987-1996, was issued. This document, which is issued on a regular basis, summarizes the NFIRS data and provides an analysis of the fire problem in the United States.

NOTE: NFIRS continues to play a major role in quantifying and qualifying the fire problem. Data collected, maintained, and analyzed from this system serves as the basis for many other USFA as well as government, private association, state and local fire and rescue initiatives.

National Volunteer Fire Council (NVFC)

In cooperation with the NVFC, USFA helped to improve the information network among the nation's volunteer departments. The NVFC Communications Project, initiated in 1994, was designed to foster communication and the exchange of ideas between the NVFC and the volunteer fire service. It provided information on high priority topics to the volunteer community. A major improvement between the NVFC state Directors and local fire departments was achieved as well as increased flow of input into State and federal fire program activities.

In 1993, USFA hosted a workshop with the NVFC on the most effective way to recruit and retain volunteer firefighters, upon whom more than 28,000 U.S. fire departments depend. Workshops were held across the country on the most effective ways to retain and recruit volunteer firefighters. USFA and the NVFC developed and distributed a manual, Recruitment and Retention in the Volunteer Fire Service in 1998, discussing problems and providing effective solutions for recruitment and retention in the volunteer fire service. This manual replaced two publications on the same subject that had been issued previously.

In 1998, USFA convened a volunteer fire service summit with the NVFC, the International Association of Fire Chiefs, fire service representatives, and other Federal Agencies. The goal of the summit was to explore issues facing the volunteer fire service as the 21st century approaches.

Personal Protective Clothing

A model purchase specification for improved turnout coats was approved by the NBS and NFPCA and disseminated in 1975. Field testing for improved breathing apparatus was completed in 1976. In 1976, an overall systematic approach to providing the necessary personal protection for the firefighter was initiated. The primary needs for a protection system were identified through hazard analysis studies and consultation with fire services. Preliminary objectives defined were a reduction of equipment weight, elimination of cumbersome elements, reduction in deaths and injuries due to impact, burns and toxic gases.

In 1976, in cooperation with the National Aeronautics and Space Administration (NASA), a comprehensive project (Firefighters Integrated Response Equipment System or FIRES) began to design, develop and fabricate prototypes of integrated personal protective equipment for structural firefighters (that is, firefighters who fight fires in buildings), including self-contained breathing apparatus. This effort made an integrated system available to the structural firefighter that allowed for increased effectiveness and safety. Particular emphasis was placed on the system's performance, weight reduction, cost and integration of the individual components into an optimum system. During 1977, draft standards for improved protective equipment were developed, comparisons of commercially available units were made, and an ensemble utilizing the best of existing technology was fabricated. During 1978, the initial prototype system was designed, fabricated, laboratory tested and evaluated. Also, during the latter part of 1978, initial field tests were conducted in municipal fire departments in selected geographical locations across the nation. Modifications of prototype systems continued during 1979 as field tests were evaluated. The field tests for structural firefighting systems were completed in early 1980 and purchase specifications published at that time. The product awareness phase of the overall program continued into 1981. The overall improved personal protective equipment program did not emphasize problems of firefighting in special situations (such as, forest, oil, aircraft, and shipboard) until 1979 or 1980. As a result of this research, firefighters are now wearing smaller and lighter weight self-

contained breathing apparatus without having to sacrifice useable time, and have the benefit of protective clothing that is lighter in weight, more fire resistant, and more comfortable to wear.

USFA was instrumental in applying new materials and techniques to the area of protective equipment for firefighters. This project led to the development of improved helmets, gloves, turnout clothing and auxiliary response equipment. Improvements achieved in response equipment were incorporated into the NFPA technical standards for firefighters protective equipment. The equipment developed under this program is lighter, more comfortable and imposes less physical stress on the wearer than traditional equipment. These gains have been achieved without sacrificing thermal protection. Use of this advanced equipment make possible safer and more effective response to emergency situations.

In 1988, criteria were developed for more comfortable, effective and safer footwear for firefighters. This project generated the manufacture of a suitable number of boots for demonstration purposes.

A draft manual was produced in 1989 that allowed a fire department to identify features which were desirable in protective clothing. The manual aided in the preparation of bid specifications. Sections were included on both structural and chemical equipment that increases the usefulness of this material to local departments.

Department of Transportation/Lawrence Livermore National Laboratory and USFA cooperated in 1991 in an effort to develop a test method to evaluate firefighter protective clothing and equipment as a complete ensemble in order to evaluate total ensemble performance under heat and flame conditions.

Work continued in 1994 on the Development of Sizing Criteria for Firefighter Station Work Uniforms. This work was conducted by the National Institute of Standards and Technology through an Interagency Agreement with the USFA. A technical advisory group assisted in the development of a draft sizing-criteria document that was submitted to the ASTM Subcommittee on Human Factors for consideration.

Research began in 1994 on the thermal protective properties of protective clothing used by structural firefighters. Test methods were analyzed as those methods relate to the effects of the thermal hazard, the effects of compression on the thermal protective layer of the protective clothing, and the effects of moisture on the user side of the protective clothing barrier.

Through an interagency agreement with the Department of Transportation/Lawrence Livermore National Laboratory, a heat and flame test was developed for inclusion in the latest revision of NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus. The test apparatus to carry out these tests was complex and unique. The apparatus and test procedure underwent public comment by the NFPA for inclusion in the 1992 edition of the NFPA 1981 standard. NIOSH prepared a final report on PROJECT

FIRESMOKE that involved an investigation of the performance of self-contained breathing apparatus during actual fires at locations throughout the United States.

Physical Fitness

Physical performance requirements for structural firefighting were analyzed. In 1977, the tasks required for structural firefighting were defined, and standard physical requirements were established. The output of this project was significant in identifying physical stress problems, aiding in the protective equipment design, defining the need for physical fitness programs, and guiding the development of uniform physical performance requirements throughout the firefighting community. To further assist in the development of standards for the fire services, a report on the recommended performance criteria for firefighters' helmets was published and made available to the fire services and others during 1977. Technical support for this project was provided by the National Bureau of Standards.

Under the Stress Management and Model Program for Firefighter Physical Fitness project, USFA developed the framework for a program to address both firefighter physical fitness and stress management. The physical fitness program was designed for firefighters who required extensive work to pass the initial physical fitness performance requirements. The stress management effort, both job and incident stress, was designed to assist in reducing stress affecting fire service members in today's environment. A publication, Stress Management Model Program for Maintaining Firefighter Well Being was issued in 1991.

Residential Fire Sprinklers

In 1976, a project was started to establish the user requirements for automatic residential suppression systems. Users surveyed include occupants, builders, architects, and state and local code officials. Also, the development of an experimental model of a low cost automatic residential suppression system was initiated in 1976. During 1977 and 1978, the outcome was two projects: to fabricate one or more developmental prototype automatic residential suppression systems and to complete manufacturing documentation. Technical support for these programs, in part, was provided by the Center for Fire Research of the National Bureau of Standards.

In the summer of 1979, a technological breakthrough occurred: a new quick response, highly reliable sprinkler head was developed. This head, by responding to a fire early in its development, keeps the fire, smoke, carbon monoxide, and heat to a safe level, requires less water, and operates off the existing domestic water supply. Reliability and cost were the more important factors that would determine sprinkler systems acceptability to homeowners. A new sprinkler manufacturing standard was established, which was necessary before commercial manufacture could begin. By the end of 1980, USFA demonstrated the feasibility of the new quick-response head and low-cost sprinkler system for single-family homes. Also during 1980, feasibility tests including economics of sprinkler systems for new homes were completed in the field.

In 1981, marketplace acceptance of sprinklers for new homes was promoted. A study was made of the product acceptance problems. An education campaign for the public and the home building industry was conducted to overcome the problems. To have an even greater impact on fire loss reduction the home sprinkler system was adapted to retrofit existing homes. Performance requirements for a retrofit system were established, candidate designs were identified and tested, and solutions to installation problems such as hook-up restrictions and backflow were identified and resolved.

In cooperation with Factory Mutual, the USFA completed the design and testing of new systems requirements for manufactured homes and rural housing, employing a limited water supply system. A follow-on effort with Underwriters Laboratories during 1992 saw the design, development, and field testing of various limited water supply prototype systems that employed the research standards completed by Factory Mutual.

In 1991, USFA planned a new major program to provide technical assistance to builders and developers and then local governments on implementing residential sprinkler systems in new multi-family developments as part of an affordable housing program focus. The likely partners were the National Association of Homebuilders Research Foundation, the International City/County Management Association (ICMA) and HUD.

In an effort to expand the use of residential sprinklers, USFA, along with the International Association of Fire Chiefs, created a private sector consortium in 1989 that contributed funds to the overall effort. The corporate donors expanded to include the Concrete and Masonry Institute. Operation Life Safety (OLS) broadened its forces to building codes and their overall efforts on fire and life safety.

USFA sponsored work to provide a guide, Evaluating Small Board and Care Homes: Sprinklered vs. Nonsprinklered Fire Protection, issued in 1993 for the fire safety professional that is responsible for small board and care facility fire evacuation planning and training. Residents of a board and care home are five times more likely to die in a house fire than residences of a typical single family home.

USFA sponsored research initiatives through grants to Worcester Polytechnic Institute to evaluate various control strategies for reducing the potential for potable water contamination from fire sprinkler system water backflow. Current popular methods of reducing the potential of potable water from residential sprinkler systems are to install a backflow preventer device between the sprinkler line and the potable supply connection and require routine flushing of the sprinkler lines. A publication entitled Backflow Protection for Residential Sprinkler Systems was issued in 1993.

In 1994, USFA conducted a project to test the efficacy of water mist suppression systems in a residential fire scenario application. The goal of the study was to demonstrate whether or not available water mist technologies could control and/or extinguish typical residential fires and provide adequate life safety. While the mist systems performed adequately, costs associated with these systems were higher than for sprinkler systems.

A literature-based study was conducted by the National Institute of Standards and Technology to compare characteristics and usage of steel, copper, chlorinated polyvinyl chloride and polybutylene fire sprinkler pipe primarily related to residential and light hazard installations. This study was sponsored by USFA. The report, Comparison of Fire Sprinkler Piping Materials, issued in 1994, presents information to aid in decisions regarding selection of sprinkler piping in the aforementioned occupancies.

As product safety issues were identified, worked with the Consumer Product Safety Commission (CPSC) in 1998 to improve the distribution of fire and product data in a more timely, complete and effective manner. Coordinated efforts with CPSC on the recall of the OMEGA sprinkler heads by furnishing NFIRS data that was used to identify and verify the problem.

NOTE: USFA is a leader in promoting the development and installation of fire sprinklers in private dwellings where most of the fire deaths occur. Through these efforts, a sprinkler head has been developed that is quicker acting and more responsive to low levels of heat. Efforts have been made to also make residential fire sprinkler systems affordable.

Smoke Detectors

When the USFA was formed in 1974, smoke detectors were installed in less than 5% of all households, but by 1982, that percentage had risen to well over 50%. USFA's contribution to broadened use of smoke detectors included production and promotion of over 50 reports, brochures, fact sheets, articles, prototype posters and decals, sample TV and radio public service announcements, and other materials, all targeted to particular detector issues and particular audiences. USFA also stimulated and coordinated smoke detector promotional efforts by dozens of private firms, service organizations, local fire departments and others.

In 1975, preliminary identification of the barriers to increased use of detectors was completed, including availability, lack of incentives, cost, installation, maintenance and unwanted alarms. During the transition period, a nationwide survey was initiated to validate and extend these findings. In 1977, the survey results were assessed and disseminated to manufacturers and distributors, and preliminary feasibility studies were continued on a low-cost automatic fire suppression system for residential fire safety.

A critical factor in market acceptance was the reliability of detectors. In 1981, in addition to continuing a promotion campaign, USFA improved smoke detectors by continuing to evaluate their reliability in actual fires; pilot-testing a portable device for checking the sensitivity of installed detectors; analyzing defective detectors; and developing revised manufacturing standards as required

USFA continued to support the widespread use of smoke detectors through research as well as the publication and dissemination of varieties of materials. Of particular

importance was USFA's effort with Underwriters Laboratories on the development of smoke detectors for the hearing and visually impaired. The technical research report was completed and provided to the Underwriters Laboratories' standards committee during 1991 with the actual standards issued in 1992 for manufacturer's use in producing new products.

The "Project Get Alarmed" campaign, in conjunction with the National Safe Kids campaign, continued to expand with more than 140 state and local coalitions supporting smoke detector installation and maintenance in residences of high-risk children under age five. This effort was conducted through a combination of free inspections, safety fairs and distribution of materials. Over 11,000 smoke detectors were distributed to families of high-risk children. With financial assistance for BRK-Pittway, this effort was expanded during 1992.

The CPSC and USFA continued fire safety strategies to improve awareness and usage of smoke detectors in homes. USFA and CPSC recognized the tremendous life-saving capability of working smoke detectors and, in 1993, analyzed data on why smoke detectors fail or are rendered inoperable.

In 1999, USFA was mandated to conduct a nationwide pilot project to distribute smoke detectors in the 20 statistical areas at highest risk for residential fires. The program includes an educational component designed to encourage the proper installation and maintenance of smoke detectors. USFA will provide a report to Congress and the CPSC upon completion of the program.

NOTE: Through USFA's leadership, smoke detectors are commonplace everywhere. USFA worked to make them reliable, affordable, and easily accessible. They also promoted the importance of this life-saving measure.

Technical Rescue

USFA worked with urban search and rescue professionals in 1993 to develop performance criteria for protective clothing and equipment for firefighters performing urban search and rescue functions. Protective clothing criteria was available for swift-water and contaminated-water rescue operations.

USFA completed a comprehensive vehicle extrication equipment study in 1994 to examine technologies in this area, as well as to assess what was needed to enhance these life-saving operations. This project included an in-depth survey of many fire departments throughout America to identify their equipment needs for improving their life-saving capabilities.

Conducted a technical rescue technology assessment to determine the adequacy of current equipment, opportunities for technology transfer, and what equipment could be developed to support technical rescue operations by local fire and rescue departments. Technical rescue involves complex, special operations such as confined space rescue,

trench rescue, urban search and rescue (structural collapse rescue), water rescue, and agricultural rescue. Developed a Technical Rescue Technology Assessment Manual in 1995 to identify equipment and technology currently or readily available to support local fire departments and agencies.

Produced a Technical Rescue Program Development Manual in 1996 to provide in-depth guidance to local fire and rescue departments on how to safely develop or enhance their capabilities in special rescue operations such as confined space rescue, urban search and rescue (building collapse rescue), trench rescue, water rescue, agricultural rescue, etc. This manual provided guidance on how to comply with applicable regulations in this area, such as the regulation on Confined Spaces (29 CFR 1910.146).

In 1996, conducted in-depth investigations of selected technical rescue incidents that occurred in the United States, including rescues performed during the Northridge Earthquake. The focus of these investigations was on lessons learned. Produced an Investigations into Technical Rescue Incidents Manual to develop case studies for lessons learned.

Training

Since its creation, the National Fire Academy has developed and delivered a variety of courses to meet the changing environment of the fire and rescue service. A complete list of those courses, many of which continue to be available, is included in Appendix B. Also included in Appendix C is a summary of program information. It should be noted that this list includes those courses that have been offered since the permanent facility was acquired in Emmitsburg, Maryland, in March 1979, and opened for classes in January 1980. In fact, the Academy started offering courses in the latter 1970's. These courses were conducted in conjunction with state and local sponsors.

Begun in the late 1970's, the Open Learning Fire Service Program provided an opportunity to individuals to advance their professional development by completion of a series of courses through a selected college or university, leading to a bachelor's degree. The program continues as the Degrees at a Distance Program, with about 1,000 students enrolled each year.

In 1976, grants were provided to state and local training institutions for pilot or demonstration projects for development of new curricula or for innovative approaches in fire education and training to improve the fire service educational system. A consideration for grant award was that the project proposal must have national applicability. Proposal selection considered demonstrated capability in producing fire prevention oriented programs in national priority areas such as building design, arson, and command strategy and tactics.

In 1977, a management development needs identification seminar for the fire service was conducted through a grant with Texas A&M University. The objectives of the seminar were to identify problems and deficiencies in fire department management that could be

solved by education, suggest specific course subjects in order of priority, and identify resources in the nation which may be used in the management education effort.

In 1976, a comprehensive planning model was completed to establish a possible Academy role with colleges and universities offering programs in fire detection engineering, fire science technology, and fire service management and administration. This comprehensive planning model studied the broad goals of the Academy in relation to established and planned and university level programs.

In 1976, a need identification conference on fire safety education for architects, urban planners, interior designers, and builders was conducted at the University of California at Berkeley. The participants discussed problem areas and possible solutions and made a report with recommendations for course development concerning fire safety in buildings. As a result of these proceedings, reading materials and an instructor manual were developed for architects.

In 1976, the Academy developed and announced to all the states, territories and the District of Columbia, a grant program entitled the "Academy Planning Assistance Program (APAP)". APAP was designed to provide financial assistance to individual states to enable them to identify and coordinate existing education and training resources, to assess education and training needs throughout the state, and to develop a statewide fire education and training design to meet the needs identified. APAP was composed of two components that provided assistance for: (1) the development of a statewide organizational design that described the fire education and training network as it existed throughout the state and made policy statement and established general goals regarding the system and its improvement; and (2) the development of a comprehensive 5-year education and training plan that was a clear statement of the most important improvements and advancements needed in fire education and training throughout the state. It laid out the steps to be taken to implement these advancements and improvements over a 5-year period. These 5-year plans also helped lay a logical base for further development of the Academy system.

In 1978, a system for providing financial assistance to students attending Academy courses was implemented. This system continues today as the student stipend reimbursement program. Due to limitations in funding, stipends are provided to offset a portion of the expense of attendance at resident courses and the regional delivery program.

In a joint effort with the International Association of Fire Fighters, in the early 1980's USFA supported the National Fire Apprenticeship Program that standardized training throughout the country. The program was funded previously by the Department of Labor.

USFA sponsored six senior fire officers for the JFK/Harvard Senior Executive Management Program held each summer. This program has been funded by a private initiative since 1996. USFA still administers the program.

In 1985, the Executive Fire Officer Program was initiated. This program, which started with three courses over a 3-year period, is designed to provide senior officers with a broad prospective on various facets of fire and emergency services administration. The program, which has been expanded to four courses over a 4-year period, also requires the completion of applied research for each course.

In order to be responsive to the evolving training needs of the fire and rescue service, courses are continuously developed and delivered. These needs arise from changes in operations or technology, or as the result of new regulations and standards. Examples of this development and delivery effort are the courses aimed at prevention and control of arson, preparing emergency responders for a hazardous material incident, or providing needed information for emergency responders who may be dispatched to the scene of a suspected or real terrorist incident. The specific courses in each of these areas are identified in Appendix B. Also included in Appendix C is a summary of Academy program information.

In order to address the special needs of a large segment of the fire and rescue service—the volunteer—the Academy created the Volunteer Incentive Program in 1988. This program includes eight courses on timely subjects, with the added feature of minimizing the time away from the student's place of employment.

Wildland

USFA, in conjunction with the U.S. Forest Service, supported the development of a new effort to address fires in wildlands caused by the Wildland Urban interface.

In 1992, an Urban/Wildfire Task Force was organized in response to the Oakland, California, disaster. The Urban Wildfire Task Force, a joint effort of the U.S. Department of Agriculture, Department of the Interior, National Association of State Foresters, NWCG and other organizations, met to review and develop strategies regarding urban/wildland interface fires. The task force also published a report that was distributed to a number of public and private organizations. USFA continued to pursue recommendations of the Urban/Wildland Task Force Steering Committee by:

- Encouraging the adoption of fire safety measures in areas with homes at risk from interface wildfires.
- Working with the NFPA's Wildland Management Section to develop urban/wildland codes and to encourage state and local officials to adopt these regulations.
- Developing a national public education campaign to reach two primary audiences in urban/wildland areas—local officials and families—to encourage them to take actions to minimize risks at the community and family level.
- Encouraging local jurisdictions to explore mutual aid agreements and incident command systems for immediate response when disasters strike.

Worked with the U.S. Forest Service in 1993 to design a handbook for use by wildland firefighters. This guide identified observations that firefighters in wildland areas should make to assist fire investigators in identifying evidence needed for successful arson investigations and prosecutions. The interdisciplinary national wildfire coordinating group and the Urban/Wildland Interface Steering Committee worked with USFA on this project.

The Urban Wildland Interface Program continued in 1994 with the U.S. Department of Agriculture's Forest Service and the Department of Interior to educate people who reside in the interface. New projects included working with landscapers, architects, builders, and code officials to develop fire safe landscaping, and building design, and to encourage code adoption in the interface.

Women in the Fire Service

The 1980 USFA booklet, "The Role of Women in the Fire Service," was a groundbreaking document. At a time when fewer than 200 women were working as career firefighters and few fire chiefs knew where to look for information on this controversial subject. FEMA and the USFA made it a priority to organize seminars and produce written material for to provide guidance to fire departments.

In cooperation with the Women in Fire Service, USFA completed several significant efforts including a new technical manual on Women in Fire Service in 1992, a national technical workshop, and an associated national videoconference.

Conducted an initial assessment of the health and safety needs of female emergency responders that focused on three important areas: toxicological and reproductive hazards, policies and procedures, and mental health issues. Findings demonstrated a need for more specific information related to occupational exposure, injury, accident prevention, ergonomic impact of size and fit of gear and equipment, and effects of stress.

In 1999, USFA produced two publications related to women in the fire service—Many Faces, One Purpose: A Manager's Handbook on Women in Firefighting and Handbook on Women in Firefighting.

Other Significant Accomplishments

Developed and pilot-tested a management information system to assist local departments in managing health and safety programs in selected cities.

A guide for Governor's was produced in 1989 by National Governor's Association Committee on Criminal Justice and Public Protection to give chief executives information on fire issues, potential state strategies and resources available to support programs.

In 1991, USFA developed and disseminated a guide for fire department safety officers. This document guides a department in establishing, maintaining, and monitoring a comprehensive safety program.

The NHTSA and USFA collaborated in 1994 to educate and train the fire service and the public on the importance and proper use of child safety restraints. This effort served as a building block in USFA's safety education and community service programs.

Continued efforts in 1997 on examining New Technologies in Hazardous Materials (HAZMAT) Response for Fire and Emergency Medical Services that provided local-level emergency responders with the information on the latest technology and equipment enabling them to respond to and mitigate HAZMAT incidents in a safer and more effective manner.

In 1997, continued work on a project examining New Technologies in Personnel Accountability for Fire and Emergency Medical Services which provided local level fire departments the most up to date technology and equipment to better track and monitor their response personnel and emergency incidents.

In 1997, established the USFA Home Page on the World Wide Web to provide a broad audience with easy access to USFA information. Information posted includes the National Fire Academy catalog and course schedule, instructions on how to become a National Fire Academy contract instructor, Hotel-Motel National Master List, on-line ordering of USFA publications, fact sheets from the national public education campaign "Fire Stops With You", the Learning Resource Center's On-Line Card Catalog, the National Fallen Firefighters Roll of Honor, and NFIRS data. USFA's Home Page is consistently one of FEMA's most active Web pages. The USFA portion of the FEMA site received over 6.2 million hits in 1998.

Initiated a project in 1998 on the Development of Standard Operating Procedures (SOP) for Fire and EMS departments. It was the goal of the project to provide information to local level emergency response organizations on how to develop SOP's to enhance operational safety and effectiveness.

Conducted research and provided to Congress the Report on Tire Fires (dated August 1998), as directed in the Fire Administration Authorization Act of 1997, Public Law 105-109. The report underwent final editing and was delivered to Congress in early 1999.

Completed investigating and documenting the efficiency of liquid fire extinguishing agents on Class A, Class B, and many Class D fires for extinguishing capability, environmental friendliness, biodegradability, and toxicity. The final report was delivered to Congress in early 1999.

Supported FEMA Y2K efforts as lead Federal agency for the Emergency Services Sector. USFA promoted awareness and assessed readiness of fire departments (in partnership

with the NASFM) and 9-1-1 centers (in partnership with the National Emergency Number Association).

Initiated a project to scan 125 paper-based publications to electronic format for customers to download from the USFA web site. The project was completed in February 1999, and made 75 percent of all USFA publications available through the web site in electronic format.

Since its creation, USFA has produced a variety of publications or technical reports on various topical areas related to fire prevention and control, as well as related matters. Appendix D contains a list of those publications that are currently available.

Summary

Over the years, USFA has undertaken numerous projects and programs to improve fire and rescue health and safety, operating efficiency, improved public safety, and overall improvement of service. These projects and programs involve research, partnerships, and a cooperative effort from many interested parties. It is through this spirit of coordination and cooperation that America will continue to be a safer place in which to live and work.

APPENDICES

Appendix A

Recommendations from the Blue Ribbon Panel (1998)

Recommendations about Mission

Recommendation #1: The Panel endorses the mission statements of both FEMA and the USFA regarding their sensitivity to the nation's fire problem, but suggests that the National Fire Academy develop a mission statement that more accurately describes the importance of its training and educational activities for the fire service and the resulting benefits for the public.

1.1 FEMA, USFA and NFA should revisit their mission statements regularly to ensure that each is responding to the fire problems to the best of their capabilities and that the concerns of their fire service and allied professional constituents remain prominent.

Recommendation #2: Demonstrate the importance of fire safety by renaming FEMA the Fire and Emergency Management Agency.

2.1 Use the occasion of the name change to demonstrate loyalty and commitment to the fire service community and promote fire issues to the public at large.

Recommendation about Organizational Structure

Recommendation #3: The panel recommends that the reporting relationships between the United States Fire Administrator, the Deputy Fire Administrator, and the Superintendent of the National Fire Academy be redefined so that these working relationships can be improved in terms of empowerment, delegation of authority, and accountability.

3.1 Determine if the current system of the Superintendent and the Deputy Administrator both reporting directly to the Fire Administrator is one which best encourages the flow of information toward positive and productive outcomes.

3.2 USFA should demonstrate a willingness and eagerness to reconfigure reporting relationships if they are not understood or not working efficiently.

Recommendations about Leadership and Management

Recommendation #4: The current United States Fire Administration does not have the confidence of the fire and emergency services. The Panel recommends that the FEMA Director and/or the Fire Administrator take the following actions:

4.1 Demonstrate a higher and sustained level of understanding about fire and emergency services issues through an advocacy at the federal level of those challenges facing fire and EMS managers through vigorous justification of USFA program goals and objectives.

4.2 Increase visibility at emergencies where a federal response is necessary to demonstrate that fire and EMS personnel are America's first responders to all hazards and as such deserve the same interest and funding that FEMA has shown to the emergency management sector.

4.3 Relocate the office of the USFA Administration, including staff, to the Washington, D.C., headquarters of FEMA in order to be a constant advocate of fire issues, especially during budget and resource negotiations. The Panel suggests, however, that the staff of the National Fire Academy remain in Emmitsburg.

4.4 FEMA must develop a job description for the United States Fire Administrator which lists the qualities and attributes of an effective administrator, including performance objectives and standards. It is strongly encouraged that these attributes include demonstrated professional ability in fire and rescue disciplines.

Recommendation #5: The leadership and organizational culture of FEMA must change by altering its views of fire and EMS issues in order to make programmatic changes which reflect the real impact of fire related hazards and emergencies (in terms of deaths, injuries and impact on the American economy) which greatly exceed those associated with large-scale natural disasters.

5.1 Include USFA Administrator in decisions of all FEMA's directorates as USFA fire and EMS customers represent those who are first responders in the field to FEMA's initiatives.

5.2 Create opportunities for interaction between the federal, state and local emergency managers and fire service managers to coordinate activities regarding risk identification and mitigation efforts.

5.3 Partner with the fire service in supporting changes on the level of those directed toward the emergency managers: make FIRE a part of FEMA through increasing the role of the USFA in FEMA.

5.4 Recognize that the fire service model of risk reduction through prevention efforts has created the finest emergency services infrastructure in the world and use these professionals to further the work of FEMA through such initiatives as Project Impact.

Recommendation #6: The Blue Ribbon Panel urges the Fire Administrator to carefully consider the recommendations made by the Program Chairs of the National Fire Academy and Local 1983 of FEMA regarding the U.S. Fire Administration and its four program areas. It is recommended that management participate in ongoing dialog to enhance positive labor/management relations.

Recommendations about Funding and Resource Management

Recommendation #7: Increase USFA support (allocate resources and staffing) for new NFIRS Version 5 as follows:

7.1 Increase USFA assistance and quality assurance to new and existing NFIRS states; support would include installing and testing new systems in each state and training state coordinators as well as providing support to state and local users as they convert to Version 5.

7.2 USFA would process and quality-control incoming data, generate state reports, and compile and distribute the annual data base.

7.3 Increase budget for NFIRS support at USFA by \$2 million per year.

7.4 Develop periodic grants to states to upgrade computer equipment to handle the new NFIRS Version 5 and to enhance analysis capabilities at an overall funding level of \$200,000 per year for the next several fiscal years to the designated state fire authority. Ten to twenty thousand dollar grants per state would upgrade all NFIRS states over a five-year period of conversion.

7.5 USFA should outsource, when appropriate, most fire data analysis activities now carried out by USFA to describe the overall U.S. fire problem (e.g., "A Profile of Fire in the United States") and any special fire analysis or fire report projects. This should be done through cooperative agreements, contracts or grants at a level of \$250,000 per year.

7.6 Regulation should be introduced requiring all states to report using the NFIRS system within five years. Future participation in USFA programs would be tied to participation in the NFIRS reporting system.

7.7 The Panel recommends that an additional \$2 million per year be put toward state grants for the marketing, training, and creation of incentives to ensure 100% NFIRS 5 participation.

Recommendation #8: USFA should focus on a number of critical R&D tasks identified in Public Law 93-498, which are as important today as they were in 1974 and still have not been fully addressed. These include specifically:

8.1 The role of USFA as a proactive leader, helping set the direction for the entire national fire safety R&D agenda, in partnership with other research organizations and major users of research.

8.2 Invest much more heavily in technology R&D programs to support the fire safety community in the areas of:

- a. firefighter health and safety
- b. advanced information technologies for fire management

- c. advanced technologies for fire prevention and protection
- d. advanced firefighting technologies
- e. burn care and rehabilitation

8.3 Provide leadership for the fire safety community in the transition to performance-based codes and standards. This role could include:

- a. Financial support of fire service participation in R&D activities of voluntary codes and standards committees

- b. Provide leadership and financial support to public and private academic institutions in support of degree and continuing education programs to equip fire safety professionals for active participation in use of performance-based regulations and standards

- c. Support of research needed to address public interest concerns/issues associated with such codes and standards

Recommendation #9: USFA should make effective use of the capabilities in the National Institute of Standards and Technologies (NIST), Department of Commerce, the Consumer Product Safety Commission, and other public and private sector organizations for R&D aimed at advancing the state of the art of fire safety in the nation.

Recommendation #10: The Panel recommends funding \$10 million per year to carry out these R&D initiatives plus an additional \$2 million for research grants to academic and other allied institutions.

Recommendation #11: It is recommended that the USFA increase its awareness of how diversity and multi-culturalism affect the fire problem through redirecting current resources and new funding toward specific at-risk populations.

11.1 Partner with representatives of cultural/ethnic groups to seek input and understanding regarding public education effectiveness and to develop new pathways for delivery.

11.2 Develop relationships with minority-owned corporations to co-develop fire prevention campaigns designed specifically for at-risk groups.

Recommendation #12: The Panel recommends that an additional \$4 million per year be directed to expand outreach efforts on community hazard assessment and at-risk groups, including technical assistance to fire departments serving populations under 2,500.

Recommendation #13: Create a local matching funds federal grant program designed to fund the hiring of Public Fire & Safety Educators over the next three years with a focus on states with a documented high life loss history.

Recommendation #14: The Panel recommends that the NFA budget be increased in order to increase student capacity by 50%, to improve off-campus course delivery, and to ensure that all first responders have access to the excellent courses that have been and can be developed by the staff of the National Fire Academy through continuation of the student manual support and utilization of the resources at the Learning Resource Center (LRC).

14.1 The Panel recommends that an additional 110 rooms (plus supporting facilities) be made available for resident program students of the NFA. This can be accomplished by a capital construction project or relocate EMI to another FEMA facility, thereby freeing up space at the NFA for additional students.

14.2 In order to increase the student capacity by 50% an additional \$2.5 million in operating funds is required for additional faculty and staff, course development and delivery costs, and increased student stipends.

14.3 Increased funding for student manual support be maintained for at least five years as the programs are handed off to the various states.

14.4 The Learning Resource Center (LRC) be staffed and open for reasonable hours (including evenings) whenever students are on campus.

14.5 The NFA shall recognize the benefits of having a diverse student population participate in their courses. Therefore, the admission process of the NFA should be strengthened to enhance the numbers of women and ethnic group members participating in the various programs.

Recommendation #15: The Academy should consider a very limited time when basic courses (i.e., arson investigation, inspection practices, basic Haz Mat, etc.) are taught at Emmitsburg. These should be handed-off to the states, with residential courses focusing on executive-level management, advanced technology and those focusing on the introduction of new ideas into the fire service.

Recommendation #16: State and local fire training programs are an integral component of the training and educational services of the NFA. In order to maintain and strengthen this important partnership, grants to support state fire training programs need to be improved. The grants should be in the \$100,000 range per state, as follows:

- \$75,000 - To deliver NFA courses at the state level, including program materials and delivery costs.
- \$25,000 - (.5 FTE) to coordinate delivery of NFA programs at the state and local level and to provide for the management and accountability of NFA courses.

Recommendation #17: The Panel recommends to the Director that he evaluate policies currently affecting the Board of Visitors to ensure that the BOV is permitted to operate as it was intended.

17.1 Funds budgeted for the BOV travel and meetings should be separate from the salary and expenses of the USFA/NFA.

17.2 The staff person assigned to work with the BOV should be a staff member from the FEMA Director's office and not from USFA.

17.3 The Board should be funded for a minimum of four meetings per year.

Recommendations about Planning

Recommendation #18: The Panel recommends that planning within FEMA more substantively incorporate the goals and objectives of the fire and EMS constituencies in this country, recognizing the fire/EMS system as the primary mitigation and prevention infrastructure in service to the citizens.

Recommendation #19: As a starting point for revitalization, it is strongly recommended that the USFA develop a strategic plan utilizing valuable stakeholder contributions that have already been made and others which will be sought directly.

Recommendation #20: Effective Strategic Plans have to be realistic, measurable and achievable. USFA should ensure that it can meet the two goals established in FEMA's strategic plan regarding the fire programs.

Recommendation #21: The USFA needs to be an active partner and have a proactive role in the National Disaster & Terrorism Response effort, and that \$15 million be appropriated for this effort.

Recommendations about Personnel and Human Resource Issues

Recommendation #22: The Panel recommends that staffing levels at the NFA be established at the appropriate level, through the adoption of the budget recommendations made in this report, and in a separate study regarding NFA.

Recommendation #23: The Panel recommends that an interest-based conflict resolution system be developed and used by these three groups during points of impasse and during all negotiations about the future concerning mission and resource allocation.

Recommendation #24: The Panel recommends that the staff of the USFA develop a decision making model which is well-integrated throughout the Fire Administration.

Recommendation #25: Train staff at all levels to be effective managers in skills they identify as critical to job performance (e.g., teamwork empowerment, etc.)

Recommendations about Advocacy and Partnership

Recommendation #26: The Panel recommends that the USFA continue outreach programs for the dissemination of information about fire problems in the United States and that it strive to ensure that all data is current and presented in user-friendly format. The USFA should utilize existing public and private sector resources wherever possible through partnership agreements to achieve this objective.

Recommendation #27: The Panel urges the USFA and its National Fire Academy to consider the ramifications of what it does for its institutional partners and provide increased support for "Degrees at a Distance" and other fire service college curriculum programs.

Recommendation #28: At all points, FEMA must inject a consciousness of the fire problem into its programs and outward, into federal government policy whenever appropriate, especially in the area of health care, occupational safety and health, DOT standards, etc. Congressional liaison from FEMA to Congress must develop a feed-back loop to the fire service.

Recommendation #29: In order to promote loyalty and demonstrate advocacy, the Panel urges that the FEMA Director sponsor an annual meeting of representative stakeholder interests regarding fire concerns and issues similar to that conducted on behalf of the emergency management community.

Recommendation #30: The Panel recommends that FEMA/USFA develop fellowships for senior fire officers at the local level whereby they would serve under the highest levels of FEMA/USFA administrators for six month periods. This would strengthen the connections between FEMA/USFA to fire leaders in the field and give senior USFA personnel regular input from local leaders on needs, perceptions, ideas and problem-solving. In turn, this would begin to build a cadre of fire officers across the nation with intimate working knowledge of the federal fire programs--officers who would then be a resource/talent pool during major national emergencies.

Recommendation #31: In order to improve the effectiveness of USFA developments at the local level, the Panel urges the creation of a federal grant/local matching programs to enable fire/EMS departments to acquire training resources, new technology, specialized equipment and safety resources.

Recommendation #32: Ensure when there is a major fire, large-scale explosion or similar event that warrants national media coverage that the USFA be a more visible advocate, provide commentary, provide data, interpretation and analysis in support of local fire authorities.

Recommendation #33: Recognize that the study of the U.S. fire problem could benefit from examining success models elsewhere and that the USFA should have a major role in brokering an international flow of information on such issues as technology development, training initiatives, and cultural aspects of fire prevention.

Recommendation about the Future

Recommendation #34: As a starting point for rebuilding, the Panel requests that the Director, Congress and President of the United States create a commission to continue the work begun in *America Burning*. Due to the continuing seriousness of the fire problem in the United States, the Blue Ribbon Panel suggests this body begin its work in Washington, D.C. in June of 1999 and complete its work in eighteen months time.

Appendix B

National Fire Academy Curriculum

(Date shown is the date the course was first offered)

Fire Prevention

Public Fire Education (2-4-80); replaced by
Public Fire Education Specialist (10-19-81); no longer being offered

Fire Prevention Specialist I (7-21-80); replaced by
Fire Inspection Principles (5-6-91); still being offered

Codes and Ordinances (7-20-81); replaced by
Managing the Code Process (10-11-82)
Code Enforcement: A Systems Approach (8-15-88)
Code Management: A Systems Approach (12-12-88); still being offered

Public Fire Safety Education (11-21-81); no longer being offered

Fire Prevention I (2-day) (1-16-82); no longer being offered

Management of Public Fire Education (11-8-82); replaced by
Advanced Fire Safety Education (10-13-86); no longer being offered

Conducting Basic Fire Prevention Inspections (7-11-83); replaced by
Introduction to Fire Inspection Principles and Practices (8-13-94); handed off in
1996

Public Fire Education Planning (8-22-83); handed off in 1983

Fire Risk Analysis (A Systems Approach) (8-27-83); no longer being offered

Plans Review for Inspectors (10-10-83); still being offered

Community Volunteer Fire Prevention Program (11-30-83); no longer being offered

Fire Education Evaluation (2-16-85); no longer being offered

Fire Safety Building Design (4-26-85); no longer being offered

Management of Fire Prevention Programs (8-5-85); still being offered

Introduction to Fire Safety Education (9-30-85); no longer being offered

Learn Not to Burn (10-20-85); no longer being offered

Strategic Analysis of Fire Prevention Programs (3-30-87); no longer being offered

Method of Enhancing Safety Education (4-7-87); still being offered

Developing Fire and Life Safety Strategies (7-29-90); still being offered

Fire Prevention Specialist II (7-27-91); replaced by

Principles of Fire Protection: Structures and Systems (11-8-93); still being offered

Presenting Effective Public Education Programs (7-12-93); still being offered

Strategic Analysis of Community Risk Reduction (3-7-94); still being offered

Public Education Leadership (2-5-96); replaced by

Community Education Leadership (6-16-97); still being offered

Community Risk Issues and Preventive Interventions (4-9-97); still being offered

Successful Community Education Planning (4-7-98); no longer being offered

Technical Principles and Practices of Fire Prevention; handed off in 1999

Fire Prevention for First Responders and Small Departments; pilot tested in 1999; scheduled for 2000

Arson

Fire Arson Investigation (1-21-80); still being offered

Fire/Arson Detection (2-4-80); replaced by

Arson Detection (10-4-82); no longer being offered

Fire/Arson Detection (2-day version) (11-14-81); replaced by

Arson Detection for First Responders (11-9-96); still being offered; handed off in 1996

Micro-Computers (Arson Squad Managers) (12-13-82); no longer being offered

Juvenile Firesetter Program (10-15-83); no longer being offered

Counseling Juvenile Firesetters Ages 0-7 (4-13-85); no longer being offered

Counseling Juvenile Firesetters Ages 7-14 (5-2-85); no longer being offered

Fire Cause Determination for Company Officers (6-6-93); still being offered

Initial Fire Investigations (4-24-95); still being offered

Arson Detection for First Responders TIT (9-15-96); offered as needed

Management of Arson Prevention and Control Programs (2-10-97); still being offered

Hazardous Materials

Hazardous Materials Fire and Spill Control (5-5-80); no longer being offered

Hazardous Materials I (1-5-81); replaced by
Chemistry of Hazardous Materials (10-4-82); still being offered

Hazardous Materials III (1-5-81); replaced by
Planning for a Hazardous Materials Incident (11-8-82); no longer being offered

Hazardous Materials II (1-19-81); replaced by
Hazardous Materials Tactical Considerations (10-25-82); no longer being offered

Hazardous Materials Incident Analysis (2-13-82); handed off in 1984

Pesticide Fire and Spill Control (2-12-83); replaced by
Hazardous Materials: The Pesticide Challenge (2-16-85); handed off in 1984

Hazardous Substance Specialist (2-11-85); no longer being offered

Computer Aided Management of Emergency Operations (CAMEO) (7-20-87); no longer being offered

Instructor's Program Chemistry Level I (2-1-88); replaced by
Instructor's Program-Chemistry of Hazardous Materials (4-8-91)
Chemistry of Hazardous Materials-Instructor's Program, Level I (5-20-96); no longer being offered

Initial Response to Hazardous Materials Incidents: Basic Concepts (6-22-91); handed off in 1992

Initial Response to Hazardous Materials Incidents: Concept Implementation (2-15-92); handed off in 1992

Hazardous Materials Operating Site Practices (11-2-92); still being offered

Recognizing and Identifying Hazardous Materials; handed off in 1992

Hazardous Materials Operating Site Practices Instructor's Program (1-18-93); no longer being offered

Hazardous Materials Incident Management (1-31-94); still being offered

Basic Life Support/Hazardous Materials (4-30-94); still being offered; handed off in 1996

Advanced Life Support/Hazardous Materials (7-11-94); still being offered

Basic Life Support/Hazardous Materials TtT (10-14-95); offered as needed

Anti-Terrorism

Emergency Response to Terrorism: Basic Concepts TtT (6-14-97); still being offered

Emergency Response to Terrorism: Basic Concepts (10-4-97); still being offered; handed off in 1997

Emergency Response to Terrorism: Self-Study (10-31-97); still being offered

Emergency Response to Terrorism: Tactical Considerations for the Company Officer (4-27-98); still being offered

Emergency Response to Terrorism: Tactical Considerations for the Emergency Medical Services (8-2-98); still being offered

Emergency Response to Terrorism: Tactical Considerations for the Hazardous Materials Team (8-3-98); still being offered

Emergency Response to Terrorism: Incident Management (11-29-98); still being offered

Emergency Response to Terrorism: Basic Concepts Violence in Schools; handed off in 1999

Management and Administration

Executive Development III (1-21-80); replaced by

Fire Executive Development III (1-20-86)

Fire Executive Development (10-10-88)

Executive Development (12-3-90); still being offered

Executive Development II (8-4-80); replaced by

Communications Under Pressure (10-5-81)

Leadership and Communications (1-5-82)

Fire Service Leadership Communications (10-11-82)

Fire Service Communications (1-30-89); still being offered

Fire Service Mid-Management I (10-5-81); replaced by
Fire Service Organizational Theory (10-25-82)
Organizational Theory and Practice (11-9-91)
Organizational Theory in Practice (11-7-92); still being offered

Fire Service Mid Management II (10-19-81); replaced by
Interpersonal Dynamics in Fire Service Organizations (11-8-82); still being
offered

Volunteer Fire Service Management (5-3-82); handed off in 1982

Elements of Fire Service Supervision (6-12-82); no longer being offered

Fire Service Supervision: Increasing Personal Effectiveness (10-15-83); handed off in
1985

Fire Service Supervision: Increasing Team Effectiveness (12-15-83); handed off in 1985

Executive Fire Officer Program (established in 1985); still being operated

Strategic Analysis of Executive Leadership (4-27-87); replaced by
Executive Leadership (10-8-90); still being offered

Executive Forum (7-20-87); no longer being conducted

Leadership I: Strategies for Company Success (LS-I) (4-25-88); still being offered;
handed off in 1993

Leadership III: Strategies for Supervisory Success (LS-III) (6-4-88); still being offered;
handed off in 1993

Leadership II: Strategies for Personal Success (LS-II) (6-25-88); still being offered;
handed off in 1993

Executive Fire Officer Symposium (5-14-89); still being conducted

Leadership I, II, III TtT (10-3-93); offered as needed

Leadership and Administration (2-6-94); still being offered

Shaping the Future (11-7-94); still being offered; handed off in 1996

Managing in a Changing Environment (11-9-94); still being offered; handed off in 1996

Strategic Management of Change (11-27-95); still being offered

Executive Skills Series: Managing and Leading (8-20-97); still being offered

Executive Skills Series: Influencing (8-20-97); still being offered

Executive Skills Series: Leading Diverse Communities; planned for 2000

Instructional Methodology

Educational Methodology I (1-21-80); replaced by
Educational Methodology (10-11-82)
Fire Service Instructional Methodology (10-28-85); no longer being offered

Educational Methodology II (5-19-80); replaced by
Course Development (10-25-82)
Fire Service Course Development (9-30-85)
Fire Service Course Design (11-29-93); still being offered

Instructional Techniques for Company Officers (1-30-82); handed off in 1983

Advanced Instructional Techniques for Company Officers (10-25-86); no longer being offered

Health and Safety

Firefighter Safety and Survival: The Company Officer's Responsibility (7-13-85);
handed off in 1988

Firefighter Health and Safety: Program Implementation and Management (8-22-87);
handed off in 1988

Health and Safety Officer (12-4-87); still being offered; handed off in 1996

Incident Safety Officer (4-1-95); still being offered; handed off in 1996

Incident Safety Officer TrT (10-9-95); still being offered

Health and Safety Officer TrT (10-14-95); still being offered

Incident Management

Incident Command I (7-21-80); replaced by
Command and Control of Initial Operations (2-29-88); no longer being offered

Incident Command II (7-21-80); replaced by
Advanced Incident Command (10-25-82)
Command and Control of Fire Department Operations (2-3-86)

Command and Control of Major Operations (10-31-88)
Command and Control of Fire Department Major Operations (10-30-89)
Command and Control of Fire Department Operations at Multi-Alarm Incidents
(3-7-94); still being offered

Fire Incident Management (10-31-81); replaced by
Incident Command System (1-15-83); handed off in 1989

Incident Command (10-11-82); no longer being offered

Integrated Emergency Management Systems (IEMS) Training (12-14-83); no longer
being offered

Strategic Considerations (4-9-84); replaced by
Strategic Analysis of Fire Problems (10-15-84)
Strategic Analysis of Fire Department Operations (9-30-85)
Executive Analysis of Fire Services Operations in Emergency Management (4-
25-94); still being offered

Initial Company Tactical Operations (7-20-85); no longer being offered

Multiple Company Tactical Operations (8-6-85); no longer being offered

Command and Control of Fire Department Operations at Earthquakes and Other
Catastrophic Disasters (4-7-86); replaced by
Command and Control of Disasters (10-26-87)
Command and Control of Fire Department Operations at Catastrophic Disasters
(10-16-89)
Command and Control of Fire Department Operations at Natural and Man-Made
Disasters (6-13-94); still being offered

Tactical Operations/Safety Management (2-29-88); no longer being offered

Tactical Operations for Company Officers I (4-16-88); no longer being offered

Tactical Operations for Company Officers II (4-23-88); no longer being offered

Fire Command Operations (5-15-88); still being offered

Preparing for Incident Command (8-16-89); no longer being offered

Managing Company Tactical Operations: Preparation (2-9-91); handed off in 1991

Managing Company Tactical Operations: Decision-Making (2-23-91); handed off in
1991

Managing Company Tactical Operations: Tactics (10-2-93); still being offered; handed off in 1993

Commanding the Initial Response (8-16-94); no longer being offered

Command and Control of Fire Department Operations at Target Hazards (6-18-95); still being offered

Incident Command for Emergency Medical Services (7-9-95); still being offered; handed off in 1996

Managing Company Tactical Operations: Simulation; handed off in 1995

Incident Command for Emergency Medical Services TIT (10-26-96); offered as needed

Incident Command for High Rise Operations (12-5-98); still being offered

Incident Command for Structural Collapse Incidents (2-27-99); still being offered

Emergency Medical Services

Emergency Medical Services (1-5-81); replaced by
Management of Emergency Medical Services for the Fire Service (10-25-82)
Management of Emergency Medical Services (1-19-87); still being offered

EMS Administration (2-27-82); replaced by
Emergency Medical Services Administration: An Overview (2-25-84); no longer being offered

Advanced Leadership Issues in Emergency Medical Services (11-7-94); still being offered

Emergency Medical Services for Special Operations (11-9-98); still being offered

Other

National Fire Incident Reporting System Program Management (8-15-94); still being offered

Use of Microcomputers for Fire Service Management (1-10-83); no longer being offered

Information Management Systems (6-4-84); replaced by
Fire Service Information Management (2-2-87); no longer being offered

Executive Information Planning (5-17-93); replaced by
Executive Planning (10-3-94); still being offered

Fire Service Financial Management (1-20-86); still being offered

Training Program Management (4-24-95); still being offered

Challenges of the Local Training Officer (2-1-98); still being offered

Training Operations in Small Departments (11-6-99); still being offered

Organizational Analysis and Renewal (1-9-84); no longer being offered

Aircraft Crash Fire Rescue Basic Skills (2-11-85); no longer being offered

Fire and Emergency Services Higher Education Conference (4-8-99); conducted as needed

Rescue Systems I; handed off in 1993

Wildland/Urban Interface Fire Protection: A National Problem with Local Solutions (9-26-88); handed off in 1988

Fire Apparatus Purchase and Maintenance (10-17-81); no longer being offered

Community Fire Defenses: Challenges and Solutions (11-19-83); no longer being offered

Community Fire Protection: Master Planning (7-31-88); replaced by
Fire Service Planning Concepts for the 21st Century (12-1-96); still being offered

Infection Control for Emergency Response Personnel (12-7-91); replaced by
Infection Control for Emergency Response Personnel: The Supervisor's Role and Responsibilities (12-1-90); handed off in 1993

Building Construction for Fire Suppression Forces: Principles, Wood and Ordinary Construction (8-21-82); handed off in 1986; revised and reissued in 1999 as Principles of Building Construction: Combustible; still being offered

Building Construction: Noncombustible and Fire Resistive Construction (10-15-83); handed off in 1986

Fire Service Management Training (7-11-88); no longer being offered

Maximizing Resources and Markets (4-9-98); no longer being offered

Introduction to Wildland and Wildland/Urban Interface Firefighting for the Structural Company Officer; handed off in 1999

Appendix C

NATIONAL FIRE ACADEMY
PROGRAM INFORMATION

	OFFER.	GRADS	STUDENT DAYS	STIPENDS PAID	AVERAGE PAID
1980 ACTUAL					
RESIDENT ON CAMPUS	103	2098	19085	UNKNOWN	
RESIDENT OFF CAMPUS				UNKNOWN	
TOTAL RESIDENT	103	2098	19085		
FIELD ON CAMPUS				UNKNOWN	
FIELD OFF CAMPUS	39	1286		UNKNOWN	
TOTAL FIELD DIRECT	39	1286	0		
INDIRECT (TTT)					
GRAND TOTAL	142	3384	19085		
1981 ACTUAL					
RESIDENT ON CAMPUS	183	4034		UNKNOWN	
RESIDENT OFF CAMPUS				UNKNOWN	
TOTAL RESIDENT	183	4034	0		
FIELD ON CAMPUS				UNKNOWN	
FIELD OFF CAMPUS		6784	15466	UNKNOWN	
TOTAL FIELD DIRECT	0	6784	15466		
INDIRECT (TTT)					
GRAND TOTAL	183	10818	15466		
1982 ACTUAL					
RESIDENT ON CAMPUS	189	4130	42040	\$1,003,273	\$234
RESIDENT OFF CAMPUS					
TOTAL RESIDENT	189	4130	42040	\$1,003,273	
FIELD ON CAMPUS					
FIELD OFF CAMPUS	246	10935	22750		
TOTAL FIELD DIRECT	246	10935	22750	\$0	
INDIRECT (TTT)					
GRAND TOTAL	435	15065	64790	\$1,003,273	
1983 ACTUAL					
RESIDENT ON CAMPUS	181	4146	44410	\$980,948	\$237
RESIDENT OFF CAMPUS					
TOTAL RESIDENT	181	4146	44410	\$980,948	
FIELD ON CAMPUS					
FIELD OFF CAMPUS	272	11334	23530		
TOTAL FIELD DIRECT	272	11334	23530	\$0	
INDIRECT (TTT)					
GRAND TOTAL	453	15480	67940	\$980,948	

NATIONAL FIRE ACADEMY
PROGRAM INFORMATION

	OFFER.	GRADS	STUDENT DAYS	STIPENDS PAID	AVERAGE PAID
1984 ACTUAL					
RESIDENT ON CAMPUS	163	3833	42220	\$1,062,723	\$277
RESIDENT OFF CAMPUS					
TOTAL RESIDENT	163	3833	42220	\$1,062,723	
FIELD ON CAMPUS				\$63,895	\$247
FIELD OFF CAMPUS	297	10441	21975		
TOTAL FIELD DIRECT	297	10441	21975	\$63,895	
INDIRECT (TTT)					
GRAND TOTAL	460	14274	64195	\$1,126,618	
1985 ACTUAL					
RESIDENT ON CAMPUS	157	3843	46311	\$1,005,448	\$262
RESIDENT OFF CAMPUS					
TOTAL RESIDENT	157	3843	46311	\$1,005,448	
FIELD ON CAMPUS	59	2503	5352	\$96,807	\$285
FIELD OFF CAMPUS	1492	41051	88181		
TOTAL FIELD DIRECT	1551	43554	93533	\$96,807	
INDIRECT (TTT)					
GRAND TOTAL	1708	47397	139844	\$1,102,255	
1986 ACTUAL					
RESIDENT ON CAMPUS	163	3966	46645	\$868,151	\$256
RESIDENT OFF CAMPUS	1	30	426		
TOTAL RESIDENT	164	3996	47071	\$868,151	
FIELD ON CAMPUS	69	3028	6803	\$60,644	\$276
FIELD OFF CAMPUS	283	8856	17712		
TOTAL FIELD DIRECT	352	11884	24515	\$60,644	
INDIRECT (TTT)					
GRAND TOTAL	516	15880	71586	\$928,795	
1987 ACTUAL					
RESIDENT ON CAMPUS	163	4164	47791	\$934,917	\$258
RESIDENT OFF CAMPUS					
TOTAL RESIDENT	163	4164	47791	\$934,917	
FIELD ON CAMPUS	89	3365	7738	\$86,021	\$323
FIELD OFF CAMPUS	196	5453	10906		
TOTAL FIELD DIRECT	285	8818	18644	\$86,021	
INDIRECT (TTT)					
GRAND TOTAL	448	12982	66435	\$1,020,938	

NATIONAL FIRE ACADEMY
PROGRAM INFORMATION

	OFFER.	GRADS	STUDENT DAYS	STIPENDS PAID	AVERAGE PAID
1988 ACTUAL					
RESIDENT ON CAMPUS	164	4011	44120	\$998,585	\$274
RESIDENT OFF CAMPUS	30	833	7465		
TOTAL RESIDENT	194	4844	51585	\$998,585	
FIELD ON CAMPUS	94	4216	9693	\$103,788	\$302
FIELD OFF CAMPUS	268	7726	15452		
TOTAL FIELD DIRECT	362	11942	25145	\$103,788	
INDIRECT (TTT)					
GRAND TOTAL	556	16786	76730	\$1,102,373	
1989 ACTUAL					
RESIDENT ON CAMPUS	159	4480	40287	\$1,207,315	\$309
RESIDENT OFF CAMPUS	76	1912	18890		
TOTAL RESIDENT	235	6392	59177	\$1,207,315	
FIELD ON CAMPUS	105	4202	8404		
FIELD OFF CAMPUS	297	8930	17860		
TOTAL FIELD DIRECT	402	13132	26264		
INDIRECT (TTT)					
GRAND TOTAL	637	19524	85441	\$1,207,315	
1990 ACTUAL					
RESIDENT ON CAMPUS	158	3993	36934	\$1,097,632	\$316
RESIDENT OFF CAMPUS	47	1094	10940		
TOTAL RESIDENT	205	5087	47874	\$1,097,632	
FIELD ON CAMPUS	118	4723	9446		
FIELD OFF CAMPUS	283	8485	16970		
TOTAL FIELD DIRECT	401	13208	26416		
INDIRECT (TTT)					
GRAND TOTAL	606	18295	74290	\$1,097,632	
1991 ACTUAL					
RESIDENT ON CAMPUS	150	3560	33147	\$1,067,855	\$345
RESIDENT OFF CAMPUS	31	753	7530		
TOTAL RESIDENT	181	4313	40677	\$1,067,855	
FIELD ON CAMPUS	137	5449	10898		
FIELD OFF CAMPUS	277	7437	14874		
TOTAL FIELD DIRECT	414	12886	25772		
INDIRECT (TTT)					
GRAND TOTAL	595	17199	66449	\$1,067,855	

NATIONAL FIRE ACADEMY
PROGRAM INFORMATION

	OFFER.	GRADS	STUDENT DAYS	STIPENDS PAID	AVERAGE PAID
1992 ACTUAL					
RESIDENT ON CAMPUS	170	4309	35479	\$1,190,985	\$322
RESIDENT OFF CAMPUS	50	1498	13968	\$51,500	\$126
TOTAL RESIDENT	220	5807	49447	\$1,242,485	
FIELD ON CAMPUS	146	5284	10568		
FIELD OFF CAMPUS	202	7105	14210		
TOTAL FIELD DIRECT	348	12389	24778		
INDIRECT (TTT)					
GRAND TOTAL	568	18196	74225	\$1,242,485	
1993 ACTUAL					
RESIDENT ON CAMPUS	166	3695	33142	\$1,042,287	\$324
RESIDENT OFF CAMPUS	21	533	3298	\$61,781	\$123
TOTAL RESIDENT	187	4228	36440	\$1,104,068	
FIELD ON CAMPUS	133	3682	7364		
FIELD OFF CAMPUS	281	7484	13806	\$22,074	\$380
TOTAL FIELD DIRECT	414	11166	21170	\$22,074	
INDIRECT (TTT)					
GRAND TOTAL	601	15394	57610	\$1,126,142	
1994 ACTUAL					
RESIDENT ON CAMPUS	177	3928	35857	\$1,160,258	\$347
RESIDENT OFF CAMPUS	63	1597	13397	\$29,683	\$109
TOTAL RESIDENT	240	5525	49254	\$1,189,941	
FIELD ON CAMPUS	132	3418	6836		
FIELD OFF CAMPUS	211	5114	10228		
TOTAL FIELD DIRECT	343	8532	17064		
INDIRECT (TTT)					
GRAND TOTAL	583	14057	66318	\$1,189,941	
1995 ACTUAL					
RESIDENT ON CAMPUS	203	4871	39435	\$1,373,941	\$353
RESIDENT OFF CAMPUS	67	1604	13433	\$39,875	\$109
TOTAL RESIDENT	270	6475	52868	\$1,413,816	
FIELD ON CAMPUS	128	3366	6732		
FIELD OFF CAMPUS	220	5298	10596		
TOTAL FIELD DIRECT	348	8664	17328		
INDIRECT (TTT)					
GRAND TOTAL	618	15139	70196	\$1,413,816	

NATIONAL FIRE ACADEMY
PROGRAM INFORMATION

	OFFER.	GRADS	STUDENT DAYS	STIPENDS PAID	AVERAGE PAID
1996 ACTUAL					
RESIDENT ON CAMPUS	174	4033	35594	\$1,218,256	\$358
RESIDENT OFF CAMPUS	54	1442	11432	\$26,007	\$96
TOTAL RESIDENT	228	5475	47026	\$1,244,263	
FIELD ON CAMPUS	105	2742	5607		
FIELD OFF CAMPUS	231	5594	11188		
TOTAL FIELD DIRECT	336	8336	16795		
INDIRECT (TTT)					
GRAND TOTAL	564	13811	63821	\$1,244,263	
1997 ACTUAL					
RESIDENT ON CAMPUS	199	5301	43067	\$1,447,254	\$346
RESIDENT OFF CAMPUS	109	2561	10327	\$28,451	\$102
TOTAL RESIDENT	308	7862	53394	\$1,475,705	
FIELD ON CAMPUS	122	3108	6216		
FIELD OFF CAMPUS	314	7678	15410		
TOTAL FIELD DIRECT	436	10786	21626		
INDIRECT (TTT)					
GRAND TOTAL	744	18648	75020	\$1,475,705	
1998 ACTUAL					
RESIDENT ON CAMPUS	220	5288	44472	\$1,480,689	\$339
RESIDENT OFF CAMPUS	80	1705	13678	\$24,529	\$105
TOTAL RESIDENT	300	6993	58150	\$1,505,218	
FIELD ON CAMPUS	115	3091	6182		
FIELD OFF CAMPUS	263	23893	11402		
TOTAL FIELD DIRECT	378	26984	17584		
INDIRECT (TTT)	472	14635	23270		
GRAND TOTAL	1150	48612	99004	\$1,505,218	
1999 ACTUAL					
RESIDENT ON CAMPUS	227	5748	47791	\$1,492,293	\$321
RESIDENT OFF CAMPUS	96	2097	14973	\$12,783	\$90
TOTAL RESIDENT	323	7845	62764	\$1,505,076	
FIELD ON CAMPUS	124	3123	6516		
FIELD OFF CAMPUS	223	26975	31114		
TOTAL FIELD DIRECT	347	30098	37630		
INDIRECT (TTT)	512	14657	28813		
GRAND TOTAL	1182	52600	129207	\$1,505,076	

Appendix D

USFA Publications Currently Available

CD-ROMS/CASSETTES/ VIDEOS:

EMERGENCY PROCEDURES FOR EMPLOYEES WITH DISABILITIES IN OFFICE OCCUPANCIES (*Fire Protection*) (*Cassettes*) The purpose of this guide is to provide information for facilities managers and may be useful for those individuals who might need special assistance as to the notification of an emergency situation and/or in the evacuation of a building.

FIRE IN THE UNITED STATES CD-ROM (*Fire Data*) This CD-ROM contains 24 reports and publications issued by the National Fire Data Center, including the 9th and 10th editions of *Fire in the U.S.* and the annual report *Firefighter Fatalities in the U.S.* for the years 1986 to 1997.

GUIDE TO INVESTIGATING MOTOR VEHICLE FIRES (*Arson/Bombing*) (1/2" VHS-43:42 min.) This program focuses on the importance of investigating a fire thoroughly. Major topics include steps in an investigation, protecting evidence, and what to look for at a fire scene. Includes student manual and video.

USFA TECHNICAL REPORT SERIES CD-ROM (*Arson/Bombing, EMS, Fire Protection, Fire Safety and Public Education, Fire Service Administration, Fire Service Operations, Hazardous Materials, Health and Safety, Rescue, Terrorism, Wildfire*) This CD-ROM contains 86 Technical Reports published by USFA from February 1987 through June 1999.

BOOKS/REPORTS:

AFTER THE FIRE! RETURNING TO NORMAL (FA-46) (*Fire Safety and Public Education*) (*Online: HTML, PDF, 140 KBytes; Word, 39 KBytes*) This 16-page booklet provides information on recovering from a fire, including what to do during the first 24 hours, insurance considerations, valuing your property, replacement of valuable documents, salvage hints, fire department operations, and more.

AFTER THE FIRE! RETURNING TO NORMAL (SPANISH) (FA-46S) (*Fire Safety and Public Education*) This 16-page booklet provides information on recovering from a fire, including what to do during the first 24 hours, insurance considerations, valuing your property, replacement of valuable documents, salvage hints, fire department operations, and more.

AMERICA BURNING (*Fire Data, Fire Protection, Fire Safety and Public Education, Health and Safety, Training, U.S. Fire Administration*) (*Online: PDF*) Perhaps the most widely quoted fire protection publication, this report set the stage for national

consciousness-raising about the need for as much concern about fire prevention as for fire suppression.

AMERICA BURNING REVISITED (*Fire Data, Fire Protection, Fire Safety and Public Education, Health and Safety, Training, U.S. Fire Administration*) (*Online: PDF, 1.6 MBytes*) This follow-up to the original report, *AMERICA BURNING*, reviews the progress made to combat the fire problem and to redefine the strategies needed to further reduce loss of life and property to fire.

ARSON FORUM REPORT (FA-134) (*Arson/Bombing*) This is a report of working groups defining arson problems and concerns, and recommendations addressing those problems and concerns. Topic areas include data gathering and analysis, management, investigation and prosecution, prevention, and training and education.

ARSON IN THE UNITED STATES (FA-174) (*Arson/Bombing, Fire Data*) (*Online: PDF, 147 KBytes*) This report presents data on the magnitude and characteristics of the arson problem, discusses factors known to contribute to the incidence of arson, and addresses several of the challenges faced in dealing with the problem of arson.

ARSON PROSECUTION ISSUES (FA-78) (*Arson/Bombing*) (*Online: PDF, 208 KBytes*) This overview is especially beneficial to arson investigators, prosecutors, law enforcement personnel, and judges.

ARSON RESOURCE DIRECTORY (FA-74) (*Arson/Bombing*) (*Online: PDF, 314 KBytes*) Provides a broad spectrum of resources related to arson prevention and control in the public and private sectors. Included are expert opinions, organizations, programs, and written materials that serve as a technical information base.

BACKFLOW PROTECTION FOR RESIDENTIAL SPRINKLER SYSTEMS (*Fire Protection*) (*Online: PDF, 411 KBytes*) This report addresses risk versus benefit issues associated with the installation of residential fire sprinkler systems. A primary objective of this assessment is to rate the risk of potable water contamination from a residential sprinkler system.

BASIC TOOLS AND RESOURCES FOR FIRE INVESTIGATORS (FA-127) (*Arson/Bombing*) (*Online: PDF, 253 KBytes*) Basic information about the tools and techniques of fire investigation associated with determining and verifying the origin and cause of fire.

COMPARISON OF FIRE SPRINKLER PIPING MATERIALS (FA-150) (*Fire Protection*) (*Online: PDF, 2 MBytes*) This report addresses key variables such as material properties, usage criteria and limitations, system design, installation requirements, economics, and maintenance. Useful information is presented for the selection of sprinkler pipe materials.

CONFINED SPACE RESCUE ON SS GEM STATE--TACOMA, WA (FA-163a) (*Fire Service Operations, Rescue*) (Online: PDF, 233 KBytes) Details rescue of victim unconscious from unknown circumstances. During the operation, several firefighters were overcome by high levels of carbon monoxide.

CRASH OF TWO SUBWAY TRAINS ON THE WILLIAMSBURG BRIDGE--NEW YORK, NY (FA-163f) (*Fire Service Operations, Rescue*) (Online: PDF, 741 KBytes) Details interagency response of the NYC EMS, Fire Department and Police Department to the crash of two subway trains.

DERAILMENT OF THE SUNSET LIMITED--BIG BAYOU CANOT, AL (FA-163b) (*Fire Service Operations, Rescue*) (Online: PDF, 938 KBytes) Details the response of the Mobile, AL, Fire Department to the derailment of a passenger train in a remote section of the Big Bayou Canot.

DIRECTORY OF NATIONAL COMMUNITY VOLUNTEER FIRE PREVENTION PROGRAMS (FA-92) (*Fire Safety and Public Education*) (Online: PDF, 300 KBytes) This catalog features local fire safety education programs addressing such issues as fire and burn prevention in the home, eliminating hazards, fire survival and escape, smoke detectors and fire extinguishers, and the proper use of home heating devices.

EMERGENCY INCIDENT REHABILITATION (FA-114) (*Fire Service Operations, Health and Safety*) (Online: PDF, 97 KBytes) Sample operating procedures and guidelines for establishing a rehab area for personnel operating at emergencies, or at training sessions that are labor intensive or that occur during extreme climatic conditions.

EMERGENCY MEDICAL SERVICES (EMS) RECRUITMENT AND RETENTION MANUAL (FA-157) (*EMS, Fire Service Administration*) (Online: PDF, 1.0 MBytes) A guidebook intended for the use of the managers and recruiters of volunteer personnel in organizations that provide EMS.

EMERGENCY MEDICAL SERVICES MANAGEMENT RESOURCE DIRECTORY (FA-119) (*EMS*) (Online: PDF, 348 KBytes) Lists reference materials and sources, public and private EMS-related organizations, and colleges and universities offering EMS degree programs.

EMERGENCY PROCEDURES FOR EMPLOYEES WITH DISABILITIES IN OFFICE OCCUPANCIES (FA-154) (*Fire Protection*) (Online: PDF, 1.3 MBytes; Text 59 KBytes) The purpose of this guide is to provide information for facilities managers; it may be useful for those individuals who might need special assistance as to the notification of an emergency situation and/or in the evacuation of a building.

EMERGENCY PROCEDURES FOR EMPLOYEES WITH DISABILITIES IN OFFICE OCCUPANCIES (Braille) (FA-154B) (*Fire Protection*) The purpose of the guide is to provide information for facilities managers; it may be useful for those individuals who

might need special assistance as to the notification of an emergency situation and/or in the evacuation of a building.

EMERGENCY PROCEDURES FOR EMPLOYEES WITH DISABILITIES IN OFFICE OCCUPANCIES (Spanish) (FA-154S) (*Fire Protection*) (Online: PDF, 1.3 MBytes)
The purpose of this guide is to provide information for facilities managers; it may be useful for those individuals who might need special assistance as to the notification of an emergency situation and/or in the evacuation of the building.

EMERGENCY RESPONSE TO TERRORISM: SELF-STUDY GUIDE (*Terrorism, Training*) (Online: PDF) This self-study course is designed to provide you with a general introduction to the basic concepts for first-responder awareness at the scene of a potential terrorist incident.

EMERGENCY VEHICLE DRIVER TRAINING (FA-110) (*Health and Safety, Training*) (Online: PDF, 2 MBytes) This package is designed to assist fire and EMS departments with training in driving emergency vehicles.

EMS PUBLIC INFORMATION, EDUCATION, & RELATIONS (PIER) (FA-151) (*EMS, Fire Safety and Public Education*) This manual is designed to assist EMS departments in the methods of organizing, implementing, and sharing the how's, what's, and why's of department functions with the media and the public.

EMS SAFETY TECHNIQUES AND APPLICATIONS (FA-144) (*EMS, Health and Safety*) (Online: PDF, 2.4 MBytes) This manual details important safeguards that EMS personnel need to take to ensure their continuing safety and health. Written primarily for responders, it also contains information for managers to assist in establishing an EMS Safety Officer position.

ESTABLISHING AN ARSON STRIKE FORCE (FA-88) (*Arson/Bombing*) (Online: PDF, 282 KBytes) This helpful guide outlines the essentials for forming an arson strike force. This booklet is especially useful for fire, law enforcement, and municipal managers.

EVALUATING SMALL BOARD AND CARE HOMES: SPRINKLERED vs. NONSPRINKLERED FIRE PROTECTION (*Fire Protection*) (Online: PDF, 1.3 MBytes) This report studies the effectiveness of SPRINKLERED and NONSPRINKLERED options in board-and-care homes. The tools used to compare the effectiveness of these fire protection options were mathematical models, experimental data, and documented fire incidents.

FIELD EVALUATION OF CHEMICAL PROTECTIVE SUITS (FA-108) (*Hazardous Materials, Health and Safety*) (Online: PDF, 816 KBytes) Report on the work tasks prescribed in ASTM F-1154, *Standard Practices for Qualitatively Evaluating the Comfort, Fit, Function, and Integrity of Chemical-Protective Suit Ensembles*.

FIELD INDEX GUIDE (FIRE AND ARSON INVESTIGATORS' FIELD INDEX DIRECTORY) (FA-91) (*Arson/Bombing*) (Online: PDF, 319 KBytes) Fire investigators are the primary users of this technical "yellow pages" of organizations, manufacturers, associations, government agencies, laboratories, forensics centers, and research centers.

FIRE AND EMERGENCY MEDICAL SERVICES ERGONOMICS--A GUIDE FOR UNDERSTANDING AND IMPLEMENTING AN ERGONOMICS PROGRAM IN YOUR DEPARTMENT (FA-161) (*Health and Safety*) (Online: PDF, 2 MBytes) Details ways local fire and rescue departments can develop or enhance effective programs designed to avoid or minimize injuries that are common in the workplace.

FIRE AND EMERGENCY SERVICE HEARING CONSERVATION PROGRAM (FA-118) (*Health and Safety*) (Online: PDF, 1.4 MBytes) This manual examines the problem of noise exposure in the emergency services, and outlines measures to reduce the risk of occupationally induced hearing loss.

FIRE DATA ANALYSIS HANDBOOK (*Fire Data*) (Online: PDF, 1.2 MBytes) Describes statistical techniques for analyzing data typically collected in fire departments.

FIRE DEATH RATE TRENDS: AN INTERNATIONAL PERSPECTIVE (FA-169) (*Fire Data*) (Online: PDF, 157 KBytes) This report explores the magnitude and nature of the U.S. fire death problem through comparisons to the death rates of other countries and observations about institutional and attitudinal differences between the U.S. and countries with lower death rates.

FIRE DEPARTMENT COMMUNICATIONS MANUAL--A BASIC GUIDE TO SYSTEM CONCEPTS AND EQUIPMENT (FA-160) (*Fire Service Administration*) (Online: PDF, 1.3 MBytes) This manual is designed to be used for a wide range of purposes, from developing specifications for new equipment to development of a department-wide radio system, to familiarizing a novice with the basics of fire department communications.

FIRE IN THE UNITED STATES 1985-1994 (NINTH EDITION) (FA-173) (*Fire Data*) (Online: PDF, 3.7 MBytes) This report provides a statistical overview of the fire problem that can motivate corrective action. It also can be used to select priorities, help target fire programs, and serve as a model for State or local analyses of fire data.

FIRE IN THE UNITED STATES 1986-1995 (TENTH EDITION) (FA-183) (*Fire Data*) (Online: PDF, 2 MBytes) This report covers the 10-year period from 1986 to 1995, and includes a State-by-State analysis and presentation of State-based residential fire statistics.

FIRE IN THE UNITED STATES 1987-1996 (ELEVENTH EDITION) (FA-194) (*Fire Data*) (Online: PDF, 1.7 MBytes) This report covers the 10-year period from 1987 to 1996, with emphasis on 1996, and includes an analysis of fire residential and non-residential structures.

FIRE PROTECTION IN THE WILDLAND/URBAN INTERFACE (*Fire Protection, Wildfire*) This handbook identifies key elements essential to wildland/urban mitigation programs and discusses three existing, successful programs.

FIRE SAFETY EDUCATION RESOURCE DIRECTORY (FA-172) (*Fire Safety and Public Education*) (*Online: HTML*) A compendium of materials that you may find useful in building and supplementing your public education program for fire safety.

FIRE SERVICE RESOURCE GUIDE (FA-186) (*Fire Service Administration*) Provides information on training, education, funding, and benefits available from both the Federal government and State governments.

FIRE/ARSON INVESTIGATION TRAINING RESOURCE CATALOG (FA-131) (*Arson/Bombing, Training*) (*Online: PDF, 1.6 MBytes*) A directory listing information relative to professional education and training for fire investigators.

FIREFIGHTER AUTOPSY PROTOCOL (FA-156) (*Fire Service Administration, Health and Safety*) (*Online: PDF, 209 KBytes*) Provides a comprehensive, step-by-step protocol for performing autopsies for firefighters and emergency medical service responders killed in the line of duty.

FIRESETTER HANDBOOK AGES 0-7 (FA-83) (*Arson/Bombing, Fire Safety and Public Education*) This handbook offers concrete strategies on how to recognize a problem, interview small children and their families, educate children not to set fires, and to determine when a case calls for referral to a mental health professional.

FIRESETTER HANDBOOK AGES 7-13 (FA-82) (*Arson/Bombing, Fire Safety and Public Education*) This handbook offers concrete strategies on how to recognize a problem, interview children and their families, educate children not to set fires, and to determine when a case calls for referral to a mental health professional.

FIRESETTER HANDBOOK AGES 14-18 (FA-80) (*Arson/Bombing, Fire Safety and Public Education*) This handbook offers concrete strategies on how to recognize a problem, interview children and their families, educate children not to set fires and to determine when a case calls for referral to a mental health professional.

GUIDE TO DEVELOPING AND MANAGING AN EMERGENCY SERVICE INFRECTION CONTROL PROGRAM (FA-112) (*EMS, Health and Safety*) (*Online: PDF, 711 KBytes*) This guide takes a step-by-step approach to designing, implementing, managing, and evaluating an EMS infection control program. The publication presents OSHA regulations and CDC guidelines.

GUIDE TO FUNDING ALTERNATIVES FOR FIRE & EMS DEPARTMENTS (FA-141) (*Fire Service Administration*) (*Online: PDF, 402 KBytes*) This manual provides information to fire and EMS departments on locating and implementing both traditional

and nontraditional methods of funding. It discusses local, State, and Federal government sources.

HANDBOOK FOR ASSISTING IN A WILDLAND FIRE INVESTIGATION (Arson/Bombing, Wildfire) This handbook is intended to assist first responders at a wildland or wildland/urban interface arson fire to collect useful and necessary information for establishing the origin and cause of the fire.

HANDBOOK ON WOMEN IN FIREFIGHTING (FA-128) (Fire Service Administration, Health and Safety) (Online: PDF, 1.2 MBytes) A changing fire service attempts to answer the most frequently asked questions about women in firefighting. This publication focuses specifically on the issues of recruitment, entry-level physical testing, firefighter training, and maternity.

HEALTH & SAFETY ISSUES OF THE FEMALE EMERGENCY RESPONDER (FA-162) (Health and Safety) (Online: PDF, 1.4 MBytes) Symposium report detailing strategies and recommendations in three areas: data development and dissemination, training, and equipment engineering.

HEAT TRANSFER MODEL FOR FIRE FIGHTER'S PROTECTIVE CLOTHING (FA-192) (Health and Safety) (Online: PDF, 3 MBytes) This paper presents the first stage in the development of a heat transfer model for fire fighter's protective clothing. The protective fabrics are assumed to be dry, and the fabric temperatures considered are below the point of thermal degradation.

IMPLEMENTATION OF EMS IN THE FIRE SERVICE (FA-167) (Media Kit) (EMS, Fire Service Operations) This manual and accompanying videotape have been designed to assist chief fire executives and other local government leaders in planning for and implementing EMS in a fire department.

LEADERSHIP IN PUBLIC FIRE SAFETY EDUCATION--2000 (FA-135) (Fire Safety and Public Education) This report contains the findings of a national public education conference held at the National Emergency Training Center.

MANY FACES, ONE PURPOSE: A MANAGER'S HANDBOOK ON WOMEN IN FIREFIGHTING (FA-196) (Fire Service Administration, Health and Safety) Companion document to *Many Women Strong*, this book was developed to help the fire service leader manage the changing workforce as it becomes progressively more inclusive of larger numbers of women in all ranks.

MANY WOMEN STRONG: A HANDBOOK FOR WOMEN FIREFIGHTERS (FA-195) (Fire Service Administration, Health and Safety) Companion document to *Many Faces, One Purpose*, this handbook was created to help women who would like to become career, volunteer, or seasonal firefighters, as well as those who have just started on the job and are seeking guidance.

MINIMUM STANDARDS ON STRUCTURAL FIREFIGHTING PROTECTIVE CLOTHING & EQUIPMENT: A GUIDE FOR FIRE SERVICE EDUCATION AND PROCUREMENT (FA-137) (*Health and Safety*) (Online: PDF, 588 KBytes) This report provides performance-based information to the end user on the acquisition of appropriate personal protective clothing and equipment for structural firefighting. It discusses consensus standards, hazards, and heat stress.

NEW TECHNOLOGIES IN VEHICLE EXTRICATION (FA-152) (*Rescue*) (Online: PDF, 3.5 MBytes) This report contains information on new technologies in vehicle extrication equipment, particularly in relation to its use on late-model vehicles.

NFIRS ANALYSIS: INVESTIGATING CITY CHARACTERISTICS AND RESIDENTIAL FIRE RATES (FA-179) (*Fire Data, Fire Safety and Public Education*) (Online: PDF, 592 KBytes) The object of this study was to identify relationships between city characteristics and residential fire rates.

NATIONAL JUVENILE FIRESETTERS/ARSON CONTROL AND PREVENTION PROGRAM (NJF/ACPP) EXECUTIVE SUMMARY (Part 1 of 5) (FA-148) (*Arson/Bombing, Fire Safety and Public Education*) (Online: PDF, 785 KBytes) This set of five publications helps to develop a comprehensive juvenile firesetter prevention training workshop for the various agency professionals who work with juvenile firesetters.

NATIONAL JUVENILE FIRESETTERS/ARSON CONTROL AND PREVENTION PROGRAM (NJF/ACPP) GUIDELINES FOR IMPLEMENTATION (Part 2 of 5) (FA-147) (*Arson/Bombing, Fire Safety and Public Education*) This set of five publications helps to develop a comprehensive juvenile firesetter prevention training workshop for the various agency professionals who work with juvenile firesetters.

NATIONAL JUVENILE FIRESETTERS/ARSON CONTROL AND PREVENTION PROGRAM (NJF/ACPP) JUVENILE FIRESETTER EARLY INTERVENTION PROGRAM (Part 3 of 5) (FA-146) (*Arson/Bombing, Fire Safety and Public Education*) (Online: PDF, 1.2 MBytes) This set of five publications helps to develop a comprehensive juvenile firesetter prevention training workshop for the various agency professionals who work with juvenile firesetters.

NATIONAL JUVENILE FIRESETTERS/ARSON CONTROL AND PREVENTION PROGRAM (NJF/ACPP) TRAINER'S GUIDE (Part 4 of 5) (FA-149) (*Arson/Bombing, Fire Safety and Public Education*) (Online: PDF, 1.1 MBytes) This set of five publications helps to develop a comprehensive juvenile firesetter prevention training workshop for the various agency professionals who work with juvenile firesetters.

NATIONAL JUVENILE FIRESETTERS/ARSON CONTROL AND PREVENTION PROGRAM (NJF/ACPP) USER'S GUIDE (Part 5 of 5) (FA-145) (*Arson/Bombing, Fire Safety and Public Education*) (Online: PDF, 1 MByte) This set of five publications

helps to develop a comprehensive juvenile firesetter prevention training workshop for the various agency professionals who work with juvenile firesetters.

NORTHWEST FIREFIGHTERS MORTALITY STUDY (FA-105) (*Health and Safety*)
(*Online: PDF, 88 KBytes*) The study population consists of 4,546 men who were employed by the cities of Seattle, Tacoma, Bellevue, and Kent, Washington, and Portland, Oregon, for at least 1 year in fire combat positions.

NON-DESTRUCTIVE TESTING AND FIELD EVALUATION OF CHEMICAL PROTECTIVE CLOTHING (FA-106) (*Health and Safety*) (*Online: PDF, 446 KBytes*)
This study was undertaken to develop a procedure for assessing the presence of contamination, either before or after decontamination of chemical protective clothing.

OUNCE OF PREVENTION--RESIDENTIAL SPRINKLERS (FA-76) (*Fire Protection, Fire Safety and Public Education*) A comprehensive discussion of why and how the combination of automatic sprinklers and early warning systems in all types of buildings can have a major impact on fire-related deaths, injuries, and property loss.

PHYSIOLOGIC FIELD EVALUATION OF HAZARDOUS MATERIALS PROTECTIVE ENSEMBLES (FA-109) (*Hazardous Materials, Health and Safety*)
(*Online: PDF, 494 KBytes*) Hazardous materials firefighters from four cities evaluated three protective clothing ensembles for three days.

PLANNING FOR WATER SUPPLY AND DISTRIBUTION IN THE WILDLAND/URBAN INTERFACE (FA-108) (*Fire Protection, Wildfire*) This report discusses a four-step planning process that needs to take place to ensure that adequate water supplies and distribution are available in the wildland/urban interface.

PROFILE OF FIRE IN THE UNITED STATES 1985-1994 (FA-175) (*Fire Data*)
Summary of key findings contained in the Ninth Edition of Fire in the United States, 1985 to 1994.

PROFILE OF FIRE IN THE UNITED STATES 1986-1995 (FA-184) (*Fire Data*)
Summary of key findings contained in the Tenth Edition of Fire in the United States, 1986 to 1995.

PROFILE OF FIRE IN THE UNITED STATES 1987-1996 (FA-193) (*Fire Data*)
Summary of key findings contained in the Eleventh Edition of Fire in the United States, 1987 to 1996.

PROFILE OF THE RURAL FIRE PROBLEM IN THE UNITED STATES (FA-181) (*Fire Data*) (*Online: PDF, 134 KBytes*) This 8-page booklet summarizes the findings from the report, The Rural Fire Problem in the United States.

PROFILE OF THE URBAN FIRE PROBLEM IN THE UNITED STATES (FA-190) (*Fire Data, Fire Safety and Public Education*) (Online: PDF, 823, KBytes) This report examines the nature of the fire problem in urban areas of the United States.

PROTECTIVE CLOTHING & EQUIPMENT NEEDS OF EMERGENCY RESPONDERS FOR URBAN SEARCH & RESCUE MISSIONS (FA-136) (*Health and Safety, Rescue*) (Online: PDF, 503 KBytes) This report describes protective clothing and equipment ensembles for land-based technical rescue operations, swift water operations, and contaminated water diving.

QUALITATIVELY EVALUATING THE COMFORT, FIT, FUNCTION, AND INTEGRITY OF CHEMICAL PROTECTIVE SUIT ENSEMBLES (FA-107) (*Hazardous Materials, Health and Safety*) (Online: PDF, 185 KBytes) Experienced firefighters with hazardous materials training participated in field test evaluations of various disposable chemical protective clothing. A suit integrity test based on ASTM F-1154 was developed by the firefighters for this study.

REDUCING AMERICA'S FIRE LOSSES WITH RESIDENTIAL FIRE SPRINKLER SYSTEMS (*Fire Protection, Fire Safety and Public Education*) Backgrounder on the history of residential sprinklers, where we are today, and the major conclusions for experience with sprinklers.

REPORT ON THE JOINT FIRE/POLICE TASK FORCE ON CIVIL UNREST (FA-142) (*Fire Service Operations*) (Online: 869 KBytes) Recommendations for organization and operations during civil disturbances. An emergency services urban violence planning guide.

REPORT ON THE NATIONAL FORUM ON EMS MANAGEMENT (FA-126) (*EMS*) This report provides the proceedings of the February 1992 meeting of the leaders of the major EMS organizations and agencies. This forum is considered a keystone in the history of modern EMS.

REPORT ON THE OPERATION OF URBAN WILDFIRE TASK FORCE (FA-115) (*Wildfire*) A report on the findings and recommendations of the Urban Wildfire Task Force meeting, February 1992.

RESIDENTIAL FIRE SPRINKLERS (CASE STUDIES) (FA-97) (*Fire Protection*) (Online: PDF, 1.2 MBytes) Report on a multiple-stage demonstration project in multifamily residences undergoing rehabilitation, including results from five housing complexes where quick-response residential sprinklers were installed.

RESIDENTIAL SPRINKLER RETRO DEMO CASE STUDY (FA-90) (*Fire Protection*) (Online: PDF, 2.3 MBytes) Report on a multiple-stage demonstration project in multifamily residences undergoing rehabilitation, including results from five housing complexes where quick-response residential sprinklers were installed.

RESIDENTIAL SPRINKLER RETRO DEMO PROJECT (FA-89) *(Fire Protection)* (Online: PDF, 570 KBytes) Report on a multiple-stage demonstration project in multifamily residences undergoing rehabilitation, including results from five housing complexes where quick-response residential sprinklers were installed.

RECRUITMENT AND RETENTION IN THE VOLUNTEER FIRE SERVICE: FINAL REPORT (FA-185) This report discusses the core problems of recruitment and retention in the volunteer fire service, and provides solutions to those problems as suggested by fire chiefs and firefighters from across the country.

RISK MANAGEMENT PRACTICES IN THE FIRE (FA-166) SERVICE *(Fire Service Administration)* (Online: PDF, 679 KBytes) A guide to help local fire and emergency services departments understand the concepts that form the foundation of risk management principles and practices.

RURAL ARSON CONTROL (FA-87) *(Arson/Bombing)* (Online: PDF, 137 KBytes) Twenty-two needs statements about rural arson control are identified and discussed, covering such issues as equipment, reporting, and incident management.

RURAL FIRE PROBLEM IN THE UNITED STATES (FA-180) *(Fire Data, Fire Safety and Public Education)* (Online: PDF, 331 KBytes) This report summarizes the findings from an extensive analysis of the fire problem in rural areas of the United States.

SAFETY AND HEALTH CONSIDERATIONS FOR THE DESIGN OF FIRE AND EMERGENCY MEDICAL SERVICES STATIONS (FA-168) *(Health and Safety)* (Online: PDF, 1.4 MBytes) Provides comprehensive guidelines for the design or remodeling of fire and emergency medical services stations and other facilities in terms of safety and health concerns of personnel who must work and live in those facilities.

SEARCH AND RESCUE OPERATIONS FOLLOWING THE NORTHRIDGE EARTHQUAKE--LOS ANGELES, CA (FA-163c) *(Fire Service Operations, Rescue)* (Online: PDF, 408 KBytes) An account of the initial response by rescue personnel and the subsequent hazard mitigation by agencies involved.

SEARCH AND RESCUE OPERATIONS IN CALIFORNIA DURING FLOODING (FA-163e) *(Fire Service Operations, Rescue)* (Online: PDF, 138 KBytes) Details swiftwater rescue procedures of local emergency response agencies during flooding that occurred between January and March 1995.

SEARCH AND RESCUE OPERATIONS IN GEORGIA DURING MAJOR FLOODS (FA-163d) *(Fire Service Operations, Rescue)* (Online: PDF, 79 KBytes) Details search and rescue operations performed and lessons learned during July 1994 flooding in Georgia.

SMALL BOARD AND CARE FIRE EVACUATIONS: A GUIDE FOR THE FIRE SAFETY PROFESSIONAL *(Fire Protection)* (Online: PDF, 70 KBytes) This report is

intended for individuals working with fire safety issues in small board-and-care homes. The report addresses ways in which fire safety professionals may evaluate and improve fire evacuation plans for these facilities.

SOCIOECONOMIC FACTORS AND THE INCIDENCE OF FIRE (FA-170) (*Fire Data*) (*Online: PDF*) This working paper identifies socioeconomic factors that influence the complex and varied relationships among buildings, humans, and the occurrence of residential fires.

STRATEGIES FOR MARKETING YOUR FIRE DEPARTMENT TODAY AND BEYOND (FA-182) (*Fire Service Administration*) (*Online: PDF, 835 KBytes*) The purpose of this manual is to assist fire service leaders in examining the future, the role of the fire service in that future, and ways to "get there from here."

TECHNICAL RESCUE PROGRAM DEVELOPMENT MANUAL (FA-159) (*Rescue*) (*Online: PDF, 5.0 MBytes*) A comprehensive manual on technical rescue, including information about standards, training requirements, and equipment needed for a team.

TECHNICAL RESCUE TECHNOLOGY ASSESSMENT (FA-153) (*Rescue*) This report discusses the capabilities and limitations of a wide variety of current and innovative technologies to support technical rescue operations performed by local-level fire and EMS departments.

TIRE FIRES: A REPORT TO CONGRESS (FA-187) (*Hazardous Materials, Health and Safety*) (*Online: PDF, 93 KBytes*) The results of this Congressionally mandated study, conducted in 1997-98, indicates that the hazardous characteristics of tire fires present a unique set of risks to firefighters.

USES OF NFIRS: THE MANY USES OF THE NATIONAL FIRE INCIDENT REPORTING SYSTEM (FA-171) (*Fire Data*) (*Online: PDF, 255 KBytes*) This report provides a history and overview of NFIRS and details how government agencies, private industry, the media, academic and research institutions, and other organizations use NFIRS data.

USFA FIRE BURN PATTERN TEST (FA-178) (*Arson/Bombing*) Documents research conducted by fire investigation experts into the formation, growth, nature, and investigative analysis of postfire patterns to make a determinations about fire origins and fuels.

VIEW OF MANAGEMENT IN FIRE INVESTIGATION UNITS (VOLUME 1) (FA-193) (*Arson/Bombing*) (*Online: PDF, 340 KBytes*) Particular management practices from several local investigation units are featured. Factors affecting the current state of fire investigation are described.

VIEW OF MANAGEMENT IN FIRE INVESTIGATION UNITS (VOLUME 2) (FA-116) (*Arson/Bombing, Fire Service Operations*) (Online: PDF, 263 KBytes) A follow-up report detailing further studies regarding management of arson units.

WILDFIRE STRIKES HOME, SECOND EDITION (*Fire Protection, Wildfire*)
Provides basic information on the nature of the wildland/urban interface problem.

HANDOUTS/PAMPHLETS:

ALIVE ON ARRIVAL--TIPS FOR SAFE EMERGENCY VEHICLE OPERATIONS (L-192) (*Fire Service Operations*) An informative pamphlet detailing actions that emergency vehicle operators and passengers can take to enhance safe operations of emergency vehicles.

ARSON VICTIMS (L-228) (*Arson/Bombing, Fire Safety and Public Education*) (Online: PDF, 3.3 MBytes) This booklet is about the arson victim. It is addressed to those law enforcement and fire officials who frequently are in contact with the arson victim, but who may not recognize fully the potential implications of that contact for the victim and the system.

ESCAPE FROM FIRE--ONCE YOU ARE OUT STAY OUT! (L-192) (*Fire Safety and Public Education*) This pamphlet details the dangers of re-entering a burning structure. It explains the dangers of oxygen depletion, toxic gases, heat, explosion, structural collapse, and other deadly threats of structural fires.

HOME FIRE PROTECTION--RESIDENTIAL FIRE SPRINKLER SYSTEMS (FA-43) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 2.6 MBytes) This pamphlet explains the merits of home sprinklers and the financial and insurance advantages. Myths of fire sprinklers are clarified.

HOTEL AND MOTEL FIRE SAFETY ACT OF 1990 (L-201) (*Fire Protection*) This pamphlet explains the act in the simplest of terms, and the responsibilities of the Federal traveler.

IS YOUR HOME FIRE SAFE? DOOR KNOB HANGER (L-227) (*Fire Safety and Public Education*) Door knob hanger picturing a three-story home provides safety tips for home fire safety.

MOTOR VEHICLE FIRES--WHAT YOU NEED TO KNOW (L-202) (*Fire Safety and Public Education*) Pamphlet highlights what the public should and should not do if they come across a vehicle fire.

PROTECTING YOUR FAMILY FROM FIRE (English) (FA-130) (*Fire Safety and Public Education*) (Online: PDF, 515 KBytes) This pamphlet provides the information you need to decide what you must do to protect your family from fire. Topics include

children, sleepwear, older adults, smoke detectors, escape plans, and residential sprinklers.

PROTECTING YOUR FAMILY FROM FIRE (Spanish) (FA-129) (*Fire Safety and Public Education*) (Online: PDF, 558 KBytes) This pamphlet provides the information you need to decide what you must do to protect your family from fire. Topics include children, sleepwear, older adults, smoke detectors, escape plans, and residential sprinklers.

SMOKE DETECTORS: WHAT YOU NEED TO KNOW (L-220) (*Fire Protection, Fire Safety and Public Education*) Contains information on the importance, installation, and maintenance of smoke detectors.

SPANISH/ENGLISH DOOR KNOB HANGER (*Fire Safety and Public Education*) Fire safety tips for the home in both Spanish and English.

UNITED STATES FIRE ADMINISTRATION BROCHURE (L-230) (*U.S. Fire Administration*) (Online: PDF, 121 KBytes) This brochure describes the mission, major programs, and special initiatives of the USFA.

USFA PUBLICATIONS ORDER FORM (*U.S. Fire Administration*) A listing of publications available from the USFA Publications Center. (All of the listed publications may be ordered from the Online Catalog.)

WHAT IS NFIRS (NATIONAL FIRE INCIDENT REPORTING SYSTEM)? (L-222) (*Fire Data*) (Online: HTML) Explains what NFIRS is and how it is used.

WILDFIRE--ARE YOU PREPARED? (L-203) (*Fire Safety and Public Education, Wildfire*) (Online: PDF, 254 KBytes) This pamphlet covers protecting your home from wildfire by creating and maintaining a safety zone, planning escape routes, and having a supply of necessities in the event of a wildfire.

WINTER FIRES--SAFETY TIPS FOR THE HOME (L-097) (*Fire Safety and Public Education*) Fire safety and prevention during the colder months of the year are the topics covered in this brochure. Safety tips on alternate heating sources (wood stoves, electric space heaters, and fireplaces) and furnaces are featured.

KITS:

USFA kits and posters are designed for group presentations. The handouts, brochures, door hangers, and other materials contained within the kits are intended to be reproduced by the presenting organization using a local copy/print shop.

FIRE STOPS WITH YOU: USFA FIRE SAFETY & PREVENTION INFORMATION (Media Kit) (*Fire Safety and Public Education*) (Online: PDF, 1.8 Mbytes) Fact sheets on fire safety. Some of the topics include child fireplay, home fire safety, alternative

heating, electrical fire safety, safety tips for older Americans, fire-safe landscaping, escape planning, and holiday fire safety.

HOME FIRE SAFETY--ACT ON IT (*Media Kit*) (*Fire Safety and Public Education*)

This campaign kit contains information for the media's use regarding home fire safety. It is designed to educate the media and the public on the importance of fire prevention and protection.

CHILDRENS PUBLICATIONS:

LET'S HAVE FUN WITH FIRE SAFETY: EXTY AND HYDRO'S ACTIVITY BOOK

(FA-189) (*Fire Safety and Public Education*) (*Online: PDF, 1.4 MBytes*) This activity book provides children with valuable learning tools about fire safety and prevention. Activities include coloring pages, connect the dots, word searches, and escape plan mazes.

SESAME STREET FIRE SAFETY STATION (FA-165) (*Fire Safety and Public Education*) This teacher's activity book and the accompanying cassette of songs and stories helps educators reach preschoolers with simple, memorable fire safety messages. The kit also includes for each classroom one reproducible coloring book and one wall poster. (Limit one kit per classroom.)

SESAME STREET FIRE SAFETY STATION (SPANISH) (FA-165S) (*Fire Safety and Public Education*) This teacher's activity book and the accompanying cassette of songs and stories helps educators reach preschoolers with simple, memorable fire safety messages. The kit also includes for each classroom one reproducible coloring book and one wall poster. (Limit one kit per classroom.)

SPANISH/ENGLISH HOME FIRE SAFETY--ACT ON IT- ACTIVITY POSTER (*Fire Safety and Public Education*) (*Online: PDF, 631 KBytes*) Activity poster for home fire safety.

TECHNICAL REPORTS:

LAPOSADA HOTEL FIRE (MCALLEN, TX - FEBRUARY 1987) (001) (*Fire Protection, Fire Service Operations*) (*Online: PDF, 783 KBytes*) A working smoke detector may have saved numerous lives in this nighttime fire started by a person smoking in bed.

DETROIT WAREHOUSE FIRE CLAIMS THREE FIREFIGHTERS (MARCH 1987) (003) (*Arson/Bombing, Health and Safety*) (*Online: PDF, 2.3 MBytes*) This report describes the circumstances behind firefighter fatalities occurring within 3 hours in two separate incidents in different buildings during a massive arson fire.

SCHOMBERG PLAZA FIRE (NEW YORK CITY, HARLEM - MARCH 1987) (004) (*Fire Protection, Fire Service Operations*) (*Online: 1 MByte*) A fire originating in a

trash compactor chute killed 7 residents in a 35-story apartment building. An exemplary New York City Board of Inquiry report is incorporated.

EVACUATION OF NANTICOKE, PA, DUE TO METAL PROCESSING PLANT FIRE (MARCH 1987) (005) (*Fire Service Operations, Rescue*) (Online: PDF, 2.7 MBytes) This disaster shows the value of good emergency operations planning, training, and coordination. (This publication is temporarily out of stock.)

COLLEGE DORMITORY FIRES IN DOVER, DE, AND FARMVILLE, VA (APRIL 1987) (006) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 1.3 MBytes) These incidents point to the importance of enforcing fire safety policies and procedures in dormitories and encouraging use of the 911 emergency number for reporting emergencies to appropriate authorities.

URBAN WILDLANDS FIRE (PEBBLE BEACH, CA - MAY 1987) (007) (*Fire Protection, Wildfire*) (Online: PDF, 2.6 MBytes) This report analyzes fire operations and describes residential construction features and vegetation control that saved some homes in this urban wildlands fire.

DOUBLETREE HOTEL FIRE (NEW ORLEANS, LA - JULY 1987) (008) (*Arson/Bombing, Fire Protection*) (Online: PDF, 3.9 MBytes) Delayed detection of an arson fire, occupant apathy due to false alarms, and partial sprinkling were factors in this fire.

SHERWIN-WILLIAMS PAINT WAREHOUSE FIRE (DAYTON, OH - MAY 1987) (009) (*Fire Service Operations, Hazardous Materials*) (Online: PDF, 824 KBytes) This fire illustrates the decision to let it burn and provides a textbook example of a good Incident Command System.

RAMADA INN AIR CRASH AND FIRE (WAYNE TOWNSHIP, IN - OCTOBER 1987) (014) (*Fire Protection, Rescue*) (Online: PDF, 2.1 MBytes) Employee training, a disaster plan and a fire department Incident Command System contributed to safety of occupants during evacuation after a military jet crashed into a hotel lobby.

THREE FIREFIGHTER FATALITIES IN TRAINING EXERCISE (MILFORD, MI - OCTOBER 1987) (015) (*Fire Service Operations, Health and Safety*) An unusual training exercise involving simulated arson sets and live firefighting evolutions in an abandoned farmhouse resulted in the deaths of three volunteer firefighters and injuries to three others.

APARTMENT BUILDING FIRE (EAST 50TH STREET, NEW YORK CITY - JANUARY 1988) (019) (*Fire Protection, Fire Service Operations*) (Online: PDF, 3.8 MBytes) This fire demonstrated the need for subjecting multiple-occupancy residential buildings to current fire codes regarding installation of fire protection equipment.

FOUR HOUSE FIRES THAT KILLED 28 CHILDREN (SEPTEMBER - DECEMBER 1987) (020) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 1.7 MBytes) These tragic house fires underscore the need for public fire education programs targeted to low-income families.

FIRE AND EXPLOSIONS AT ROCKET FUEL PLANT (HENDERSON, NV - MAY 1988) (021) (*Fire Service Operations, Hazardous Materials*) (Online: PDF, 1.7 MBytes) Interagency coordination among fire, police and other agencies and successful triage are discussed.

INTERSTATE BANK BUILDING FIRE (LOS ANGELES, CA - MAY 1988) (022) (*Fire Protection, Fire Service Operations*) (Online: PDF, 1.1 MBytes) The most challenging highrise fire in Los Angeles history demonstrated the need for automatic sprinklers in tall buildings.

SIX FIREFIGHTER FATALITIES IN CONSTRUCTION SITE EXPLOSION (KANSAS CITY, MO - NOVEMBER 1988) (024) (*Hazardous Materials, Health and Safety*) (Online: PDF, 119 KBytes) Problems in fire service haz mat training, emergency response guidebooks, placarding policy, and jurisdictional issues are discussed.

INDUSTRIAL PLASTICS FIRE MAJOR TRIAGE OPERATION (FLINT, MI - NOVEMBER 1988) (025) (*EMS, Fire Service Operations*) (Online: PDF, 1.4 MBytes) The successful outcome of this Fire is credited to the Incident Command System used, including a strict requirement for SCBA use and rotation of personnel.

TEN MILLION DOLLAR MARINA FIRE (BOHEMIA BAY, MD - JANUARY 1989) (026) (*Fire Protection, Fire Service Operations*) (Online: PDF, 820 KBytes) Delayed discovery, lack of detection equipment, and limited access to water contributed to the \$10 million loss.

SWIMMING POOL CHEMICAL PLANT FIRE (SPRINGFIELD, MA - JUNE 1988) (027) (*Fire Service Operations, Hazardous Materials*) (Online: PDF, 674 KBytes) This fire caused evacuation of 6,000 people and \$2 million in plant damage, lasted 4 days and damaged fire department equipment from exposure to chlorine gas and related products.

EIGHT CHILDREN AND TWO ADULTS DIE IN RURAL HOUSE FIRE (REMER, MN - JANUARY 1989) (028) (*Fire Safety and Public Education*) (Online: PDF, 654 KBytes) This report on a tragic rural house fire on New Year's Eve includes a detailed description of the State Fire Marshal's process in investigating and analyzing the fire, particularly in regard to cause.

CONSERVATIVE APPROACH TO CHEMICAL PLANT FIRE (VENTURA COUNTY, CA - APRIL 1989) (029) (*Fire Service Operations, Hazardous Materials*) (Online: PDF, 292 KBytes) A conservative approach and planned tactics resulted in safe and effective handling of this fire.

SPRINKLERS CONTROL ARSON FIRES IN RACK-STORAGE WAREHOUSE (MT. PROSPECT, IL - OCTOBER 1988) (030) (*Arson/Bombing, Fire Protection*) (Online: PDF, 806 KBytes) Overhead sprinkler system operation and quick fire department response limited losses.

POWER OFF TO HARD-WIRED DETECTOR IN NINE-FATALITY HOUSE FIRE (PEORIA, IL - APRIL 1989) (031) (*Arson/Bombing, Fire Protection*) (Online: PDF, 610 KBytes) Seven children were among the dead in an early morning arson fire in a house equipped with a hard-wired smoke detector that was disabled when the utility company cut power for nonpayment.

GASOLINE TANKER INCIDENTS IN CHICAGO, IL, AND FAIRFAX COUNTY, VA: CASE STUDIES IN HAZARDOUS MATERIALS PLANNING (MARCH/MAY 1989) (032) (*Fire Service Operations, Hazardous Materials*) (Online: PDF, 2.4 MBytes) Effective planning, incident command, and agency cooperation led to successful control in these major roadway hazardous materials incidents.

FIVE-FATALITY HIGHRISE OFFICE BUILDING FIRE (ATLANTA, GA - NOVEMBER 1989) (033) (*Fire Protection, Fire Service Operations*) (Online: PDF, 1.2 MBytes) Unusual circumstances caused multiple deaths in a highrise office building electrical fire.

TWELVE-FATALITY NURSING HOME FIRE (NORFOLK VA - OCTOBER 1989) (034) (*Fire Protection*) (Online: PDF, 3.1 MBytes) Many patients restrained to beds with cotton cravats or connected to life support systems made evacuation by firefighters extremely difficult.

PHILLIPS PETROLEUM CHEMICAL PLANT EXPLOSION AND FIRE (PASADENA, TX - OCTOBER 1989) (035) (*Fire Service Operations, Hazardous Materials*) (Online: PDF, 2.7 MBytes) A massive explosion throwing metal and concrete debris as far as 6 miles away caused 23 deaths and at least 100 casualties. Subsequent evacuation, fire control, and overall incident command worked extremely well.

NINE-FATALITY MOBILE HOME FIRE (MAXTON, NC - NOVEMBER 1989) (037) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 1.2 MBytes) This classic mobile home tragedy emphasizes the need for public fire education and working smoke detectors.

SHENANDOAH RETIREMENT HOME FIRE (ROANOKE COUNTY, VA - DECEMBER 1989) (038) (*Fire Protection*) (Online: PDF, 351 KBytes) Four senior citizens died due to smoke inhalation in this fire. Severe winter conditions delayed fire service arrival, and many of the residents used wheelchairs, canes, and walkers, thus slowing evacuation.

SIXTEEN-FATALITY FIRE IN HIGHRISE RESIDENCE FOR THE ELDERLY (JOHNSON CITY, TN - DECEMBER 1989) (039) (*Fire Protection, Fire Safety and Public Education*) This fire demonstrated the need for fire safety reforms.

SUCCESS STORY AT RETIREMENT HOME FIRE (STERLING, VA - DECEMBER 1989) (040) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 971 KBytes) This three-story retirement home exceeded code requirements. Automatic sprinklers controlled fire extension; and casualties or extensive damage were prevented by automatic alarms, a history of fire drills, and an effective fire department ICS.

NINE ELDERLY FIRE VICTIMS IN RESIDENTIAL HOTEL (MIAMI BEACH, FL - APRIL 1990) (041) (*Fire Protection, Fire Service Operations*) (Online: PDF, 1.1 MBytes) This fire demonstrated the need for sprinklers in old structures.

GET ALARMED SOUTH CAROLINA - LESSONS LEARNED FROM ITS SUCCESS (044) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 763 KBytes) The story of the successful public fire safety program "Get Alarmed, South Carolina" and other South Carolina public fire safety efforts since 1988.

WILDLANDS FIRE MANAGEMENT: FEDERAL POLICIES AND THEIR IMPLICATIONS FOR LOCAL FIRE DEPARTMENTS (045) (*Fire Protection, Wildfire*) (Online: PDF, 197 KBytes) This reports looks at two of the major wildfires of 1988 and the policy issues that surrounded them: the Greater Yellowstone Area fires and the 49er fire that caused more than \$20 million in damage in the Gold Rush country of Nevada County, CA.

SEVEN-FATALITY CHRISTMAS TREE FIRE (CANTON, MI - DECEMBER 1990) (046) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 471 KBytes) This tragic fire emphasized the need for immediate evacuation from a burning structure, a valid and practiced home escape plan, the fire hazard of Christmas trees, and increased public fire safety education in schools.

THE GREMS CASE: HOW AN ARSON CASE WAS SOLVED AND PROSECUTED (AURORA, CO) (047) (*Arson/Bombing*) (Online: PDF, 126 KBytes) The story of how the sharing of information among fire investigation agencies ultimately led to the arrest of three juveniles.

FIRE APPARATUS/TRAIN COLLISION (CATLETT, VA - SEPTEMBER 1989) (048) (*Fire Service Operations, Health and Safety*) (Online: PDF, 790 KBytes) This report is a summary of the investigation report prepared by the National Transportation Safety Board about the incident, in which two firefighters were killed.

HIGHRISE OFFICE BUILDING FIRE, ONE MERIDIAN PLAZA (PHILADELPHIA, PA - FEBRUARY 1991) (049) (*Fire Service Operations, Health and Safety*) (Online: PDF, 1.6 MByte) This report documents one of the most significant highrise fires in U.S.

history. The fire claimed the lives of 3 firefighters and gutted 8 floors of a 38-story fire-resistant building, causing an estimated \$100 million in direct property loss.

TEN ELDERLY FIRE VICTIMS IN INTERMEDIATE CARE FACILITY
(COLORADO SPRINGS, CO - MARCH 1991) (050) (*Fire Protection*) (*Online: PDF, 1.1 MByte*) Delayed detection and no sprinkler system contributed to ten fatalities in an intermediate care facility for the elderly.

MASSIVE LEAK OF LIQUEFIED CHLORINE GAS (HENDERSON, NV - MAY 1991) (052) (Fire Service Operations, Hazardous Materials) (Online: PDF, 369 KBytes)
A massive leak of chlorine gas sent over 200 persons to a local hospital and required the evacuation of an estimated 2,400 people.

MAJOR PROPANE GAS EXPLOSION AND FIRE (PERRYVILLE, MD - JULY 1991) (053) (Fire Service Operations, Hazardous Materials) (Online: PDF, 1.2 MBytes) This explosion and fire claimed the life of one resident, injured 16 civilians and 16 firefighters, and caused an estimated \$10 million in property damage.

SEVEN-FATALITY FIRE AT REMOTE WILDERNESS LODGE (GRAND MARAIS, MN - JULY 1991) (055) (Fire Protection) (Online: PDF, 746 KBytes) This tragic fire highlighted the need for public facilities, located in rural areas at a distance from fire and EMS services, to take extraordinary responsibility themselves for fire and life safety.

CHICKEN PROCESSING PLANT FIRES (HAMLET, NC, AND NORTH LITTLE ROCK, AR - SEPTEMBER 1991) (057) (Fire Protection, Fire Service Operations) (Online: PDF, 981 KBytes) Analysis of two similar incidents, each with dramatically different results.

MAJOR SHIP FIRE EXTINGUISHED BY CARBON DIOXIDE (SEATTLE, WA - SEPTEMBER 1991) (058) (Fire Protection, Fire Service Operations) (Online: PDF, 1.2 MBytes) First-time effort by the Seattle Fire Department to extinguish a ship fire with carbon dioxide.

APARTMENT COMPLEX FIRE, 66 UNITS DESTROYED (SEATTLE, WA - SEPTEMBER 1991) (059) (Fire Service Operations) (Online: PDF, 3 MBytes) A combination of Seattle Fire Department rescue efforts and tenants helping each other resulted in no fatalities for one of that city's largest residential fires in 20 years.

THE EAST BAY HILLS FIRE (OAKLAND-BERKELEY, CA - OCTOBER 1991) (060) (Fire Service Operations, Wildfire) (Online: PDF, 3.6 MBytes) Analysis of the fire that demonstrated how natural forces may be beyond the control of human intervention and should cause a renewed look at the risk of wildland-urban interface fire disasters.

FOUR FIREFIGHTERS KILLED, TRAPPED BY FLOOR COLLAPSE
(BRACKENRIDGE, PA - DECEMBER 1991) (061) (*Fire Service Operations, Health*)

and Safety) (Online: PDF, 1.6 MBytes) Although not new discoveries, this report provides several valuable lessons for the fire service to help prevent this type of accident from occurring in the future.

INDIANAPOLIS ATHLETIC CLUB FIRE (INDIANAPOLIS, IN - FEBRUARY 1992) (063) (*Fire Service Operations, Health and Safety*) (Online: PDF, 779 KBytes) Two Indianapolis firefighters and an elderly guest died in this fire which occurred while the building housed the jury hearing testimony in heavyweight boxer Mike Tyson's trial.

NATIONAL GUARD PLANE CRASH AT HOTEL SITE (EVANSVILLE, IN - FEBRUARY 1992) (064) (*Fire Protection, Fire Service Operations*) (Online: PDF, 701 KBytes) C-130 crash outside hotel results in fire extension to the structure, producing multiple deaths and injuries.

TEN-FATALITY BOARD AND CARE FACILITY FIRE (DETROIT, MI - JUNE 1992) (066) (*Fire Protection*) (Online: PDF, 920 KBytes) Accidental late night kitchen fire in illegal care facility develops rapidly, overcoming impaired elderly residents who failed to evacuate readily.

EIGHT-FATALITY ROW HOUSE FIRE: LESSONS LEARNED FROM RESIDENTIAL FIRES WITH FIVE OR MORE FATALITIES (CHESTER, PA - DECEMBER 1992) (067) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 880 KBytes) Eight children left unattended die in one room of a row house when they are unable to escape a rapidly spreading fire.

FIRE, POLICE, AND EMS COORDINATION AT APARTMENT BUILDING EXPLOSION (NEW YORK CITY - NOVEMBER 1992) (068) (*Fire Service Operations, Health and Safety*) (Online: PDF, 439 KBytes) Multi-agency response to gas explosion in highrise apartment building involves substantial search and rescue operations, patient triage, and evacuation.

WOOD TRUSS ROOF COLLAPSE CLAIMS TWO FIREFIGHTERS (MEMPHIS, TN - DECEMBER 1992) (069) (*Arson/Bombing, Health and Safety*) (Online: PDF, 636 KBytes) Arson fire set to cover crime scene enters concealed space in ceiling, compromising truss roof and resulting in a collapse on two firefighters.

CHILDREN LEFT HOME ALONE: ELEVEN DIE IN TWO FIRES (DETROIT, MI - FEBRUARY 1993) (070) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 433 KBytes) The causes of these fires and the factors that led to the tragic loss of these young lives provide vivid lessons about the dangers of leaving children home alone.

NEW YORK CITY BANK BUILDING FIRE: COMPARTMENTATION VS. SPRINKLERS (NEW YORK - JANUARY 1993) (071) (*Fire Protection, Fire Service Operations*) (Online: PDF, 554 KBytes) This fire is particularly significant as an evaluation of the effectiveness of the retroactive requirements that were enacted for all highrise office buildings in New York City.

NINE-FATALITY APARTMENT HOUSE FIRE (LUDINGTON, MI - FEBRUARY 1993) (072) (*Fire Protection*) (Online: PDF, 851 KBytes) Tenant overcrowding and inadequate fire protection led to the tragic consequences of this fire.

FLOOR COLLAPSE CLAIMS TWO FIREFIGHTERS (PITTSBURGH, PA - MARCH 1993) (073) (*Fire Service Operations, Health and Safety*) (Online: PDF, 668 KBytes) While attempting to locate a concealed fire, a sudden and unanticipated floor collapse sends two firefighters into an inaccessible combustible concealed space.

COMPRESSED AIR FOAM USE FOR STRUCTURAL FIRE FIGHTING: A FIELD TEST (BOSTON FIRE DEPARTMENT - JUNE 1993) (074) (*Fire Service Operations*) (Online: PDF, 188 KBytes) The potential benefits of a transfer of compressed air foam technology to the urban environment are examined in this report.

SODIUM EXPLOSION CRITICALLY BURNS FIREFIGHTERS (NEWTON, MA - OCTOBER 1993) (075) (*Hazardous Materials, Health and Safety*) (Online: PDF, 2 MBytes) This report illustrates how quickly and unpredictably an apparently minor hazardous materials situation can change and how standard protective clothing and equipment, designed for structural firefighting, is dangerously inadequate for a molten metals.

THE WORLD TRADE CENTER BOMBING: REPORT AND ANALYSIS (076) (*Arson/Bombing, Fire Service Operations*) (Online: PDF, 1.8 MBytes) A compilation of 24-plus articles on this incident originally published in *Fire Engineering* (December 1993).

FOUR FIREFIGHTERS DIE IN SEATTLE WAREHOUSE FIRE (SEATTLE, WA) (077) (*Arson/Bombing, Fire Service Operations*) (Online: PDF, 1.1 MBytes) Incident shows how critical information can be missed during a complicated incident command operation, particularly when command officers are distracted by trying to perform too many functions without support staff.

THREE FIREFIGHTERS DIE IN PITTSBURGH HOUSE FIRE (078) (*Fire Service Operations, Health and Safety*) (Online: PDF, 648 KBytes) This report stresses the importance of effective incident management, communications, and personnel accountability systems.

MULTI-AGENCY OCEAN RESCUE DISASTER PLAN AND DRILL (BROWARD COUNTY, FL) (079) (*Fire Service Operations, Rescue*) (Online: PDF, 854 Kbytes) This report discusses the Broward County offshore emergency response plan and lessons learned from using it in a rescue drill for a downed aircraft in water.

HOSPITAL FIRE KILLS FOUR PATIENTS, SOUTHSIDE REGIONAL MEDICAL CENTER (PETERSBURG, VA) (080) (*Fire Protection, Fire Service Operations*) (Online: PDF, 585 KBytes) Lessons learned from this fire include the importance of

installing sprinkler and smoke detection systems throughout institutional facilities and the preparation of hospital staff as an integral part of fire protection.

AERIAL LADDER COLLAPSE INCIDENTS (081) (*Fire Service Operations, Health and Safety*) (*Online PDF, 985 KBytes*) This report addresses five incidents in which fire department aerial ladders collapsed.

OPERATIONAL CONSIDERATIONS FOR HIGHRISE FIREFIGHTING (82) (*Fire Service Operations*) (*Online: PDF, 1.1 MByte*) This report provides an overview of several major highrise fires and suggestions for how problems associated with highrise firefighting can be mitigated through standard operating procedures, inspection programs, and occupant evacuation training.

CLASS A FOAM FOR STRUCTURAL FIREFIGHTING (083) (*Fire Service Operations*) (*Online: PDF, 280 KBytes*) This report discusses the use of Class A foaming agents in conjunction with water for fire suppression. It also provides additional information on the use of Class A foam agents with water and compressed air.

ENTRAPMENT IN GARAGE KILLS ONE FIREFIGHTER (SAN FRANCISCO, CA - MARCH 1995) (084) (*Health and Safety, Rescue*) (*Online: PDF, 1.5 MBytes*) One firefighter was killed and eleven others injured, one critically, fighting a residential fire in San Francisco, CA. Firefighters were entrapped when an overhead garage door closed behind them without warning.

LOGAN VALLEY MALL FIRE (ALTOONA, PA) (085) (*Fire Protection, Fire Service Operations*) (*Online: PDF, 604 KBytes*) The successful control of this fire can be attributed to the large fire suppression force response and effective preincident planning.

LIVE OAK/MILSTAR COMPLEX AND CARPET SERVICE CENTER (LAGRANGE, GA - JANUARY 1995) (086) (*Fire Protection, Fire Service Operations*) (*Online: PDF, 675 KBytes*) Failure to control this fire resulted in an early structural collapse which destroyed large automatic sprinkler mains and risers, overwhelming the plant's fire protection water supply and the municipal water system.

PREVENTION OF SELF-CONTAINED BREATHING APPARATUS FAILURES (088) (*Health and Safety*) (*Online: PDF, 1.7 MBytes*) This report identifies a variety of issues and operational aspects of SCBA failures, particularly those related to maintenance and user training. Suggestions for addressing these issues are included throughout the report.

THE AFTERMATH OF FIREFIGHTER FATALITY INCIDENTS: PREPARING FOR THE WORST (089) (*Fire Service Administration, Health and Safety*) (*Online: PDF, 629 KBytes*) The goal of this report is to provide useful information to fire departments and firefighters that may help in dealing with the consequences of such a tragedy.

TWO-FATALITY BOARD AND CARE FACILITY FIRE, SALVATION ARMY REHABILITATION CENTER (MIAMI, FL) (090) (*Arson/Bombing, Fire Protection*) (*Online: PDF, 483 KBytes*) Fire protection deficiencies resulted in two fatalities in this arson fire.

SCRAP AND SHREDDED TIRE FIRES (DECEMBER 1998) (093) (*Fire Service Operations, Hazardous Materials*) (*Online: PDF, 1 MByte*) This report examines seven case studies of tire fires typical in the United States. The case studies reveal a common pattern of challenges in tire fire prevention and extinguishment.

JUVENILE FIRESETTING AND ARSON: PREVENTING THE VIOLENCE (095) (*Arson/Bombing, Fire Safety and Public Education*) (*Online: PDF, 128 KBytes*) The purpose of this report is to document the problem of older children who set fires resulting in serious or potentially serious consequences.

THE HAZARDS ASSOCIATED WITH AGRICULTURAL SILO FIRES--SPECIAL REPORT (AUGUST 1998) (096) (*Fire Service Operations, Hazardous Materials*) (*Online: PDF, 826 KBytes*) This report will help inform firefighters of the particular danger of fires in agricultural silos and the hazards that may be encountered in fire operations in and around these structures.

\$15 MILLION SIGHT AND SOUND THEATER FIRE AND BUILDING COLLAPSE (LANCASTER COUNTY, PA) (097) (*Fire Protection, Fire Service Operations*) (*Online: PDF, 903 KBytes*) This report focuses on the absence of fire protection features that could have assisted in saving the structure and reducing damage.

IMPROVING FIREFIGHTER COMMUNICATIONS - SPECIAL REPORT (99) (*Fire Service Operations, Health and Safety*) (*Online: PDF, 126 KBytes*) This report investigates potential causes of communication breakdown and provides recommendations that will help fire departments improve their operational communications.

BROWARD MARINE FIRE (FORT LAUDERDALE, FL) (101) (*Fire Protection, Fire Service Operations*) (*Online: PDF, 2.6 MBytes*) This report discusses an early morning fire that destroyed the Broward Marine boat manufacturing facility in Fort Lauderdale, Florida, and caused extensive damage to several yachts under construction at the facility.

FIVE-FATALITY RESIDENTIAL MOTEL FIRE (THORNTON, CO - JANUARY 1997) (104) (*Arson/Bombing, Fire Protection*) (*Online: PDF, 598 KBytes*) An arson fire killed five people in a residential motel without automatic sprinklers and other fire protection features.

OLD BUCKINGHAM STATION (CHESTERFIELD, VA - MAY 1995) (105) (*Fire Protection*) (*Online: PDF, 848 KBytes*) Fire protection issues, particularly unsprinklered combustible spaces, associated with a four-story apartment complex fire are examined.

SPRINKLERED RECORDS STORAGE FACILITY (CHICAGO, IL - OCTOBER 1996) (106) (*Fire Protection, Fire Service Operations*) (Online: PDF, 609 KBytes) The successful control of this fire in an automatic-sprinkler-protected records archive building can be attributed to the performance of fire separation walls supported by a large fire suppression force.

ST. GEORGE HOTEL COMPLEX 16-ALARM FIRE (BROOKLYN, NY) (108) (*Fire Protection, Fire Safety and Public Education*) (Online: PDF, 502 KBytes) Delay in discovering and reporting fire allowed for fire to spread to larger area prior to firefighters' arrival. Failure of standpipe compromised initial attack and endangered personnel.

MANUFACTURING MILL FIRE (METHUEN, MA - DECEMBER 1995) (110) (*Fire Service Operations*) (Online: PDF, 1 MByte) An explosion and fire in an industrial complex injured 37 and destroyed nearly one million square feet of manufacturing space. The damage estimate stands at \$500 million, the largest property-damage-loss fire in the history of Massachusetts.

FIRE DEPARTMENT RESPONSE TO BIOLOGICAL THREAT AT B'NAI B'RTH HEADQUARTERS (WASHINGTON, DC) (114) (*Hazardous Materials, Terrorism*) (Online: PDF, 910 KBytes) Though the threat was a hoax, this incident revealed many lessons for the fire service to share in preparation for any future chemical/biological threats.

KONA VILLAGE APARTMENT FIRE (BREMERTON, WA - NOVEMBER 1997) (121) (*Fire Protection, Fire Service Operations*) (Online: PDF, 1.4 MBytes) An early morning fire in a large apartment building caused the death of four elderly residents and forced the evacuation of 150 residents. The construction features of the non-sprinklered building contributed to the fire spread.

INDUSTRIAL SILO FIRE AND EXPLOSION (DECEMBER 1997) (122) (*Fire Service Operations, Rescue*) (Online: PDF, 663 KBytes) This incident highlights the need for the recognition of the dangers of oxygen-limiting silos, regardless of their use and settings.

The FEMA Multimedia History Project
Special Essays
U.S. Fire Administration

1. Discuss the implementation and importance of the "America's Burning" campaign.

The "America Burning" report, produced in 1973, was the basis for the enactment of the Federal Fire Prevention and Control Act of 1974, which resulted in the creation of the United States Fire Administration (USFA), formerly called the National Fire Prevention and Control Administration. "America Burning" was one of several documents to call

attention to the fire problem in the United States. It has and continues to serve as a guiding light to support the programs and activities of the USFA.

In the late 1980s, a panel was convened to review "America Burning" and provide an update on the information contained in that document. The panel issued a report entitled "America Burning Revisited." The essence of this document was that the fire problem continued to exist.

In late 1999, FEMA Director James Lee Witt established a commission of nationally known leaders responsible for fire prevention and control to review the fire problem and provide an update to the original "America Burning" report. The initial recommendations of this commission were released in April 2000. The commission's final report is being prepared.

The original "America Burning" report and the two updates serve to emphasize that the fire problem is far from being resolved. They provide focus for USFA programs and activities and help to quantify and qualify fire issues from a public viewpoint.

Note: Essay 15, which includes the updated "America Burning," provides additional information in this area.

2. Discuss the management /incorporation of the Chief Operating Officer.

In 1999, the position of deputy fire administrator in the United States Fire Administration (USFA) was replaced with the position of chief operating officer (COO). The recommendation for this position was result of meetings between fire service leaders and Director Witt, as well as the Blue Ribbon Panel report. The COO has assumed the day-to-day operations of USFA, allowing more time for the fire administrator to promote USFA's fire prevention and control mission. Directors of the three divisions — superintendent of the National Fire Academy, assistant administrators for NETC Management and Operations, and director of the Fire Management and Technical Programs Division — report to the COO, who reports directly to the FEMA director.

3. Describe the work that FEMA does on policy programs and plans related to terrorism.

The United States Fire Administration's (USFA) National Fire Academy has developed a variety of training programs to prepare emergency responders to deal with terrorist incidents. USFA also works with the Department of Justice on counter-terrorism initiatives of interest to the fire service. Examples of past and current training programs include:

Emergency Response to Terrorism: Basic Concepts TtT (6-14-97)

Emergency Response to Terrorism: Basic Concepts (10-4-97)

Emergency Response to Terrorism: Self-Study (10-31-97)

Emergency Response to Terrorism: Tactical Considerations for the Company Officer (4-27-98);

Emergency Response to Terrorism: Tactical Considerations for the Emergency Medical Services (8-2-98)

Emergency Response to Terrorism: Tactical Considerations for the Hazardous Materials Team (8-3-98)

Emergency Response to Terrorism: Incident Management (11-29-98)

Emergency Response to Terrorism: Basic Concepts Violence in Schools