Poudre Fire Authority

2004 Strategic Plan

**2007
Fire Prevention
Annex**

A Decade of Challenges

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I. EXECUTIVE SUMMARY

Prologue

This prologue is intended to set forth those events and actions which have driven the planning process and the resulting recommendations. A historical and process review of the Poudre Fire Authority's Fire Prevention program will be followed by a discussion of community demographics, development trends, and the changes in Fire Prevention resources, which have taken place throughout the twelve years since the 1995 strategic plan.

Numerous studies and documents have been utilized for research and development of the plans initiatives and recommendations. Of particular note, the FEMA document "America at Risk: America Burning Recommissioned" June 2002 influence is seen throughout this Strategic Plan. "America Burning" was originally published in 1973, and has been utilized by Federal, State, and local governments as well as fire service organizations to help address the fire problem in this country. A portion of the 2002 document is included in the appendix as a reference.

Strategic Planning Process

Since the formation of the Authority in 1981, PFA has used the strategic planning process as a primary tool for identifying community emergency service needs. This process has been a very effective tool allowing PFA to identify and plan those actions necessary to help keep the department up to date with the increasing needs of the community. The previous plans have very accurately predicted future needs of the organization. Most recommendations made in these plans have been successfully integrated into department operations thereby enhancing services. The PFA strategic plans have been reviewed and updated every five to ten years, with progress toward meeting plan recommendations monitored annually during the budget process. The use of specific benchmarks and implementation criteria has also enhanced the value of the strategic planning process.

Long-Range Financial Planning

The funding of fire prevention services to the community for the last two decades has been a combination of taxpayer revenue, and fees collected from the building industry and business community. The percentage of public money compared to fee revenue has gradually shifted from all public dollars in the early 1980's, to 54% taxpayer and 46% fee revenue in 2006. This is in keeping with PFA's intent to move towards a more fee-based program, so that those individuals utilizing the services are the ones paying for them.

The financing of fire prevention services must be balanced between those services, which are considered core or essential, with those that meet customer demand and enhance customer satisfaction. Core services are those that are necessary to ensure safe buildings when they are built, and after they are occupied. The positions that are necessary to

provide these services need to be retained in order to maintain the technical expertise to serve the community. The fire marshal's office, new construction plan review, investigations, and the existing building inspection program are the four core areas of fire prevention. Enhancing customer satisfaction relates to providing all the services related to the core areas within the same office, and the provision of these services in an efficient and timely manner. Examples of dedicated positions are reviewing and testing of built-in fire protection systems and field inspectors.
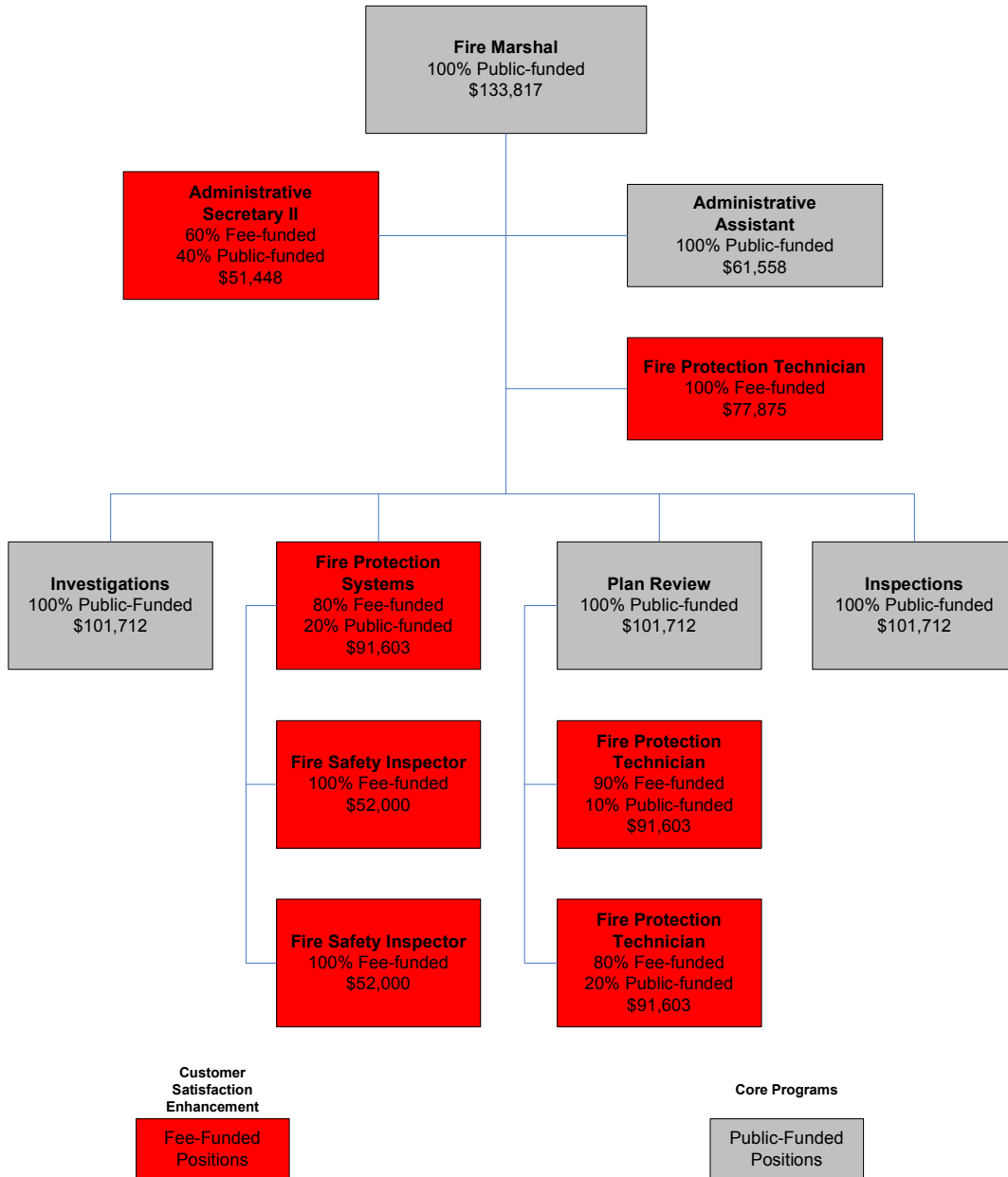
The core products and services which provide a safe environment should be funded primarily by taxpayer dollars. The public does benefit from development and construction projects due to the nature of the safety systems required, and thus justifies use of tax payer revenue for funding these Fire Prevention resources. The role of these services in carrying out the provisions of the fire code as adopted and updated by the community since the 1970's further reinforces the need for these core services.

The benefit of fees for certain services, particularly those which enhance customer satisfaction, is that it is paid by those who directly receive the service. It also allows for funding additional resources based on the increased workload due to more development and construction activities. Conversely, when the economy slows, these fee-based services can be reduced based on decreased revenue while still maintaining the core, essential functions of fire prevention.

The beauty of multiple funding sources is that it can lessen the impact of reduced revenue from one of the sources. If fee-based revenue declines, public funding can provide a stable source of revenue to maintain core services. Although public funding is generally more stable, in the event of reduced taxpayer revenue, fee-based dollars can be used to makeup these shortfalls provided that development and construction activities continue to grow.

Each of the core services will have a mixture of public funds and fee-based revenue. The staff required to provide the minimum acceptable service level will be funded by public money. The customer satisfaction elements of fire prevention services are provided through fee-based funds. This is best illustrated by the following chart.

Poudre Fire Authority
Fire Prevention Organizational Chart

Fire Marshal
100% Public-funded
$133,817

Administrative Secretary II
60% Fee-funded
40% Public-funded
$51,448

Administrative Assistant
100% Public-funded
$61,558

Fire Protection Technician
100% Fee-funded
$77,875

Investigations
100% Public-Funded
$101,712

Fire Protection Systems
80% Fee-funded
20% Public-funded
$91,603

Plan Review
100% Public-funded
$101,712

Inspections
100% Public-funded
$101,712

Fire Safety Inspector
100% Fee-funded
$52,000

Fire Protection Technician
90% Fee-funded
10% Public-funded
$91,603

Fire Safety Inspector
100% Fee-funded
$52,000

Fire Protection Technician
80% Fee-funded
20% Public-funded
$91,603

Customer Satisfaction Enhancement

Fee-Funded Positions

Core Programs

Public-Funded Positions

The chart utilizes data from the 2008 PFA budget document, which includes the total fire prevention budget ($1,152,419), salary plus benefit projections for the above positions ($1,008,643) and anticipated fees for 2008 ($470,800) to develop the figures used in the chart. Currently fees go to the PFA's general fund rather than directly into the fire prevention's budget. The chart is intended to show that the timely and efficient services

the development and construction community have requested is funded primarily by the fees they pay.

Future budgets for fire prevention activities must be comprised of revenue that provides ongoing funds for core, and essential programs, while also providing revenue for the fluctuating service needs of the building industry. As discussed above, public money is a good source for funding core, and essential programs. Plan review, permits, and semi-annual sprinkler inspection fees could then be utilized to cover increased service needs due to construction activities.

Fire Prevention; a Historical Review

For hundreds of years, firefighters in the United States have made it their mission to save lives, and protect property from fires. Up until the 1870's, the fire service had been primarily a reactionary organization; respond to fires after they started, did their best to put the fires out, and rescue any trapped citizens. This changed when two major fires; The Great Chicago Fire, and the Peshtigo Forest Fire in Wisconsin started on October 8, 1871. Collectively, these two fires were responsible for more than 1,200 deaths, countless injuries, the destruction of 17,000+ buildings in Chicago, and 16 entire communities in Wisconsin. By the end of the second day, over 1.2 million acres of land were scorched by the two fires. Those who survived never forgot what they had been through, and these experiences fundamentally changed the way that firefighters and public officials thought about fires and the need for fire prevention and fire safety programs. So much so that the National Fire Prevention Week conducted each year was established in 1911 to commemorate the Great Chicago Fire, and is held each year during the week the two great fires occurred.

Historically, the fire service has viewed prevention, and suppression services as having two different mandates; prevent fires from happening versus putting them out after they start. This cultural view has created a division between the two services, which has, over many years, relegated prevention to secondary importance in the minds of many fire service professionals. This has created staffing problems within many fire prevention programs, including the PFA. People become firefighters because they want to help their citizens, be respected, and admired for what they do. Prevention activities, business inspections in particular, are related to enforcement of codes, and standards, which make most firefighters uncomfortable, and are contrary to how they view their role in the community. For this reason, many traditional fire prevention organizations have gravitated to utilizing civilian personnel to staff prevention positions, particularly the more technical and enforcement related jobs. This move towards civilianizing prevention programs in the fire service is creating a widening gap between prevention and suppression at a time when integration of the two should be the goal. PFA's prevention program is moving in a similar direction, partly for economic reasons, as well as for providing more stable personnel; utilizing uniformed fire personnel on a rotational basis leads to higher turnover, retraining issues, and costs more than comparable civilian employees. However, firefighters can and do play an important role in fire prevention activities and it is the intent of this Strategic Plan to utilize their strengths to develop an

integrated organization-wide approach to protecting the lives, and property of the citizens' PFA serves.

Fire Prevention's Impact on the Community

The effectiveness of any fire prevention program lies in the ability to ensure that occupied buildings are properly protected, and the citizens who use the buildings actively participate in the prevention of fires in these buildings. Traditional programs focus on the development and application of fire codes to new and existing buildings in order to see that hazards are minimized; fire protection systems are installed and maintained, as well as adequate access is provided for fire equipment. The education of the public has targeted business owners, and other public building occupants through periodic inspections to identify potential hazards. On the residential side, school-age children, primarily at the elementary school level, have been the primary focus of home prevention programs. Programs are delivered through the schools, with the expectation that the children will then take the information home, and get their parents to read, and initiate the various prevention programs outlined in the school presentation.

The success of traditional fire prevention programs in the United States is well documented in the area of prevention of building fires; 53% decrease in the number of building fires between 1977 and 2005. This can be attributed to the development and application of modern building and fire codes, which through fire-based hazard inspections in business and public buildings identified, and removed many of the reasons fires occurred in these buildings. However, since the late 1990's, the number of fires in buildings has remained constant. Whether this is a temporary pause in the downward trend of building fire incidents, or an indication that the effectiveness of current fire prevention efforts have reach their peak remains to be seen.

Civilian fire deaths in buildings also experienced a dramatic drop; 50% between 1977 and 2005. This is particularly evident in non-residential occupancies, where much of the fire service efforts have been focused. Like building fires, civilian deaths have leveled out since the mid 1990's. However, fires in the home continue to be where most people will die. 78% of all building fires occur in residential settings, with 82% of all fire deaths taking place where people live. This is the one area where progress has been difficult to attain. Future efforts will need to focus on where people live if fire fatalities are to be reduced a significant amount.

Local experience mirrors the trends on the national level. Fire prevention efforts increased in the late 1970's with the beginning of business inspections by on-duty firefighters. The impact of these inspections on the business community has lessened as compliance increased, and more business owners began supporting the inspection program. What began as annual inspections of all businesses has, over the last three decades, evolved into inspection of most businesses every three years by fire companies, with higher risk/hazard occupancies inspected more frequently by Bureau inspectors. This has been a planned process whereby the risk of different business and occupancy types has been tracked regarding their risk to the community. Efforts have been made to

focus PFA resources where the greatest risks lie; assemblies, accommodations, board and care facilities, and other places where people congregate. The culmination of this several decade process is one of the major focuses of this Strategic Plan; development of a risk/benefit-based inspection program conducted by skilled Bureau inspectors, and shifting the focus of firefighters to residential safety and fire prevention.

Community and PFA Changes

In the decade following the 1995 Strategic Plan, the community's demographics and emergency response demands have dramatically changed. These changes are punctuated by a 25.9% increase in population, a 52.2% increase in emergency responses by fire equipment and an increase of 30% in firefighters. These factors are expected to grow at an overall annual rate of 2.0% during the next decade. With the rising growth of the Fort Collins population (population projection for 2020 of 224,814), including a predicted high proportion of geriatric citizens. These changes will result in an ever increasing workload for fire prevention staff due to more new buildings, occupied facilities and people. The changing demographics of the jurisdiction will also create new challenges for fire prevention efforts in the area of life safety.

Strategic Plan Initiatives

Community Interface Initiative

The key to the successful delivery of fire safety and prevention programs in the community is the ability to interact in an effective and efficient manner with the citizens', businesses, firefighters', and agencies we serve. It is fire prevention's responsibility to figure out how best to communicate with its customers. Prevention staff must be responsive, receptive, initiate new communication procedures, and continually look for ways to improve the communication process with the firefighters' and citizens.

Customers need to be able to communicate with the appropriate prevention staff member in a timely manner with minimal effort. Business owners, developers, and contractors need to understand what fire codes require of them when they run a business or construct new buildings. This information needs to be easily accessed, and understood by these customers so the time spent on correcting hazards or making changes to building plans is kept to a minimum. Likewise, the submittal process, and review of development, and building plans needs to be streamlined so customers can keep their projects moving forward. Efforts by fire prevention staff to meet these customers needs require a feedback system whereby customers can tell us how we are doing. This system must be easily accessed by customers, and valued by both customer and staff alike.
Interaction with the community, our customers, both internal, and external, will take many forms, and utilize different delivery systems. Voice recognition phone management systems could direct people to the appropriate staff member based on customer questions, and needs. Web-based systems could be used to conduct surveys, provide code education, regular updates on code issues for specific businesses and occupancies, HMMP management and updating, self-inspection for low-hazard buildings, with on-line tools to

guide customers on how to be fire-safe, and burn permit application and approval system. A digital plan review process could allow for customers to check-in their plans via computer or in the office, and track the progress of the review via computer. Links with other agencies like Larimer County, Health Department, and the City of Ft. Collins departments will speed up the approval process. Use of the media, both written and televised will offer opportunities to communicate, and educate the community on important fire prevention issues.

All of these ideas and technological advances in data collection and storage will play a major role in fire prevention's ability to provide quality, customer friendly services to the community. Utilizing wireless, and internet-based data collection and retrieval systems will maximize the service fire prevention's limited resources can provide to the citizen's.

Risk/Benefit-Based Business Inspection Program

It is important to emphasize that the value of inspecting businesses cannot be overstated in regard to the safety of the community's citizens and its economic vitality. This new program provides focus on improving an already successful program while utilizing the PFA's resources to target areas that have the greatest risk to the community. The development of prevention expertise by PFA fire prevention personnel focused on these high-risk businesses and occupancies will ensure that the maximum effort has been made to see that these businesses are properly protected. This includes facilities located on or associated with Colorado State University's campus. Of particular note are the fraternity and sorority houses, which pose a higher life safety risk due to the student population.

Other lower risk businesses will not be abandoned, but will be either inspected periodically, or monitored through a self-inspection, or industrial inspection program. Technology will play an important part in managing this multi-level program in the most efficient, and effective manner possible. This program will allow the diversion of response personnel's prevention focus from the business inspection program to residential fire safety.

Hazardous Materials Management Program (HMMP) Initiative

This existing federally mandated program is targeted to be converted to an internet-based record-keeping system whereby businesses can input HMMP data directly into the PFA's data system. This will be accomplished through the use of business specific secured accounts, which will allow the business to periodically update their data, and allow ready access to this information, by the PFA. PFA access will be a tiered system, whereby PFA personnel will only be able to view what is appropriate for their job. As an example, response personnel would be able to see only storage locations, quantities, and hazard ratings of stored materials, whereas the Hazardous Materials Response Team may have full access to the HMMP data. The goal is to make this information readily accessible to responding fire personnel, while protecting business proprietary information.

Professional Performance-Based Staffing and Development

The success or failure of the above programs will be dependant on the ability of PFA's personnel to correctly identify, and carry out what is needed to impact fire risk in the jurisdiction. This requires developing the right skills, and expertise needed to implement the services necessary to meet the goals for reducing fire risk. In order to accomplish this, the services needed to address fire risk must be identified, then staffing levels, and education can be matched to provide these services.

Professional Standards and Development

Quality employees need to be recruited for positions in fire prevention, and incentives provided to retain these valuable assets. To ensure competent, well trained personnel, ongoing education and professional certifications/affiliations are needed to stay current with applicable fire safety standards. The utilization of rotational uniformed fire personnel and civilian technical specialists in fire prevention must be based on the ability to serve the community's citizens in the most efficient, and cost-effective manner.

Residential Safety, Fire Prevention and Disaster Preparedness Program

Residential Safety and Fire Prevention

Fire safety initiatives targeted at the home remains the key to any reductions in civilian fatalities and injuries in the PFA's jurisdiction. This is articulated in Findings 3 and 7 of the "America at Risk; America Burning Recommissioned, 2002" document included in the appendix. This program will be developed with Fire Prevention assistance by the PFA's Operations division. Utilizing firefighters to deliver these programs directly to the citizens in their homes and neighborhoods is a new approach, which we believe will be well received by the public. The development of the various programs will utilize national strategies as the basis for discussion on what is appropriate for the PFA's citizens. The National Fire Protection Associations report, "Fire Loss in the U.S. in 2005" outlines the five major national strategies as: "First, more widespread public fire safety education is needed on how to prevent fires and how to avoid serious injury or death if fire occurs. Information on the common causes of fatal home fires should continue to be used in the design of fire safety education messages. Second, more people must use and maintain smoke detectors and develop and practice escape plans. Third, wider use of residential sprinklers must be aggressively pursued. Fourth, additional ways must be sought to make home products more fire safe. The regulations requiring more child resistant lighters are a good example, as are requirements for less fire-prone cigarettes. The wider use of upholstered furniture and mattresses that are more resistant to cigarette ignitions is an example of change that has already accomplished much and will continue to do more. Fifth, the special fire safety needs of high-risk groups, e.g., the young, older adults, and the poor need to be addressed".

Disaster Preparedness

One of the greatest challenges for Emergency Management is informing and educating the public as to what their role should be regarding a disaster.

The role of the public can be broken down into a pre-disaster or preparedness/mitigation area, a disaster or response area, and finally a post-disaster or recovery area. Each of these areas has distinct actions or activities that will enhance their ability to survive a disaster. As communities grow and develop, the risk of being involved in either a man-made, technological, or natural disaster greatly increases.

Unfortunately the mind set of "out of sight, out of mind" plays a large role with disaster education. Many individuals believe it will happen to someone else and not them.

Funding for disaster preparedness and disaster management is often overlooked as a priority. This creates a resource shortage both in personnel and materials for educational programs. As an alternative to directly educating the public, many emergency mangers are teaming with their local fire departments and health departments to carry their educational messages to the public. The goal of Fort Collins Office of Emergency Management is to seek assistance from the Poudre Fire Authority Public Education (Public Outreach) Program with this endeavor.

Areas that are critical for the wellbeing of the public in a disaster setting include but are not limited to the following:

Understanding the local hazards - Terrorism/CBRNE (Chemical, Biological, Radiological, Nuclear, Explosives), Hazardous Materials, Floods, Snow Storms, Hail Storms, Tornadoes, Wildland Fires, Landslides, and Pandemics

Knowing what your preparedness actions should include - Pre-plans, Emergency preparedness kits

Knowing what your response actions should include - Evacuation procedures, Protect in place procedures, using preparedness kits

Know what your recovery actions should include - Damage assessment processes, Available public assistance funding, temporary shelter and food

Knowing what public safety agencies can and cannot provide during a disaster.

The Fort Collins Office of Emergency Management will be seeking alternative options for public education outside of the normal practice. If a community understands its risk, knows how to lower that risk, takes critical steps when impacted by the hazard, that community will have a higher survivability rate than a community which does nothing.

It is recommended that the firefighters' be utilized by the Fort Collins Office of Emergency Management in its education efforts to address issues of preparedness for natural disasters, pandemic flu or virus events, and issues of terrorist attacks.

Built-in Fire Protection

The installation of fire extinguishing systems in most, if not all buildings has to be an ongoing priority. This involves not only new buildings, but selective retrofitting of several occupancy types. The fire problem in PFA's jurisdiction centers on older residential buildings less than 2,500 square feet, which a sprinkler requirement for only new construction will not address. Ultimately, technological advances will make retrofitting of existing buildings financially, and politically feasible. This is beyond the scope of the current planning period for implementing such a plan, but the process for this initiative must begin now if any meaningful improvements in reducing dollar loss, injuries, and deaths due to fire are to be accomplished.

Methodology

The Fire Prevention Strategic Plan has been based upon an assessment of the community's future demographics, the location and densities of at-risk populations, and internal analysis of how PFA may provide fire prevention services to our citizens. Careful review of information from planning documents developed by the City of Fort Collins, Larimer County government, the State of Colorado, national standards, and past internal statistics were the basis of the assumptions and development of the goals.

Overview

Introduction

18 months have been devoted to determining what the fire prevention challenges will be for PFA during the next 10 years and identifying the resources necessary to meet these challenges. Individuals from both within and outside the organization have participated in this process as part of a fire prevention planning team.

Fire Prevention Plan Initiatives

Short-Term Objectives   (2008)

 Risk/Benefit Based Business Inspection Program
 Residential Safety, Fire Prevention, and Disaster Preparedness Program

Medium-Term Objectives   (2008-2009)

 Community Interface Initiative
 Hazardous Materials Management Plan Initiative
 Bureau Staffing/Development Program

Long-Term Objectives   (2010+)

 Built-In Fire Protection

The following pages provide a chart outlining the goals and programs, which are designed to carry out the initiatives listed above. A description, a projected timeline for starting the project as well as an estimated cost is provided.
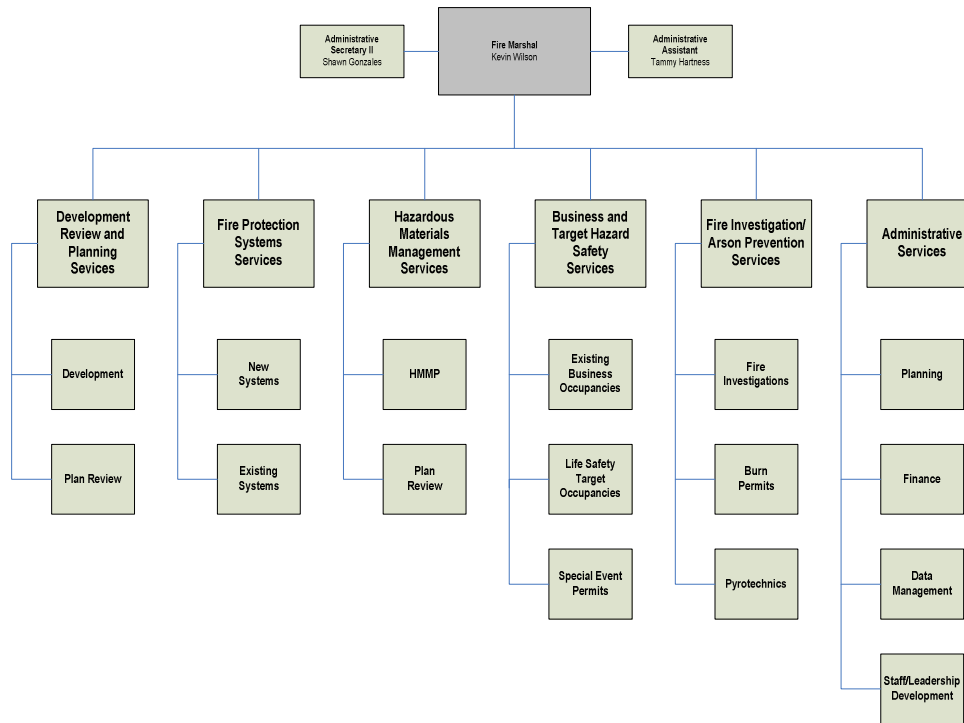
Immediate Community Needs

The basis for good planning and efficient and effective use of resources is the ability to collect and process pertinent information. This is not only important to fire prevention, but applies to the entire organization as well. Currently numerous information management data systems are being used, which makes it difficult to collect and process the data from each of the systems. It is vital that a single system wide information management system be utilized for all of PFA. The ability of fire prevention to carry out the above listed initiatives will be heavily dependant on the ability to collect and process information efficiently. It should be an organizational priority to purchase and install a new record management system by mid-2008.

The transition to a new menu-based phone routing system and Microsoft Project software should also be a priority for 2008. This will allow customers to have easier access to the staff member who can answer there questions, and utilize support staff more effectively. The new project management software will allow customers to track the status of their projects with minimal effort, and free prevention staff to focus on other duties.

Fire Prevention System Overview

The fire prevention system is designed to promote the prevention of fires, and minimize their impact when they do occur. This is accomplished by focusing on six program areas; development/new construction, fire protection systems, hazardous products, existing facilities, fire investigations, and administrative services. Over site and management responsibilities are provided by the fire marshal as represented in the following organizational chart.

Poudre Fire Authority
Fire Prevention Organizational Chart

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        Administrative              Fire Marshal              Administrative
        Secretary II                Kevin Wilson              Assistant
        Shawn Gonzales                                        Tammy Hartness
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Development Review and Planning Sevices	Fire Protection Systems Services	Hazardous Materials Management Services	Business and Target Hazard Safety Services	Fire Investigation/ Arson Prevention Services	Administrative Services
Development	New Systems	HMMP	Existing Business Occupancies	Fire Investigations	Planning
Plan Review	Existing Systems	Plan Review	Life Safety Target Occupancies	Burn Permits	Finance
			Special Event Permits	Pyrotechnics	Data Management
					Staff/Leadership Development

Program Areas:

Fire Marshal's Office:

The fire marshal is responsible for the overall management of the fire prevention division, provide direction and develop policies, which guide the prevention staff in their daily duties. The fire marshal also is the liaison to the community, local business, and the public agencies PFA interact with. An important aspect of the fire marshal's duties is to develop, and foster partnerships within the community to achieve fire preventions mission, which is to "protect citizens and their property by being prompt, skillful, and caring".

Administrative Services:

The primary function of this program is to provide support for the other programs. This support comes in the form of planning, financial management, maintaining data collection and retrieval, and overseeing the training and development of the fire prevention staff.

Business and Target Hazard Safety Services:

Existing buildings are the primary focus of this program. Much of the fire code addresses the maintaining of fire safety design features required by the various building and fire

code standards, and the reduction of fire hazards in existing buildings after they are occupied. This is accomplished through several programs ranging from monitored self-inspection of low risk businesses, industrial inspection by on-site risk management professionals, and inspection of high-risk/high-hazard facilities by trained fire prevention inspectors.

Fire Investigation/Arson Prevention Services:

The investigation of all fires benefits the community in two ways; it documents the cause of fires, and whether it was intentionally started. In terms of cause, this helps determine the types of things that lead to fires locally, which when coupled with national trends, allows fire prevention efforts to focus on reducing the hazards that actually are responsible for fires. Fires that are intentionally started need to be identified, so that those individuals responsible can be found and prevented from starting other fires. Prevention may take the form of counseling children, and juveniles up to and including prosecution and incarceration. It is important to find these individuals as fire setters tend to set more fires, which often get larger, until they are caught.

Hazardous Materials Management Services:

Federal law regulates the transportation, storage, and use of hazardous materials. These regulations in addition to Fire Code requirements require all businesses that utilize and/or store certain quantities of hazardous materials submit a Hazardous Materials Management Plan (HMMP) to their local fire department. Hazardous Materials Management services is responsible for managing this HMMP program in addition to other duties such as plans review of new storage and processing systems that utilize hazardous materials.

Development Review and Planning Services:

This program area ensures fire and life safety code compliance for new development and building construction projects. This is accomplished through predevelopment and preconstruction meetings, plans review, and site inspections. Enforcement of fire and other applicable codes is designed to provide adequate access and water supply for firefighters, as well as fire protection systems to protect citizens and their property.

Fire Protection System Services:

Installed fire protection systems are the key to reducing the number of injuries and deaths to citizens in addition to lowering fire related property loss in the community. This program is responsible for the proper installation and maintenance of these systems. This is accomplished through the application of the appropriate standards governing installed systems utilizing proper plans review, acceptance testing, and annual/semi-annual sprinkler testing.

Goals specific to the above seven program areas are detailed in section 5, "Performance Standards" beginning on page 28. What follows below is an abbreviated representation of these goals in chart form to ease review of these goals.

Fire Prevention Strategic Plan Implementation Chart

Item	Description	Timeline	Cost 2007
FIRE PREVENTION INITIATIVES			
Business Inspection Program	A Bureau-based program designed to prioritize the risks in the community and utilize trained inspectors to provide quality inspections in a consistent manner	April 2008	
2006 ICC Code	Adopt the 2006 International Code Council Fire Code within the PFA's jurisdiction	June, 2008	$10,000
Residential Fire Safety	A program delivered by on-duty firefighters' to educate citizens' on fire safety in their homes	June, 2008	$3,000 for materials
Community Interface Initiative			
Automated Phones	Develop a communication system that provides customers easy access to customers through automated phone routing	March 2008	No Cost
On-Line Project Management	Develop an on-line project management system utilizing the most current computer and internet based technology	June 2008	$3,000
Electronic Plan Review	Use current technology that allows plans to be reviewed and filed electronically	July 2008	$2,000
On-Line Applications	Develop user friendly check-in and on-line application processes for customers	April 2008	$1,000
On-Line Burn Permits	Develop an internet-based burn permit program, which allows easy customer access	April 2008	$1,000

Fire Prevention Strategic Plan Implementation Chart

Item	Description	Timeline	Cost 2007
OTHER PROGRAM GOALS			
Integration of Fire Prevention and Operations	Develop strategies to increase communication between the divisions' as well as joint programs relating to fire safety in the community	June 2008	No Cost
Infill Development	Develop strategies for future infill development, high-density projects, and new/existing high-rise buildings in PFA's jurisdiction	February 2008	No Cost
Regional Cooperation	Promote regional cooperation for consistent adoption and application of fire codes and related prevention Programs and activities	December 2008	No Cost
Certification	Maintain ICC Fire Inspector I certification	December 2008	$1,000
Development Manual	Develop a PFA Development Manual to serve internal customers, external customers, developers and City staff	August 2008	No Cost
False Alarms	Develop and implement a fire alarm program to reduce false fire alarms	August 2008	Training & Certification At 2008 Fire Prevention Conference
Staffing Formula	Develop a staffing formula to ensure adequate resources to deliver customer services in a timely manner	December 2009	No Cost
Investigator Certification	Require all fire investigators to obtain the National Association of Fire and Explosion Investigators certification	July 2009	$1,000
Data Management	Develop a professional, comprehensive data management system	July 2008	$20,000 Hand-held Devices
HMMP Reporting	Develop an on-line reporting system for customers required to report hazardous materials storage and use.	July 2008	$5,000

II. INTRODUCTION

Purpose

The 2007 Fire Prevention strategic plan is intended to assist PFA in identifying and meeting community needs for the next 10 years. This plan represents 18 months of work by PFA staff and employees. This plan is an addendum to the 2004 Strategic Plan, which will be annexed into the main body of the 2004 plan once approved by the Boards'.

This plan is oriented for both short- and long-term needs. It provides a strategic vision of what citizen and employee needs may be and PFA's ability to meet those needs. From a short-term perspective, this plan outlines specific actions required to address pressing current issues, which should then lead to an improved ability to reach strategic goals. These directions are embodied in six major sections of the plan. They are:

Mission and Goals – PFA's Mission Statement is described in Section 4. This statement is supported by 20 goals. These statements provide the stakeholder with the focus of our services and outcomes from our efforts.

Performance Standards – Section 5 describes a set of performance measurements that are intended to indicate PFA's success in fulfilling its goals. These measurements establish performance targets for major components of service delivery and total system performance. They also provide the basis for comparisons with other fire departments fire prevention programs.

Planning Assumptions - Section 6 discusses the internal and external environments that affect PFA's ability to provide services. These planning assumptions include data used to develop the benchmarks, the operating policies currently in use, and projections of future community data and service needs.

Recommendations - Section 7 outlines specific recommendations based on projected community needs over the next 7-10 years. These recommendations represent the operational substance of this strategic plan and detail specific changes required in existing programs. Also addressed are new initiatives to be met in order to meet the goals presented.

Implementation Criteria – Section 8 outlines standards for identifying service needs. This section provides information on criteria application as regards specific services, defining the criteria for such services, and on the methods used in providing and documenting tracking data.

Appendix – Section 9 provides supporting documentation, which was utilized in the development of plan initiatives, goals and performance standards.

Scope

The scope of this plan is 7-10 years for the purpose of substantive programmatic and resource planning. In some areas projections may be ten or more years into the future, with the knowledge that internal and external environments can and will change, thus impacting operational planning. From past experience we have learned that substantive planning beyond ten years results in a loss of focus and detract from our ability to do the operational planning necessary to actually implement change.

It is a principle objective of the planning process to be flexible and able to adapt to the changing conditions of the future. For this reason, some of the recommendations are dependant on events rather than time. The Fire Prevention Strategic Plan will be evaluated yearly as part of the overall plan in the PFA Annual Report in comparison to our Performance Standards.

Research and Data

The majority of the research in the planning process has been conducted during the last 9 months to provide a basis for PFA to compare itself to local, regional and national data. Additional research has been conducted by both staff and the planning team during the planning process. The research and data includes extensive analyses of local data, national and regional information and recognized fire prevention practices. The data shown has been compiled from this research. In most cases the data has been summarized and condensed from a significantly larger database.

Every effort has been made to use the most current and relevant information. However, in some cases, data used is two or three years old, especially nationally published data and comparisons to other jurisdictions.

III. PLANNING HISTORY

Planning Process & Organization

This planning process started in 2001 when staff and fire fighters met to discuss concerns likely to arise with this strategic plan. For the purposes of the Fire Prevention Plan, data and recommendations derived from the 2004 Fire Prevention planning committee, PFA staff and subsequent planning and research in 2006/2007 provide the basis for this report.

The following individuals have worked diligently to see this Fire Prevention Strategic Plan through to its adoption:

The PFA Staff Organizing Committee:

John Mulligan	Fire Chief
Mike Gress	Operations Chief
Kevin Wilson	Fire Marshal
Guy Boyd	Director Administrative Services/PFA
Tom DeMint	Battalion Chief/C Shift
Steve Miller	Strategic Plan Analyst & Author

Fire Prevention

Kevin Wilson, *Leader*	Fire Marshal
Ron Gonzales	Assistant Fire Marshal
Holger Durre	Assistant Fire Marshal
Rick Baldwin	Assistant Fire Marshal
John Denison	Assistant Fire Marshal
Doug Lee	Assistant Fire Marshal
Joe Jaramillo	Fire Protection Technician
Mike Chavez	Fire Protection Technician
Carie Dann	Fire Protection Technician
Garnet England	Fire Protection Technician
Mark Hettinger	Fire Inspection Coordinator
Wayne Wiggins	Fire Inspection Coordinator
Scott Wiggins	Fire Inspection Coordinator
Sharon Berg	Fire Inspection Coordinator
Dave Minchow	Fire Inspection Coordinator
Derek MacArthur	Fire Inspection Coordinator
Tammy Hartness	Administrative Assistant
Shawn Gonzales	Administrative Secretary II
Captain Bob Chaffee	CSU Police Department
Ken Quintana	CSU Environmental Health Services, CSU Housing
Scott Smith	Business Owner
Mike West	Fort Collins Police Services

Future Search Planning Conference

John Denison	Poudre Fire Authority
Roger Smith	Poudre R1 Schools
John Holcombe	Poudre R1 Schools
Lew Sutphin	Colorado State University
Ellen Wright	Poudre Fire Authority
Carie Sibbald	Citizen
Tammy Hartness	Poudre Fire Authority
Ken Quintana	Colorado State University
David Marshall	Citizen
Mike West	Detective, Fort Collins Police Services
Greg Yeager	Detective, Fort Collins Police Services
Joe Jaramillo	Poudre Fire Authority
Randy Wright	Poudre Fire Authority
Mike Chavez	Poudre Fire Authority
Ron Gonzales	Poudre Fire Authority
Doug Lee	Poudre Fire Authority
Milt Lesser	Poudre Fire Authority
Bob Chaffee	Police Chief, Colorado State University
Tim Haag	Fire Marshal, Loveland Fire Rescue
Karen Carlson	Lieutenant, Fort Collins Police Services
Mike Sibbald	Business Owner
Mark Radtke	Fort Collins Legislative Affairs Liaison
Stan Griep	Larimer County Building Department
Kimberly Stenberg	Home Builders Association
Jared Moravec	Fire Protection Engineer, Union Colony Fire Rescue Authority
Duanne McDonald	Fire Marshal, Union Colony Fire Rescue Authority
Tom DeMint	Poudre Fire Authority
Rick Lee	Plan Review, Fort Collins Building Department
Guy Boyd	Poudre Fire Authority
Mel Carlson	Poudre Fire Authority
Steve Miller	Poudre Fire Authority

IV. MISSION STATEMENT AND GOALS

The 2004 Strategic Plan provides a template for directing the planning efforts for the next decade. The central focus for these efforts resides within PFA's Mission, which is:

"To protect citizens and their property by being prompt, skillful, and caring"

Everything PFA does relate back to three simple words; **Prompt, Skillful, and Caring.** This applies not only to the firefighters' who respond to citizen's calls for emergency assistance, but also to the fire prevention staff who serve these same citizens' in their daily lives. Ensuring safe homes where citizens' live and sleep, as well as the businesses they work in is a primary responsibility of fire prevention. To accomplish this, the fire prevention staff partners with many public, private, and business groups to help maintain a community that is safe to live and work in.

Fire Prevention Mission

The prompt, skillful, and caring aspects of the PFA Mission Statement are also the core values for fire prevention. The PFA's Fire prevention Mission goals are to:

"Be *PROMPT* by acknowledging requests from customers and responding to their needs in a timely manner"

The fire prevention staff interacts with the community's citizens' and PFA employees regarding fire prevention and safety issues on a daily basis. The resolution of these issues in a timely manner is important not only to minimize the risks to the community and the firefighters, but also to the business community and the economic vitality of the PFA's jurisdiction.

"Be *SKILLFUL* by acquiring the needed skills necessary to address the community's fire prevention and safety needs"

Fire prevention staff must acquire, and maintain the skills and knowledge base necessary to appropriately address the fire prevention and safety needs of the community. This requires technical knowledge of built-in fire protection systems, construction techniques for minimizing the impact of fires in buildings, access and water supply requirements for firefighting operations, knowledge of the fire code in order to mitigate hazards associated with occupied buildings and business operations, among other issues.

"Be *CARING* by receiving an excellent rating 95% or more of the time from any survey tool used"

Fire prevention's relationship with its customers and the various community groups it interacts with is a key factor in how well fire prevention and safety programs accomplish their goals and objectives. The partnerships forged with the business, construction and

development, educational and public agency communities are vital to the development of a fire safe community.

Fire Prevention Strategic Goals

The goals outlined below are statements of qualitative purpose that establish direction under the general umbrella of the mission statement. The goals, furthermore, are the linkage between the mission, and the performance standards, which will come later. Neither the mission statement nor the goals can be specifically measured. The performance standards provide measurements at the strategic level and program objectives at the operational level. Together they form the standards to which PFA fire prevention actions are held.

Fire Marshal's Office

Goal 1

"Improve integration of the Operations and Fire Prevention divisions"

Historically, the fire service has viewed prevention, and suppression services as having two different mandates; prevent fires from happening versus putting them out after they start. This cultural view has created a division between the two services, which has, over many years, relegated prevention to secondary importance in the minds of many fire service professionals. The PFA has some of these issues as well, and it is the intent of the Fire Marshal to bridge this gap through improved communication and training efforts.

Goal 2

"Adoption of the 2006 International Fire Code"

The fire code is the basis for all fire safety efforts initiated within the PFA's jurisdiction boundaries. Without its adoption by the governmental entities residing in the PFA, fire preventions ability to provide a fire safety environment for the citizens would be severely compromised.

The Fire Code provides the Fire Marshal (as designated by the fire chief) the authority "to enforce all ordinances of the jurisdiction pertaining to:

1. The prevention of fires,
2. The suppression or extinguishment of dangerous or hazardous fires,
3. The storage, use and handling of hazardous materials,
4. The installation and maintenance of automatic, manual and other private fire alarm systems and fire-extinguishing equipment,
5. The maintenance and regulation of fire escapes,
6. The maintenance of fire protection and the elimination of fire hazards on land and in buildings, structures and other property, including those under construction,

7. The maintenance of means of egress, and
8. The investigation of the cause, origin and circumstances of fire and unauthorized releases of hazardous materials."

These goals have been articulated in the fire code since 1981 when the Uniform Fire Code was first adopted. Its intent is carried on in the International Code Council standards first published in 2000.

The PFA has been operating under the 1997 Uniform Fire Code since 1999. Since its adoption, there have been 3 revisions to this code. In 1997, the International Conference of Building Officials (ICBO) codes, which are used primarily in the Western U.S. and the Building Officials and Code Administrators International (BOCA) and Southern Building Code Congress International (SBCCI) utilized in the East, worked together to form a new code, which would be utilized by all parts of the country. The newly created International Code Council (ICC) standards became available in 2000, and are now being promoted for use throughout the U.S. It is important that this new code standard be approved, and adopted in 2008.

Goal 3

"Develop strategies for future infill development, high-density projects, and new and existing high-rise buildings in the PFA's jurisdiction"

Land available for development within the PFA's jurisdiction, particularly within the City of Fort Collins, is becoming scarce. Development is beginning to focus on those undeveloped parcels within the urban area, which until recently, have been considered financially unfeasible. In order to make the development of these properties profitable, high density projects and high-rise buildings are being considered. Fire prevention staff will need to develop strategies which will allow these projects to develop but maintain sufficient fire safety features to protect the citizens, and PFA fire personnel assigned to respond to emergencies in these buildings.

Goal 4

"Promote regional cooperation for the consistent adoption and application of fire codes, related ordinances, and fire safety and prevention programs"

Fire safety and prevention in one jurisdiction can impact how these activities are delivered in adjacent communities. Regional approaches to fire safety in buildings, and the delivery of prevention education can be cost-effective, and be a boon to the construction and development industries. It is important that efforts be made to standardize codes and their application throughout the Northern Colorado Front Range communities. Utilizing the Northern Colorado Fire Marshals Association (NFCMA) as the vehicle to promote this goal is currently the best forum available.

Goal 5

"Develop, and implement a fire alarm program to reduce false fire alarms"

False fire alarms currently account for 8% to 9% of all fire responses within the Poudre Fire Authority's jurisdiction. The intent of the program would be to reduce this percentage to 3% to 4% of total fire responses. To accomplish this, the current 56-hour shift Fire Inspection Coordinators (FIC) would be utilized to staff this program. Their current prevention duties conducting fire sprinkler testing would be assumed by 40-hour prevention staff. This would allow them to focus on identification, and correction of fire alarm problems. The FIC's would be certified as fire alarm technicians in addition to their current fire sprinkler certification. This would provide a resource for response personnel for dealing with both fire alarm, and sprinkler problems. The FIC's would be responsible for seeing that problems are corrected in a timely manner, and be the fire department representative throughout the correction process.

Administrative Services

Goal 1

"Develop a communication system that provides customers easy access to the appropriate fire prevention staff members with minimal administrative staff intervention"

The ability of fire prevention customers (both internal and external) to be able to talk to the right person to have their questions answered and/or needs met is critical to the success of the service prevention provides. Ideally, customers should be able to easily identify the staff member that can meet their needs, and contact them directly. Staff members should make contact with customers in a timely manner if the initial call or visit is missed. An answer to customer questions or meeting their needs must also be timely. The level of satisfaction with fire prevention's service will directly correlate with the timeliness of communication and service delivery. A state-of-the-art communication system will provide a tool for meeting customer communication needs.

Goal 2

"Develop an on-line project management system utilizing state-of-the-art computer and internet-based technology"

The utilization of computer and internet-based technology will allow for the efficient management of projects and data while streamlining the flow of work within fire prevention. The ideal system would allow on-line tracking of plan and fire protection system submittals by customers and staff members, verification of completed plans and inspections, cross-reference between sprinkler systems, construction, and building files, efficient invoicing, and maintenance of all records.

Goal 3

"Develop user friendly check in and on-line application processes for customers"

As part of an overall project management system, the process of checking in plans and other submittals or requests must be easy for the customer to use, and minimize the amount of staff time required for processing. This function of the system would provide for building plan and fire protection system plan submittals, inspection requests, burn permits, Knox Box applications.

Business and Target Hazard Safety Services

Goal 1

"Develop a professional, comprehensive data management system"

The effective management of data is a key component of providing appropriate services to the community. This is not just an issue with fire prevention, but all aspects of the PFA's operations. The ideal system will effectively serve the needs of all bureau programs, with emphasis on development and planning and business and target hazard safety services. It will support all aspects of data collected and maintained by the bureau including paper and electronic information. The system will allow for electronic field collection and data retrieval. This is to include pre-response information for fire companies during emergencies. Finally, it will allow for citizen access to information vital to the business community.

Goal 2

"A strategic staffing formula should be developed and adopted that ensures adequate staffing for this service delivery."

The ability to provide sufficient resources to adequately inspect, and monitor fire hazards in the community's buildings are an important factor in an overall fire prevention and safety plan. The frequency, and type of inspections required to provide a fire-safe community will determine the resource need for this program. Factors utilized for determining staffing levels should include factors such as population density, number of businesses, fire Loss statistics.

Goal 1

"Develop a Burn Permit Program that is internet-based, which allows easy customer access, and requires minimal staff support"

Burn permits are a process whereby the PFA can oversee open burning within the PFA's jurisdiction. This is a necessary function to ensure that the materials burned do not adversely impact the environment, and that the burning is done safely. The majority of open burning is conducted for agricultural reasons to remove dead or hazardous vegetation, which impedes new growth of food crops or obstructs the water canals that provide water to the fields.

In order to streamline the permit process so that the application and approval process for customers is easy and responsive, a web based application system should be developed. Elements of the site would provide an easy to fill-out application form, a "FAQ's" section to help educate customers, a link to LCHD to provide a copy of permits, and an email approval/denial response to burn permit requests. Regular users of permits, such as farmers, and ditch companies could qualify for an automatic renewal process based on yearly burning of the same properties, and a history of no problems.

It is recommended that fees be assessed for burning permits for all requests that do not come from the farm community and ditch companies. These requests typically create the most work, and cause the most problems for prevention staff and firefighters. Revenue from these permits could be used to partially fund a staff person to run the program, conduct site visits, approve/deny permits, do any necessary follow up, and issue summons when required.

This system would be one part of a comprehensive check-in or on-line application process for all submittals to fire prevention.

Goal 2

"Require all Investigators to obtain National Association Fire Investigators Fire and Explosion Investigator's Certification"

Investigation of fires is an important link in the delivery of fire prevention and safety programs in the community. Knowledge of the local fire problem will directly affect where fire prevention efforts are focused. As an example, if a trend of increased fires in kitchens due to a specific type of cooking appliance is identified through fire investigation, a public campaign could be initiated to inform the public of the problem.

In order to provide qualified and experienced fire investigators, individuals assigned to this duty need to receive adequate education, and training in the techniques, and skills of proper fire investigation. Certification as a Fire and Explosion Investigator through the

National Association Fire Investigator's will provide a solid base of knowledge and skills to meet the PFA's investigation needs.

Hazardous Materials Management Services

Goal 1

"Develop and maintain an internet-based HMMP reporting system, which can be accessed and updated annually by businesses impacted by Federal and local regulations"

The Hazardous Materials Management Plan program was designed to provide emergency responders with information on the type, severity, and locations of hazardous materials within a building. This information was to be used to develop plans for addressing incidents at these buildings that had the potential for serious consequences to the building occupants, emergency personnel, and the surrounding areas. In order to meet this intent, it is recommended that a system be designed to allow easy collection and updating of information as well as quick retrieval of pertinent data by emergency responders when faced with incidents in buildings with hazardous materials.

Development Review and Planning Services

Goal 1

"Use updated technology that allows plans to be reviewed and filed electronically"

An electronic plan review process will allow customers the option of submitting construction plans via the web, CD or the traditional way, on paper. Staff will be able to make their comments, and submit approval via the web to the appropriate building department. Customers will have the ability to track the review process via computer without necessarily having to contact the staff member doing the review.

Goal 2

"Maintain necessary certification for staff; acquired within first year of service"

It is important that staff members receive the appropriate education, and develop the necessary skills required to be successful at their job. Ideally, this will occur prior to assignment to a fire prevention position, but should at least be accomplished within the first year of service. Staff members are encouraged to seek certifications appropriate to their assignment, but as a division goal, all prevention staff members will be certified as an ICC Fire Inspector.

Goal 3

"Develop a PFA maintained "Development Manual" to serve internal customers, external customers, developers and city staff"

Understanding the process of taking a project idea through the review, approval, and final inspection minimizes the time required to complete the process, and any misunderstandings along the way. A manual also provides consistency in the process when applied by those responsible.

Goal 4

"A strategic staffing formula should be developed and adopted that ensures adequate staffing for this service delivery."

A process must be developed, which identifies when additional resources are needed to provide services to the community. Criteria must be developed to determine when additional staff is needed, and a revenue stream identified for funding additional positions.

Goal 5

"Promote regional consistency to code interpretation utilizing extra-departmental resources of NCFMA"

Many developers and contractors operate in several jurisdictions in northern Colorado, which creates problems when requirements vary between agencies. The utilization of common codes and standards, and the consistent application of these requirements will provide a higher level of protection for northern Colorado communities, and result in greater cooperation and compliance by the building industry.

Fire Protection System Services

Goal 1

"Ensure that all fire protection systems are tested and inspected in accordance with NFPA standards"

The PFA has provided inspection, and testing services for the community for several decades. This program was instituted at the request of the business community based on the inconsistent level of service being provided by the private sector contractors at the time. The PFA has provided this service in a consistent and cost-effective manner for the business community, and expects to continue this service for the foreseeable future. In order to maintain this level of service, staff members responsible for this program will need to update their knowledge and training on fire protection systems in order to keep up with advances in system design.

Goal 2

"Ensure public and firefighter safety by effectively reviewing fire protection systems design and installation to maximize life and property protection while minimizing cost"

Fire protection systems, particularly sprinklers, offer the community the best available protection for lives and property that is currently available. When properly installed and maintained, the reliability of these systems is more than 97%. It is imperative that staff members maintain the necessary skills and knowledge to see that the proper system is designed, installed, and maintained for each building.

V. PERFORMANCE STANDARDS

Introduction

The comparisons and/or standards will, when possible, utilize the data that is available to help PFA track its performance in one or more of the following ways:

- Compare PFA to Front Range, Western or Rocky Mountain region and national data
- Compare PFA local data to a recognized standard
- Utilize a locally established standard of performance when a recognized standard is unavailable
- Track data over a ten year period when possible
- Utilize current data to begin tracking of new standards of performance or similar data such as that used to evaluate implementation criteria
- Differentiate between the quantitative (number of) versus the qualitative (character of) nature of the data provided

History of Benchmarks and Service Level Indicators in the PFA Strategic Plans

Benchmarking is a system of measuring performance against a standard established from comparisons to other similar agencies at the local, regional and national level. These standards are also developed in conjunction with research and data collected by organizations such as the National Fire Academy and the National Fire Protection Association. From this, PFA can measure the effectiveness and efficiency of methods developed to meet or exceed these standards and provides policy makers, citizens and employees with realistic measurements of organizational performance.

Past PFA Strategic and Master Plans have used some form of benchmarking. In the 1980 plan, performance "objectives" were developed using historic local experience and comparisons with early International City Manager's Association (ICMA) data. In 1986, these were expanded to "Service Level Indicators". These are the organizational performance measures the PFA Board of Directors review annually. Some of these standards have been utilized since the first plan in 1980 and provide clear trends in how PFA compares to similar agencies and locally established performance objectives. Others are relatively new and will be utilized to track data to help identify future service needs and provide baseline reference information.

Use of Standards in 2007 Fire Prevention Strategic Plan

The standards used in this plan represent a combination of comparisons with other communities, fire prevention programs, and fire departments, past, present and hoped-for future performance targets. They are aggressive and long-term in nature. For some it may

be several years before enough data can be accumulated to determine their realistic long-term applicability. Data collection and reporting capability will be synchronized in order to provide current information on where PFA stands in relation to service level goals.

The 11 standards in this plan are organized into seven areas related directly to the goals outlined in the previous section. This provides a picture of how we are doing in relation to the standards and whether we are moving toward or away from our goals.

Fire Marshal's Office

Goal 1

"Improve integration of the Operations and Fire Prevention divisions"

Schedule an informational meeting with all uniformed personnel in order to provide information on the duties and responsibilities of personnel assigned to fire prevention, programs and services provided to the community, and planning and philosophies of the division. Information collected from these meetings will be utilized for division and program continuous quality improvement. Meetings are scheduled for February 2008, with follow up analysis and program development to be completed by June 2008.

Goal 2

"Adoption of the 2006 International Fire Code"

Seek adoption of the code by the jurisdictions governmental agencies by June, 2008.

Goal 3

"Develop strategies for future infill development, high-density projects, and new and existing high-rise buildings in the PFA's jurisdiction"

Identify strategic strategies during the February 2008 fire prevention retreat.

Goal 4

"Promote regional cooperation for the consistent adoption and application of fire codes, related ordinances, and fire safety and prevention programs"

Market the concept of regionalized consistency to the NCFMA with the objective to develop a strategy for consistency by the end of 2008.

Goal 5

"Develop, and implement a fire alarm program to reduce false fire alarms"

The development of a fire alarm technician training program will begin in August 2008, with a target of delivering the class at the 2008 Fire Prevention Conference in October 2008. Program implementation is scheduled for early 2009.

Administrative Services

Goal 1

"Develop a communication system that provides customers easy access to the appropriate fire prevention staff members with minimal administrative staff intervention"

Provide an automated phone routing feature to the existing system by March, 2008.

Goal 2

"Develop an on-line project management system utilizing state-of-the-art computer and internet-based technology"

Implement a comprehensive project management system by June, 2008.

Goal 3

"Develop user friendly check in and on-line application processes for customers"

Implement an on-line application process by April, 2008.

Business and Target Hazard Safety Services

Goal 1

"Develop a professional, comprehensive data management system"

A comprehensive record management system is projected to be installed and operational by July, 2008.

Goal 2

"A strategic staffing formula should be developed and adopted that ensures adequate staffing for this service delivery."

Revenue shall be provided for additional staffing when the below standards fall to 80% or less for a sustained period of 6 months or more.

Standard: Limit commercial fires to .33 fires per 1,000 populations.

Standard: Limit commercial fire loss to $10,000 per fire.

Standard: Limit WUI fires to x per 1,000 population 90% of the time.

Standard: Perform 20 or more inspections per 1,000 populations 90% of the time.

Standard: Maintain a 90% overall satisfaction rate with businesses.

Fire Investigation/Arson Prevention Services

Goal 1

"Develop a Burn Permit Program that is internet-based, which allows easy customer access, and requires minimal staff support"

A web/internet based Burn Permit application and approval system shall be installed and operational by April, 2008.

Goal 2

"Require all Investigators to obtain National Association Fire Investigators Fire and Explosion Investigator's Certification"

All fire investigators assigned after January 2008, shall obtain certification within 1 year of assignment. All existing investigators shall obtain certification by July, 2009.

Hazardous Materials Management Services

Goal 1

"Develop and maintain an internet-based HMMP reporting system, which can be accessed and updated annually by businesses impacted by Federal and local regulations"

A web or internet based HMMP reporting system shall be implemented by July, 2008.

Development Review and Planning Services

Goal 1

"Use updated technology that allows plans to be reviewed and filed electronically"

The review process shall be fully converted to an electronic system by July, 2008.

Goal 2

"Maintain necessary certification for staff; acquired within first year of service"

Standard: All fire prevention staff shall obtain the appropriate certification for their assigned position within 1 year of appointment.

Goal 3

"Develop a PFA maintained "Development Manual" to serve internal customers, external customers, developers and city staff"

The Development Manual will be completed by August, 2008.

Goal 4

"A strategic staffing formula should be developed and adopted that ensures adequate staffing for this service delivery."

Revenue shall be provided for additional staffing when the below standards fall to 80% or less for a sustained period of 6 months or more.

Standard: Conduct "tenant finish" reviews in existing facilities within 3 business days of PFA receipt 90% of the time.

Standard: Conduct new construction reviews for basic facilities within 10 business days of PFA receipt 90% of the time.

Standard: Conduct major construction reviews for complex facilities within 15 business days of PFA receipt 90% of the time.

Standard: Conduct final inspections within 3 business days of customer request 90% of the time.

Standard: Conduct hazardous materials new construction reviews within 10 business days of PFA receipt 90% of the time.

Goal 1

"Ensure that all fire protection system are tested and inspected in accordance with NFPA standards"

Develop a program for the testing and inspection of fire pumps and standpipe systems in accordance with NFPA standards by September 2008.

Goal 2

"Ensure public and firefighter safety by effectively reviewing fire protection systems design and installation to maximize life and property protection while minimizing cost"

VI. PLANNING ASSUMPTIONS

The planning assumptions summarized below are the preponderant values used in PFA's decision making process for Fire Prevention. These assumptions are an integral part of the planning process. They detail the operational concepts that drive current decision making and future planning. They provide the data used to develop benchmarks and the recommendations. These planning assumptions describe the environment in which PFA exists. In some cases, they project into the future based on the best information available at the time.

The assumptions might be said to represent what PFA does, how it does it, and where it should go. Many of the issues listed identify current and future questions facing PFA. They provide the body of knowledge and institutional memory that allow future decision makers to understand how and why major policy decisions were made.

Community Risk Assessment

PFA has evolved into a multi-risk agency. As well as the obvious risk of fire to the community, these risks also include injury, and illness to the citizens.

The risk environment describes the context within which the system operates. It is a combination of the type and size of incidents that may occur and the likelihood of their occurrence. If risk reduction and delivery strategies are not correctly matched to the risk, the viability and customer satisfaction of citizens using the service may suffer and the costs incurred to provide the services may exceed community expectations.

Risk Factors

The following factors combine to create the community risk.

Demographics

The population of the City of Fort Collins grew 24.5% between the years 1996 and 2006 to a population of 132,261. In 2002 it was estimated that the population of Fort Collins was 124,225. At the time of this printing the estimated population of the PFA area, including the areas governed by the PVFPD, is nearly 170,381.

Several factors apply when evaluating a community's demographic risk. Therefore, there are many elements that make up a community's demographic profile. They are:

- Age
  The median age of the Fort Collins area is 28.2. This has increased approximately 17% since the last strategic plan (1990 census). As the population grows older, PFA can expect higher incident rates and increased requests for multi-risk services. Fire and EMS data show that the elderly are at a higher risk for fire as well as emergency medical services.

- Population
  Population of the community has been growing at a rate of 3.1%. Forecasts for growth between 2006 and 2020 indicate an average growth rate of 2.0%. This growth rate has a direct impact on the number of requests for service received. As the population has increased so has traffic congestion in the jurisdiction. This has a direct impact on response time, which in turn increases the risk to the community. A recent study indicated that not only Fort Collins but other Front Range communities are experiencing increases in call volume greater than the increase in population.
- Population density
  Current planning concepts call for an increased density in the urban area especially around employment centers. This, along with redevelopment of certain urban areas and a push for increased use of public transportation, could increase densities. Increased densities may not drive current indicators for new stations but may indicate a need to evaluate services in areas of infill and redevelopment.
- Income and purchasing power
  The income and purchasing power of the average Ft. Collins area resident falls in the $50,000-$74,999 ($59,332 median income) range, compared to the 2000 National Census average of $35,000-$49,999. This reflects the higher level of education and number of skilled jobs that are available through the largest employers in the area. Consequently, the standard of living in the area is relatively high, with an accompanying high housing cost ($272,498 for new and $235,722 resale; 2002 data).

Demographics describe the diversity, density, and economic condition of people living and working in a given jurisdiction. It is well documented that people living in poverty are disproportionately affected by medical issues which includes the geriatric, homeless, and illegal immigrant populations. The primary reasons for this include substandard housing, poor hygiene and nutrition, employment that is more labor intensive than the average middle class population, and more susceptible to exposure to the elements. In larger cities where this research has been conducted (2002 survey), EMS rates increase as the percentage of people below the poverty level increases. The following table demonstrates this:

City	Poverty Percentage	EMS/1,000 Population
Littleton	6.0%	36
Fort Collins (PFA)	**14.0%**	**47**
Greeley	16.9%	55
Boulder	17.4%	58

Community Growth

Growth in terms of population, housing units, commercial buildings, businesses, and government facilities has been one of the defining characteristics of the Fort Collins area for many years. As regards population, the area has grown from approximately 25,000 in the 1960's to 170,381 in PFA's jurisdiction in 2006. Considering the urban growth area,

the City of Fort Collins has grown from 10 square miles to 75. During this time, the fire service has expanded from 1 fire station in downtown Fort Collins to 10 within the urban area.

This planning assumption describes two aspects of growth that impact fire and emergency services, population growth and development patterns. In recent years, the City of Fort Collins' elected officials have pursued the development of an open space barrier between the urban area of the City and development areas in Larimer County. The long-term impact on growth and development is yet to be determined, but the clear intent of the City's council members is to limit growth. Previously ignored spaces within the urban area are now included in planning for residential or commercial development. As the density of the City core area increases, new challenges will confront PFA. The areas outside the open space barrier will likely continue to grow and be developed as in the past. Regardless, the underlying assumption concerning community growth is that growth will continue to be a defining characteristic of the Fort Collins area; but the rate of growth and development patterns may vary due to the combination of political and market forces.

Population growth will continue within the foreseeable future as it has in the past.

The population of the Fort Collins area has increased at a constant rate for many years. The population statistics are provided by the Larimer County planning department. In 2006, the total PFA population was estimated to be 170,381; 132,261 residents were within the City (77.60%). Shown below is City population data from 1996-2006.

Fort Collins Population 1996-2006

Year	US Census	City Population Estimates
1996		106,220
1997		109,356
1998		112,335
1999		115,937
2000	118,652	118,652
2001		122,521
2002		124,425
2003		125,461
2004		126,903
2005		132,171
2006		132,261

The population within the PVFPD is more difficult to assess because population statistics are compiled on a County-wide basis. However, an analysis of current PFA maps and 2000 census data indicates that the 2000 population of the PVFPD is approximately 31,582.

Based on current population growth projections of 2% per year, the following table shows the potential population of PFA, if growth follows a similar pattern.

Year	PFA Estimated Population	City Estimated Population	Fire District Est. Population
2000	150,234	118,652	31,582
2005	167,040	132,171	34,869
2010	184,425	145,927	38,498
2015	203,620	161,115	42,505
2020	224,814	177,885	46,929

These estimates must be qualified as future population growth estimates tend to be highly speculative. Population growth is influenced by many factors beyond local conditions, and local consensus on growth management may change over time. From an EMS perspective, the total population is important as there is a correlation between population growth, and increased demands for EMS services.

Residential Density

Residential density is an important factor in fire protection planning as it directly affects the cost of providing services. Because response time is such a critical consideration in defining service levels, better use of fire protection services can be realized with higher numbers of residents served.

The Local Fire Problem

The table shown below represents data on fires within the PFA's jurisdiction between 2001 and 2006.

Occupancy Type	#Incidents	Fire Loss	#Intentional Fires	Intentional Loss
Assembly	24	$303,460	4	$52,030
Educational	25	$7,400	13	$900
Health Care	7	$4,800	1	$0
Residential	**560**	**$9,784,417**	**79**	**$2,833,962**
Mercantile, Business	62	$1,891,688	8	$213,869
Industrial	9	$47,450	1	$500
Manufacturing	19	$316,600	2	$500
Storage	74	$880,570	9	$27,720
Outside/Special	23	$21,002	14	$6,401
Total	**803**	**$13,257,387**	**131**	**$3,135,882**

Residential

70% of surveyed fires in residential settings; 14% of these due to arson
74% of fire loss in residential settings; 29% of this amount due to arson
Average loss per fire: $17,472

Commercial

7.7% of surveyed fires in commercial settings; 13% of these due to arson
17% of fire loss in commercial settings; 11% of this amount due to arson
Average loss per fire: $30,511

What the data suggests is the business/commercial prevention program has been successful in minimizing the frequency, and dollar loss due to fire in these settings. It is important that this program continue, but the focus should be on refinement of an already successful program. Staff needs to look at increasing technical expertise, and consistency in code application, in addition to enhancement of an already customer-based operation.

Strategic plan data on fires/1000 population indicate that the number of fires over the last six years (2001-2006) has averaged 3.38/fires per 1000 population. This has varied +/- .5 fires per 1000 each year during this six year period with each high year followed by a low year. This indicates that the number of fires have reached a plateau, which will require new strategies if a meaningful decline in fires is to be achieved.

As the table clearly indicates, the residential environment is where the PFA's fire problem resides. More than 70% of the fires and dollar loss occur in residential buildings, primarily 1 and 2 family dwellings. Nearly all fire fatalities in PFA's jurisdiction have occurred in residential settings. As indicated at the national level, fire safety and prevention programs within PFA's jurisdiction have also lost its ability to reduce the frequency and severity of fires in the home. A major change in focus and delivery of programs will be necessary if continued success in the residential environment is to be accomplished.

Fire Prevention

Fire prevention is generally believed to be effective in reducing the number of fire and limiting deaths, injuries, and property loss when they occur. Jurisdictions with higher levels of fire prevention often have fewer casualties, and less property loss.

The basic assumption of this plan is that fire prevention is an effective method of controlling risk, limiting human casualties, reducing property loss, and enhancing firefighter safety. Each of the four major areas of fire prevention activity is described by a separate planning assumption.

Periodic prevention inspections reduce fire risk by identifying and correcting fire hazards, providing educational information, and familiarizing firefighters with buildings.

Fire prevention inspections have been the mainstay of fire prevention efforts for many years. Their stated purpose is to identify and correct fire hazards. Secondary purposes are education, and building familiarization. Like most other fire jurisdictions, the focus of PFA's inspection programs has been businesses, industries, public facilities, and multi-family residences. In general, single family dwellings, and the interiors of multi-family units are not included in compulsory inspection programs. In the past, PFA firefighters inspected all businesses at least once every three years with buildings of higher fire, and life safety risk inspected more often. Recent years have seen this inspection system shift from the firefighters to a more risk-based program conducted by fire prevention staff. 2008 will see the formalizing of this new system as one of the major programs recommended by this Strategic Plan.

Properly designed, installed, and maintained fire protection systems, and features reduce the potential for deaths, injuries, and property loss.

In order to be effective, fire protection systems, and features must be designed, installed, and maintained properly. It has been a historic responsibility of the fire prevention bureau to insure that this occurs through plan review, installation inspection, and semi-annual inspection, and testing. Fire prevention efforts in this area are closely related to fire protection engineering, architecture, and various building trades.

The maintenance of fire protection equipment is critical to the total fire protection system. In many cases, especially with fire sprinklers, manual firefighting effectiveness is dependent on proper fire protection system operation. For all fire protection systems except sprinklers, fire system maintenance is the responsibility of the building owner, with actual inspections conducted by private contractors. Because fire sprinklers are so important to the community's fire protection, PFA is directly involved by providing high quality, and consistent inspections. In 2006 this program provided over 777 inspections in 777 properties. It is funded by direct user fees, which generate $112,669. Since the inception of this program, there have been no sprinkler failures in inspected properties, and the problems associated with sprinkler systems in other communities (freezing, equipment failures, false alarms, etc.) have been greatly reduced.

Determining the cause of fires can prevent future fires.

The vast majority of all fires are caused by some human act or omission, or the failure of some piece of equipment, consumer product, or construction feature. For this reason, determining fire causes is instrumental in preventing future fires identifying electrical, and heating equipment that are susceptible to starting fires are examples of successful fire investigation. Information gained by investigations is reflected in safer consumer products, and better construction methods. Likewise, information gained on human behavior during fires is frequently used in designing educational programs.

An important aspect of fire investigation is the apprehension of people who intentionally set fires. This is arson investigation, and is often recognized as the predominant fire investigation function. The fire prevention significance of arson investigation is that fire setters who are incarcerated or are otherwise treated cannot start new fires. Arson is a serious problem in many areas of the country, and is becoming more prevalent in the Fort Collins area. The majority of arson fires occurs in residential buildings and inflicts the majority of arson related damage. During the 5-year period between 2001 and 2006, 60% of all arson fires occurred in residential buildings, and accounted for 90% of the damage.

A serious arson related problem in the Fort Collins is juvenile fire setting. Children playing with fire or intentionally setting fires are responsible for many fires annually. There have been 275 contacts with children, and juveniles between 2001 and 2006, which accounts for approximately 55 incidents of fire setting behavior each year. Not all the children contacted set fires, but did exhibit behavior that if not corrected, would likely lead to destructive acts resulting in property damage, and potentially injuries, and deaths due to the set fires. While identification and treatment programs are in place, juvenile fire setting is compounded by complex social, psychological and family conditions. For these reasons, it has proven to be a very difficult problem to address.

Citizens with higher levels of knowledge of fire survival, and prevention have lower potential for casualty or loss.

Education of citizens in fire prevention and survival has become a major component of fire prevention efforts. Fire prevention education seeks to teach observable skills that enhance a person's ability to perceive danger and take appropriate actions. Education programs also teach people to recognize fire hazards so that they can be corrected before they cause a fire. Most fire education is targeted at children under the assumption that skills taught in childhood are more likely to be used successfully throughout life. Because so many poor fire behaviors are rooted in past learning and experience, changing adult fire safety behavior has been difficult to accomplish. In recent years an average of 5,000 people has been taught fire prevention and survival skills annually through PFA's education programs. This program will undergo a major revision in 2008, and will be delivered by PFA firefighters.

The Citizen Satisfaction Survey's has identified education as a high priority for PFA to focus on. Respondents recognized the favorable impact of children's education, but desired more adult and business opportunities.

Built-in Fire Protection

Built-in fire protection features such as automatic sprinklers, and fire alarm systems are important components of a community's fire protection system. This assumption builds upon assumptions developed in prior plans that have served as the basis for the strategy of continually improving the level and effectiveness of built-in protection.

Structures equipped with built-in fire protection features and systems are less likely to be involved in serious fires. They also lessen the demands on firefighting forces and improve firefighter safety. Automatic sprinklers in particular are the single most effective system available in controlling fires before flashover occurs.

Automatic sprinkler systems are the single most effective fire protection system for reducing the potential for human casualties and property loss in structures. Recent data published by the National Fire Protection Association (NFPA) indicates that overall, the chance of a person dying in a building equipped with sprinklers is 57% lower than in non-sprinkler buildings. Likewise, property loss is 34% - 68% lower. From a life safety perspective, fire sprinklers are particularly effective in preventing multiple-death fires. Occupancies with higher casualty rates such as health care, public assemblies, motels and hotels benefit most. Residential sprinklers installed in single family dwellings and multi-family buildings, where the vast majority of fire deaths occur, can reduce human casualty potential 82% when combined with the smoke detectors required by current building codes.

Locally, fire sprinkler performance between 2001 and 2006 resulted in 12 fires where sprinklers were present. In all cases the sprinkler system operated properly, confining the fire to the immediate area of origin. In none of these fires were there any serious injuries, and property loss was small in relation to the loss that would have occurred if only manual firefighting forces were used to control the fire.

Even though fire sprinkler systems are unquestionably effective in controlling fire risk, there are two significant impediments to their widespread use. The first is a set of "myths" that project sprinklers in an unfavorable light, and the second is installation cost. Fire sprinklers "myths" include such beliefs as: all sprinklers activate at the same time; sprinklers are activated by smoke or small flames; sprinklers cause greater water damage than the fire itself; sprinklers are ineffective as a life-safety device; all sprinklers are ugly, and detract from the architectural design of the building; and sprinklers require water supply greater than manual hose lines. None of these myths are true, but they are nevertheless believed by the general public, architects, engineers, elected officials, and even some firefighters. It is an unfortunate but true fact that sprinkler systems are portrayed by television and movies with all these myths. A major problem in evaluating the success of sprinklers is that the vast majority of successful activations result in such small fires that they are not reported in the media or national databases.

In contrast to the sprinkler myths, the issue of installation cost is real and significant. Sprinkler installation in new commercial construction averages $2-5 per square foot of building area in the United States, with the cost averaging $1.70 locally. National statistics indicate that sprinklers add 1% - 2% to the cost of a new building. Unusual applications or installation problems can push these costs higher. Sprinkler opponents often focus on these high costs. Although it can be argued that the installation cost is small compared to the loss that would be sustained from a serious fire, any cost, which does not enhance the business productivity of a building, is suspect.

The condition of the fire protection systems infrastructure in the downtown area of Fort Collins and the industrial park currently in Larimer County will become a major issue in the next decade.

Many of the buildings in the downtown Fort Collins area date to the late 1800's and early 1900's. The condition of these systems; water lines, sprinkler and standpipe systems, and other protection features need to be evaluated and plans made to upgrade as appropriate for adequate fire protection. This will require a major commitment by the City and County governments, in addition to the business community if these upgrades are to be made. PFA will need to begin the process of education and advocacy favoring these upgrades now if a future crisis is to be avoided.

The installation of backflow prevention devices to existing buildings with installed fire sprinklers may be compromising the effectiveness of these systems.

During the last decade, the City of Fort Collins has instituted a campaign to install backflow prevention devices on all buildings, existing and new, for the purpose of reducing the contamination of the City's water supply system. In the process, many existing buildings with sprinkler systems may have been compromised due to the installation of the backflow devices. These systems were designed without consideration of the backflow devices, which may cause a reduction in the flow capability of the sprinklers. This potential for problem with these existing sprinkler systems needs to be investigated, and corrections made if necessary.

VII. RECOMMENDATIONS

Strategic Plan Fire Prevention Priorities

Record Management System

Fire prevention has operated with multiple data based systems for the last decade. Many of these systems are not compatible with other fire prevention systems, and most are not compatible with the PFA's overall record management system. This creates problems with tracking and collection of information needed to plan and develop strategies to meet the community's emergency response and fire prevention needs.

A comprehensive all-encompassing department-wide record management system is needed to allow for the efficient collection and retrieval of data. This will provide a significant tool for current and future planning of PFA strategic initiatives. Such a system will benefit fire prevention customers by improving the dissemination of information, and the plan review submittal and approval process.

Cost of a record management system will be approximately $150,000 (2007 dollars).

Risk/Benefit Based Business Inspection Program

The traditional process of inspecting all business and other public facilities by on-duty firefighters' has been an effective program for minimizing the fire risk in the community. In recent years, this system of hazard prevention has reached its maximum benefit, and further improvements in reducing fire risk require new strategies.

The Risk/Benefit Based Business Inspection Program is designed to identify, and focus resources on those facilities, which pose the greatest risk to the community. Inspectors based out of fire prevention will be specifically trained to properly inspect these buildings. Frequency of inspection will be based on the degree of hazard; the greater the hazard, the more frequent the inspections. Less hazardous facilities will be monitored through periodic inspection, or a monitored self-inspection program.

This program will utilize existing fire prevention staff supplemented by either part-time firefighters or contractual personnel.

Costs for of part-time and/or contractual personnel will be approximately $24,000 annually (2007 dollars).

Residential Safety, Fire Prevention, and Disaster Preparedness Program

Residential fire safety, prevention and disaster preparedness will be a primary focus for on-duty firefighter efforts. The majority of the community's fire incidents are centered on where people live and sleep. 70% of the fires and 74% of all property damage occur in

residential settings. Virtually all fire deaths and the majority of fire related injuries occur in the home.

This is a vital program for the PFA, and must be successful if any significant reductions in the loss of life or property damage in the community are to be achieved.

The preparation of our citizens' for potential large-scale disasters is an emerging priority for the fire service. Experience during the last several years has shown that the population needs to be self-sufficient for a period of 3-7 days before the necessary resources can be mobilized and in place to deal effectively with large-scale events. Firefighters will be a good resource to provide material and educational opportunities to the PFA's citizens.

Costs for this program will be absorbed by existing budgets in the Operations Division.

Community Interface Initiative (Technology-Based Customer Service)

Fire prevention's ability to regulate the codes and standards utilized to minimize the fire risk to the community is highly dependant on its ability to effectively communicate, and interact with its customers. Quality customer service starts with the first contact when a customer calls or stops in the office. The customer needs to be able to access the correct staff member with minimal effort. Staff personnel must respond to requests in a timely manner if for no other reason than to tell the customer they received their request, and that an answer will be provided within a specified time. The application process for reviewing building plans or required permits must be customer-friendly, easily understood, and take a minimal amount of time. Processing requests must be efficient, properly done, and in a timely manner consistent with customer expectations. In the final analysis, quality customer service will be measured by the level of satisfaction of the customers served.

The use of technology to streamline the customer service aspects of fire prevention services has great potential for providing top notch service to the community. The utilization of new technology will allow customers to directly contact the appropriate staff member with minimal effort, allow application processing via computer from their business or home, allow tracking of plan reviews via computer, obtain educational information, answer questions, download forms from the PFA web site, electronic payment of fees, among other things.

Cost of technology enhancements $7,000 to $10,000 in 2007 dollars.

Hazardous Materials Management Plan (HMMP) Initiative

The HMMP initiative is a mandate of the Federal government that requires reporting of stored hazardous materials, and the Uniform Fire Code, which dictates the plan be provided to the fire department. These plans provide important information for PFA firefighters who respond to facilities, which store and utilize these types of materials.

In order to get the greatest benefit from this information, it must be readily accessible to responding firefighters and/or the PFA's hazardous materials response team (HMRT). To accomplish this, a web-based program needs to be developed to store this information. The program will be designed to allow the business community to input and update their HMMP information through a secured computer accessible web site. There will be tiered levels of access based on the authorized persons need to know. Responding firefighters may be provided information related to type of materials, hazard category, location, and quantities. The HMRT may have access to more specific product information needed to determine the proper course of action for mitigating the release of hazardous materials.

Cost for this program will be $5,000 in 2007 dollars.

Bureau Staffing/Development Program

Matching properly trained and educated resources to identified community service needs will be the focus of a 2 year evaluation process. This is being undertaken to determine if current programs are meeting the needs of the community, and if staffing is adequate to meet program goals. The Citizen Survey indicates that customers' are satisfied with fire prevention services, but it is always good to look for ways to improve services, and at the same time see if more efficiencies in the operation can be found.

Costs will be absorbed by existing budgets.

Built-in Fire Protection

The significant reduction of fire related property loss, injuries, or deaths in the PFA jurisdiction can only be achieved through the adoption of a built-in fire protection requirement. This must include both new and selective existing buildings. The fire problem in PFA's jurisdiction centers on older residential buildings less than 2,500 square feet, which a sprinkler requirement for only new construction will not address. Retrofitting existing residential homes will be a difficult process, both economically and politically. It is likely that technological advances will make retrofitting of existing buildings financially, and politically possible. This is beyond the scope of the current planning period for implementing such a plan, but the process for this initiative must begin now if any meaningful improvements in reducing dollar loss, injuries, and deaths due to fire are to be accomplished. We recommend that the Boards' adopt as part of the Strategic Plan, a commitment to actively pursue the use of technology to protect the jurisdictions citizens where they live and work.

In addition to the Boards' commitment, the recommended strategy for built-in fire protection for the PFA jurisdiction will involve a three-pronged approach:

1. Follow most current (the most current now is the 2006 code) International Code Council Fire and Building Code in regards to sprinkler requirements for all buildings, commercial and residential.

2. Promote sprinklers for residential occupancies
    a. Existing single-family homes
        i. 2500 sq. ft. or less – promote newer technology, and provide focused education on fire safety. Participation would be voluntary
        ii. 5000 sq, ft. or greater - promote newer technology, and provide focused education on fire safety. Participation would be voluntary
    b. New single-family homes
        i. Promote the adoption of sprinkler systems for all new single-family homes within the next decade through the code process.
    c. Existing multi-family occupancies with 4-16 units
        i. Promote retrofitting of sprinkler systems using new technology and focused education
    d. partner with the insurance industry to make the installation of built-in fire systems economically beneficial to homeowners

3. Promote passive fire safety systems in buildings
    a. Educate fire personnel on recognizing passive systems, and their benefit to both the citizens and fire fighting personnel.
    b. Focus on maintaining passive fire safety building construction during the building inspection process.

VIII.　　IMPLEMENTATION CRITERIA

"Maintain and expand Fire Prevention services in a
manner consistent with community needs."

Ongoing evaluation of community service needs is accomplished through community risk assessment, utilizing service implementation criteria, and the collection of objective data needed to make service level adjustments. This allows PFA to respond in a timely manner to changing fire protection and other emergency services needs of the community.

Implementation criteria have been used for determining the need for new fire stations since the 1987 Strategic Plan. The 2004 Plan expands the use of this concept to determine when truck and squad companies, battalion chiefs, and support staff are needed. The completion of the Fire Prevention section of the plan has added the following implementation benchmarks.

Implementation Criteria

Fire Prevention Staff

Two approaches will be used to identify support needs and to determine when they should be instituted. One approach involves needs analysis, development of job descriptions, workload analysis and the determining of staffing levels. The other involves the tracking of service costs through program budgets, and the transitioning to full-time staffing when costs exceed 50% of the cost of the full-time position.

The first step requires conducting a needs analysis to identify those support services essential to maintaining primary response and risk prevention services. Once identified, job descriptions must be developed to successfully carry out the support functions. From the job descriptions workload requirements can be calculated to meet the demands of the organization. Workload studies can determine ideal staffing levels however, financial analysis of support needs will determine the most cost effective method of providing these resources.

The cost/benefit of staffing positions in a particular manner must be monitored annually to ensure that a service is being appropriately provided. In particular, when positions are initially provided by part-time resources, consider making these positions full-time when the cost exceeds 50% of a full-time person. Tracking costs by requiring a budget for any support-related program will ensure a timely transition of these positions to full-time status in a timely manner.

XI. APPENDIX

"America at Risk: America Burning Recommissioned" is the driving force behind many of the initiatives and recommendations outlined in the 2007 Fire Prevention Strategic Plan. Although the entire document is not included, the core of the report; the 12 Findings and Recommendations is provided. Not all the finds specifically apply to fire prevention, but the reader will get a good overall view of what the fire service faces, and will also shed some light on the focus of the main 2004 Strategic Plan.

The entire report is available, if interested, via the internet in PDF format as a free download, or a hard copy can be provided by PFA staff.

America at Risk
America Burning Recommissioned
FA-223/June 2002

America at Risk

Findings and Recommendations on the Role of the Fire Service in the Prevention and Control of Risks in America

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James Lee Witt, Director Federal Emergency Management Agency

Foreword

One hundred years ago, American cities faced a devastating challenge from the threat of urban fires. Whole cities had become the victims of these events. Entire neighborhoods lived with the very real threat that an ignited fire would take everything, including their lives.

Today, the threat of fires is still with us. But we have done a lot to address the risk, minimize the incidence and severity of losses, and prevent fires from spreading. Our states and localities have an improving system of codes and standards; most of us are aware of the risks; our communities have everyday heroes who provide the first response to emergency calls; some of our homes and buildings have alarms or sprinkler systems; and our water distribution system for fire suppression stretches further than many imagined in 1900. We have accomplished a lot, but we have much more to do.

Our community fire departments and firefighters are at the vanguard of the long-term effort to address our fire risks. Not only are they the first responders to fire and other natural and man-made disasters, but also they have been strong advocates of effective codes and standards; they visited our schools and neighborhoods with educational material on fire risks, and they have put their lives on the line countless times. They will continue to do so. There is ample proof that the word hero is a correct attribute of our Nation's firefighters.

As the following report very clearly indicates, the success of America's fire services over the past 100 years is instructive for the strength and sustainability of America's communities for the next 100 years as well. Today, we must not only continue and reinvigorate our successes, but also expand them to include the natural and man-made threats that each of our counties, cities, towns and villages face every day – floods, earthquakes, hurricanes, hazardous material spills, highway accidents, acts of terrorism, and so much more.

As the Federal Emergency Management Agency's *Project Impact: Building Disaster Resistant Communities* has shown, community-based partnerships among local government, public safety services, businesses and residents will provide us the best set of priorities and implementation strategies, as well as the longest lasting commitments with respect to disaster prevention. That is why FEMA and national fire service organizations have formed a *Project Impact* partnership to support communities' efforts to become disaster resistant.

Project Impact depends on our first responders, our neighborhood fire departments, and without them, our communities would all be more vulnerable to disaster losses.

Summary of Commission's Process and Procedures

Origin of America at Risk

In the late summer of 1999, the FEMA Director formally recommissioned *America Burning.*

America Burning, Recommissioned was a response to the recommendation of the Blue Ribbon Panel, which had provided its report to the Director early in October 1998. This expert panel had been assembled by the FEMA Director to give him an assessment of concerns and issues with respect to the ongoing work of the USFA, and to obtain recommendations on how to improve the effectiveness of this critical component of the FEMA organization. The underlying rationale of the members of the Blue Ribbon Panel, in their recommendation that *America Burning* be recommissioned clearly was that *America Burning,* in 1973, had provided important foundations and focus to the management of fire risks in America. It had resulted in the establishment of USFA's predecessor organization, and it had created a blueprint for its activities. If such efforts could be adapted to current conditions, beneficial progress and results for the fire services as a whole would follow.

The FEMA Director acknowledged the importance of the Blue Ribbon Panel's recommendations, and the Panel's reasoning for it. He also articulated his exact purpose for recommissioning *America Burning* in his letter, and in his visits with the Commission members during their meetings in Washington, D.C. In his letter to the members, The Director wrote that:

"…(the commission will fulfill an) essential role in the initiation of a much needed, and long-awaited, national effort to continue tangible reductions in our country's losses to fires. Equally importantly, it will also provide a critical framework for the evolving role of the fire services in the safety and sustainability of today's American communities…
Your panel will recommend an approach to an updated and renewed vision for the fire service community."

In its first meeting, the members of *America Burning, Recommissioned* determined that, in order to carry out their responsibilities, their considerations and eventual recommendations to the Director would have to go beyond the boundaries of the fire risk alone. *America Burning* in 1973 had anticipated some of the forthcoming challenges to the fire services. They had, for example, correctly identified the importance of emergency medical services. Yet to the members of *America Burning, Recommissioned*, there had been developments even beyond what had been forecast in 1973. The establishment of FEMA, the growth of the emergency management community as a profession, the increase in disaster losses in America, and other factors, had dictated a different context for the fire services. Still, the members suggest that it is not a context that is unfamiliar, or one that requires difficult adjustments for the fire services. Indeed, it is a framework within which any firefighter and any fire department can be effective. America's communities have a range of disasters with which they are confronted. America's

firefighters are still communities' first line of response to this range of disasters. Accordingly, *America at Risk* was determined to be the correct title and orientation of the Commission's report.

Commission Procedures for Obtaining Outside Input and Comment

In the last section of this report, each of the Commission's agendas is reproduced so that those organizations that made oral or oral/written presentations to the Commission can be readily noted. During the public portion of the agendas of their meetings, the Commission members unanimously expressed the desire that they take every opportunity to hear varying points of view on the multitude of issues that today confront the fire services. Many groups gave freely of their time and resources to attend Commission meetings, develop presentations, and are responsive to the Commission's subsequent discussions and inquiries. Although the Commission had a short time frame in which to conduct four meetings, formulate options for its written findings and final recommendations, a broad cross section of interests was invited to make presentations.

In addition, the Commission considered obtaining input from the fire services community and others through various other means:

- Mail (both traditional and electronic or "email") comments were numerous and extremely useful to the members. Over 50 pieces of written "mail" correspondence were received that either provided comments on relevant subjects, provided enclosed publications or other written material for the Commission's information, or offered assistance to the Commission in its work;

- In order to take advantage of the growing use of personal computer technologies, the Commission established a web site so that comments could be received from virtually everywhere. Nearly 200 comments were received from over 45 States and two foreign countries. Excerpts from the submitted comments are included in various locations in this report; and

- Had there been more time, the Commission would have conducted "field" meetings in various U.S. regional locations. This approach may yet be possible to develop detailed and grass roots oriented strategies for carrying out some of the Commission's recommendations.

Commission Procedures for Formulation of Meeting Agendas

The members of *America Burning, Recommissioned* held four meetings of two days each in Washington, D.C. The Chairman, who used recommendations from the FEMA Director, USFA leadership, and the Commission support staff, formulated the agenda for the first meeting. Thereafter, Commission members provided the principal input to identify those topics that they believed were important to cover in their limited meeting time frames, and to identify those organizations or individuals that should be asked to

provide topical information and data. Invited presenters were given broad guidelines within which to work.

Publications, Background Materials or other Reading Materials

Commission members reviewed a large set of materials (see Appendix E) provided by the FEMA support staff, the members themselves, and interested and concerned organizations or individuals who provided materials through the regular mail.

Preparation of the Commission's Findings and Recommendations

As the Commission formulated its principal message for the FEMA Director, it also came to the conclusion that a crucial audience would also be the U.S. Congress. In recognition of this importance, the members decided to utilize the occasion of the Congressional Fire Services Caucus meetings of May 2000 as the date by which it would issue its Principal Findings and Recommendations. On May 3, that report was issued. The Commission also directed that its full report, America at Risk, be prepared on the foundation of the May 3rd document, and issued as soon as possible.

Preparation of the Full Report: America at Risk

In June 2000, a five-member sub-group of the Commission met at USFA in Emmetsburg, Maryland to begin preparation of the full report. Using the *Principle Findings and Recommendations* as its foundation, the sub-group's primary objective was the preparation of additional text that would substantiate each of the findings in the May 3rd document and describe the consensus, residing either inside or outside the fire services community that might underlie the recommendations. In addition, there are issues confronting the fire services that were addressed generically among the principle findings and recommendations, but that warranted special attention.

Staff, which supported the efforts of the members of the Commission, spent considerable time after the June sub-group meeting researching further the existing written and electronic databases that underlay the findings of the May 3rd report. As a result, there are, for example, data to support aggressive implementation campaigns for the Commission's recommendations with respect to prevention. In those instances that data can be employed now to accelerate achievement of the Commission's recommendations, FEMA/USFA is strongly urged to do so. Moreover, the effort to collect quantitative data should be continued. However, the Commission recognizes that encyclopedic data for all the recommendations may not exist, or, in several instances, will be some time in compilation.

Specific issues that the sub-group identified as warranting specific follow-on attention include:

- The hazard and risk management issues and requirements associated with fires located generally at the point of ***urban/wildland interface.*** The requirements can be separated into a) effective (for realty loss prevention) and safe (for firefighters) response and suppression capability and b) the reduction of existing wild fire hazard and the avoidance of new wild fire risks through effective mitigation techniques. The issues associated with these requirements include appropriate forest management, sound land use and community growth principles, training and equipment, research and data, and partnerships to overcome obstacles such as resources, awareness, and long-term commitments;

- The societal and criminal issues associated with the risk of ***arson***, and particularly the challenge of dealing with ***juvenile fire setters.*** In large part, due to the convergence of the arson fire issue with the arson crime issue, there are substantial data on the arson problem in America that can be, and indeed have been, used to develop and implement effective arson prevention strategies.
Notable effective strategies for addressing the arson and the juvenile fire setter problems have been carried out in the City of Utica, New York and Orange County, California, respectively; and

- The management and customer service issues associated with the evolution of the fire services not only as a profession, but also as a business. This issue is an umbrella for several of the specific matters addressed in the May 3rd report – such as diversity, health of firefighters, and the appropriate implementation of emergency medical services – as well as with issues indirectly referred to in that report – such as the ability of community fire services to attract financial and human resources; the capacity of the fire service to effectively work within America's evolving societal circumstances, and the expansion of the fire services into hazard and disaster management areas that are increasingly critical to the sustainability of today's communities.

America Burning

Recommissioned

Principle Findings
& Recommendations

Letter from the Chairman

May 2, 2000

Honorable James Lee Witt Director, Federal Emergency Management Agency 500 C Street, SW Washington, DC 20472
Re: America Burning Recommissioned

Dear Director Witt:

In creating this Commission, you directed us to recommend an updated approach and framework for the evolving role of the fire service with respect to fire and other hazards. You also asked us to review the 1972 *America Burning* Report in light of the 1998 review by the "Blue Ribbon Panel" of the U.S. Fire Administration ("USFA"), which "identified three core deficiencies that are undermining the effectiveness of" the USFA. You have emphasized that your major concern is that the Commission identify the means by which fires can best be prevented and loss of life and property reduced.

America Burning was considered the seminal effort in systematizing our nation's efforts to address the fire hazard and the resultant loss of life and property. It was greeted with praise by all elements of government and the fire community. However, more than one-third of the *America Burning's* recommendations have not been implemented and more than half were only partially implemented. During the intervening 28 years there was no systematic effort to track the implementation of these recommendations.

A prime example of the failure to adequately implement *America Burning* has been the unwillingness of the federal government to fund the USFA and ancillary programs at anywhere near the recommended level of $153 million. The initial funding in 1980 was only $24 million ($45,130,000 in year 2000 dollars) and twenty five years later, for fiscal year 2000, it is only $42,982,000, an actual decrease of 4.7 percent, reflecting inflation.

The lack of substantial funding to implement America Burning speaks volumes about the low priority that all segments of government — federal, state and local — assign the fire hazard compared to other areas of public safety. The failure to adequately fund fire prevention and response, in general, and the USFA, in particular, has resulted in continued loss of life and property at levels that would otherwise have been substantially reduced.

Although deaths from fire have fallen from 7,395 in 1977 to 4,035 in 1998, those lost lives are not acceptable. One-hundred and ten firefighters died in the line of duty in 1998. Despite the occasional periodic sympathy generated by tragedies such as the loss of six firefighters in Worcester, Massachusetts in December 1999, fire deaths receive little nationwide attention and sparse legislative and funding response. Since the Worcester fire, USFA has been notified of 40 firefighter fatalities and estimates that an additional 1,800 civilian lives have been lost from fires.

It is also unfortunate that, despite the current involvement of the fire services, often as first responder on the scene, in such areas as emergency medical services, hazardous materials and acts of domestic terrorism, the fire services have not been granted the additional wherewithal to carry out these new responsibilities.

The Commission concurs with the conclusion of the Blue Ribbon Panel that the USFA's operations suffer from deficiencies in "leadership" and "communication." We believe that such deficiencies, which FEMA has begun to address, are derivative of the national lack of priority given to support of the fire services. As to the Blue Ribbon Panel's finding of deficiencies in "resource management," we agree with the Panel that "At no time since 1974 has the USFA had the resources it needs to address this nation's fire problems with sustained impact." We believe that many of the other problems of "resource management" are also derivative of inadequate funding over the years and the attempt to accomplish too many tasks with too little money.

Ways to reduce fire losses and deaths are neither unknown nor arcane. The primary way and the goal of any effort in this area must be to prevent fires in the first place. Smoke detectors and alarm systems in homes and commercial buildings have already proven their worth in alerting occupants and saving lives. Sprinklers are acknowledged as the most effective tool in immediately suppressing fires, minimizing damage and saving lives.

Unfortunately, few jurisdictions require sprinklers in private dwellings or existing commercial and residential structures, or even in existing schools, nursing homes, hospitals or other places of public assembly, except in the event of major reconstruction. Moreover, the federal government sets a poor example by its failure to require sprinklers in assisted public housing or in existing federal buildings.

Although our Commission appreciates the concern of this Administration with the current fire situation, as represented by the recommissioning of *"America Burning,"* we are concerned, based on prior governmental inaction, whether there is the will and commitment at the federal, state and local levels to fund and implement actions that are essential to reduce losses from fire and other hazards.

Until the USFA is empowered by funding and staffing to become the leader in our nation's firefighting efforts, unless the fire services are adequately funded, and unless local communities enforce known fire preventive and suppression measures, the establishment of this Commission and its efforts to develop recommendations in the areas of leadership, research, training, communication and public education, sound code development, partnership between the public and private sectors, and above all, in mitigation, will be an exercise in futility.

If the number of fires and resultant losses are to be reduced, there must be a concerted and consistent effort among not just the fire services but, as recently observed by three of those involved in the original America Burning Report and its initial implementation, other stakeholder groups as well, including "city and county managers, mayors,

architects, engineers, researchers, academics, materials producers and the insurance industry" as well as the general public.

Although members of the Commission have diverse backgrounds and concerns, they have subordinated parochial interests to the development of recommendations to prevent fires and reduce loss of life and property from fire and other hazards. I thank you for the privilege of working with this distinguished group.

The attached Findings and Recommendations summarize the conclusions of the Commission. We will shortly forward to you the complete Report. A number of our recommendations are not new and reflect the foresight and wisdom of the authors of the original America Burning as well as other studies since then. The Commission believes that had those past recommendations been more fully implemented, there would have been less need for this report. We hope that sufficient action will follow this Report so that twenty-five years from now another *America Burning, Recommissioned* will be unnecessary.

Sincerely,

George K. Bernstein
Chair

Introduction

To a great extent, the fire problem in America remains as severe as it was 30 years ago. If progress is measured in terms of loss of life, then the progress in addressing the problem, which began with the first *America Burning* report in 1973, has come to a virtual standstill. The "indifference with which Americans confront the subject" which the 1973 Commission found so striking continues today. Yet today's fire departments, rescue squads, emergency service organizations and other first responders face expanded responsibilities and broader assignments than traditional structural fire response and suppression. To address this dilemma, the Director of the Federal Emergency Management Agency recommissioned *America Burning* in late 1999.

Since its formation, the Commission conducted four meetings and in addition to its deliberations, heard testimony and received input from approximately 30 individuals and groups, received written submissions from over 50 parties and established a website on which 191 responses were filed.

The Commission reached two major conclusions:

(1) The frequency and severity of fires in America do not result from a lack of knowledge of the causes, means of prevention or methods of suppression. We have a fire "problem" because our nation has failed to adequately apply and fund known loss reduction strategies. Had past recommendations of America Burning and subsequent reports been implemented, there would have been no need for this Commission. Unless those recommendations and the ones that follow are funded and implemented, the Commission's efforts will have been an exercise in futility.

The primary responsibility for fire prevention and suppression and action with respect to other hazards dealt with by the fire services properly rests with the states and local governments. Nevertheless, a substantial role exists for the federal government in funding and technical support.

(2) The responsibilities of today's fire departments extend well beyond the traditional fire hazard. The fire service is the primary responder to almost all local hazards, protecting a community's commercial as well as human assets and firehouses are the closest connection government has to disaster-threatened neighborhoods. Firefighters, who too frequently expose themselves to unnecessary risk, and the communities they serve, would all benefit if there was the same dedication to the avoidance of loss from fires and other hazards that exists in the conduct of fire suppression and rescue operations.

A reasonably disaster-resistant America will not be achieved until there is greater acknowledgment of the importance of the fire service and a willingness at all levels of government to adequately fund the needs and responsibilities of the fire service. The lack of public understanding about the fire hazard is reflected in the continued rate of loss of life and property. The efforts of local fire departments to educate children and others

must intensify. Without the integrated efforts of all segments of the community, including city and county managers, mayors, architects, engineers, researchers, academics, materials producers and the insurance industry, as well as the fire service, there is little reason to expect that a proper appreciation of the critical role played by the fire service will materialize, in which case the necessary funding will continue to be lacking.

These conclusions underlie the findings and recommendations that follow.

FINDING #1

Implementation of Loss Prevention Strategies

The strategies and techniques to address fire risks in structures are known. When implemented, these means have proven effective in the reduction of losses. The tragic reality, however, is that existing and effective strategies have not been funded adequately by the Congress or state and local governments, nor have they been aggressively advocated by the United States Fire Administration (USFA) and other fire service constituencies. As a consequence, America today has the highest fire losses in terms of both frequency and total losses of any modern technological society. Losses from fire at the high rate experienced in America are avoidable and should be as unacceptable as deaths and losses caused by drunk driving or deaths of children accidentally killed playing with guns.

Comprehensive proposals to address structural fire risks were contained in the recommendations of the 1973 *America Burning* report. The wisdom of these recommendations was acknowledged by the Congress and the Administration in the enactment of the Federal Fire Prevention and Control Act of 1974 (the "1974 Act"). However, FEMA and the USFA have not pursued many of the preventive measures authorized by that statute; the Congress has not appropriated the funds necessary to carry them out; they have not been adequately advocated by USFA; and if implementation is the test, they have not been widely accepted by the fire service-at-large. Since 1974, successful approaches for implementing mitigation measures have been developed, but have not been incorporated in comprehensive programs to reduce structural fire loss. In addition, FEMA has not applied to the fire problem those lessons which it learned with respect to other natural hazards, including earthquake, flood, and hurricane and has failed to exercise all of its powers under the 1974 Act.

Recommendations:

The Congress should increase its involvement in fire loss prevention in America and exercise more fully its oversight responsibilities under the 1974 Act. The Congress should also appropriate for the fire problem appropriate resources commensurate with those it provides to community policing or highway safety. FEMA should exercise its full authority under the 1974 Act and should apply to the fire hazard the same

prevention emphases and strategies that it has applied to other natural hazards, the Agency's objective being an all-risk, multi-hazard loss prevention program.

FINDING #2

The Application and Use of Sprinkler Technology

The most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers. If the focus is limited to prevention and reduction of the loss of life, smoke alarms are also extremely effective. However, the use of sprinklers and smoke detectors has not been sufficiently comprehensive.

Recommendations:

FEMA/USFA should develop a long-term implementation strategy for fire sprinklers and smoke alarms. The plan should include the following implementation aspects:

- The approach should be community based;

- No tactic or strategy should detract from the requirement for sprinklers. Smoke alarms (or other measures) should always be the locality's second option as a loss reduction measure;

- Exploration of the technical, economic and practical aspects of utilizing alarm and sprinkler systems that provides automatic notification to a firehouse. These systems should be professionally maintained and monitored;

- Confirmation of the accuracy of the belief that the appropriateness of the emplacement of sprinklers and alarms may be based on rural and urban distinctions, and whether other distinctions such as residential construction, commercial construction and critical facilities may also be appropriate;

- The plan should distinguish between requirements for new construction and existing construction.

The plan should articulate actions that will result in:

- Improved use of financial incentives;

- Government leadership in including fire safety measures in its own buildings, and in those that it helps construct or for which it provides any form of financial assistance or guarantee;

- Prioritization standards in the retrofit of existing buildings based on risk to the public;

- A national public awareness and education campaign;

- Participation of the private and academic sectors;

- Improvement of technologies and lowering of costs;

- Inclusion and enhancement of fire safety requirements in model building codes and standards; and

- The plan should complement communities' actions to address all their hazards. For example, the ability of a community to address fire hazards should not be compromised by an earthquake event that ruptures sprinkler systems.

FINDING #3

Loss Prevention Education for the Public

The most effective way to reduce the loss of life from natural and man-made disasters is through a multi-hazard mitigation process that addresses all the hazards a community faces. Currently, FEMA has begun a community-based, all-risk program entitled, Project Impact: Building Disaster Resistant Communities. The National Fire Protection Association (NFPA) has also begun a program entitled *Risk Watch,* which includes many of the approaches of *Project Impact.*

Too many fires are caused by carelessness and ignorance of principles thought to be obvious. Education about the fire hazard should reach children who are responsible for so many accidental fires. It has been the experience of the fire services that schools are one of the best venues for firefighters in providing safety information to children and young adults. Thus, the fire services can play an important role in developing mitigation and prevention awareness programs through and in neighborhood schools. Our youngest citizens would then have the opportunity to appreciate, convey to parents and even implement life saving initiatives. A unified fire prevention curriculum should be written, tested and validated by education specialists to provide a complete package for citizens.

Recommendations:

These mitigation programs should be combined in a unified all-hazard learning curriculum and implemented nationally by community and neighborhood fire services in all levels of the local school systems. Fire departments should be encouraged to spend even more time in reaching out to children in schools and other venues. By providing a community-based and complete package to educators, fire service

representatives can work from the same baseline of information to ensure that a consistent message is sent nationwide.

In addition, effective public service commercials demonstrating the risks and avoidance techniques for fire and other hazards should be pursued. The success of such federal initiatives as seat belt use hold great promise for public education on the issues of fire.

Further findings and Recommendations with respect to the issues of public education and awareness will be presented in #7 below.

FINDING #4

The Acquisition and Analysis of Data

Collection and analysis of meaningful data is critical in order to address the fire problem with respect to civilian and firefighter casualties. Analysis of data provides a basis for direction and prioritization to initiatives discussed herein.

A large quantity of data exists. However, the strategic quality and significance of much of these data are not apparent or have been questioned. The Commission is unaware that the data collected are effective for advancing or achieving the prevention goals of the fire prevention and services community. In addition, there is no central center or focus for the analysis of data that are collected. It is not clear whether the current National Fire Incident Reporting System has cost inefficiencies with respect to data overlap or is providing corroborating data, whether there is under-utilization for data analysis purposes, or whether there is national applicability of data that are present.

The fire and emergency services community needs a central, national data center on which to rely for the collection and analysis of data. The analysis of data should underlie funding and public policy decisions that address problems or issues identified in the data. For such a center to be effective in this role, all regions and states should participate in and contribute to the collection of relevant data. Data that are collected by any institution or organization should have utility, in both form and substance, with the data that are collected by other entities. The data received by the center should be available to outside sources.

This compatibility of data is critical and reflects the fact that there are and will continue to be many entities collecting relevant and useful data. In the future, the mutual reliance of these differing participants should become emphasized, to the point that their work has shared objectives, goals and activities.

Complete and encyclopedic data are not a pragmatic requirement in the achievement of all fire goals and objectives. The fire and emergency services community should be able to rely on state-of-the-art statistical sampling techniques to define community problems,

jurisdictional challenges and the issues confronting the nation. This will provide a more efficient method of defining risk reduction efforts and formulating public policy.

As a practical and political matter, adequate financial resources will not always be provided by the Congress. However, there are strategies that can be implemented to both supplement federal resources and leverage additional resources into the data collection and analysis category.

Recommendations:

FEMA/USFA should develop a plan to effect appropriate data collection and analysis. The plan should include a reconciliation of existing FEMA data systems, as well as identifying adequate levels of funding needed to revive both data collection and data analysis and use. Resources to achieve the plan should also be identified and pursued. The plan should include the following actions and aspects:

- FEMA and USFA should facilitate or initiate working partnerships that further efforts to institutionalize the compatibility of data on the part of allied organizations and agencies. The all-hazards aspect can also be reflected by including organizations such as the Insurance Services Office (ISO), the National Fire Protection Association (NFPA), the Bureau of Alcohol, Tobacco and Firearms (ATF), the U.S. Geological Survey, the National Oceanic and Atmospheric Administration, and others.

- FEMA/USFA should also have state government partners in the collection of data. To this end, FEMA/USFA should encourage state collection of data by providing financial incentives through the grant process.

- There should be a one-time examination of the practicality of developing a statistical sampling model that can be utilized by the various regions, states and local communities as appropriate.

- For the national data center to be effective and efficient and to be adequately funded, there should be a transparent process for the setting of the agenda for the center so that problem-focused analyses can be prioritized and shared with its partners. In some instances, it may also be feasible for such partners to perform needed analyses on their own initiative.

- After-action data, which is not currently collated, should be collected and analyzed by the center. Such data should identify the pre-event activities, (e.g., preventive actions, codes or standards, training) and response activities (including equipment, techniques, etc.) proved most effective.

FINDING #5

Improvements through Research

Research on the science of fire, fire behavior, the suppression and extinguishing of fire, and fire service operations is inadequate. Valuable investigation is currently being conducted in Federal Agencies, such as the Consumer Product Safety Commission and the National Institute of Standards and Technology (NIST). However, this research is not coordinated, prioritized or focused on identified problems. Valuable research is also ongoing at many of the Nation's colleges and universities and there is also a private sector component of research into fire and emergency services issues that may contribute to a national agenda.

The transfer of research results into practice can also be improved. First, technology transfer is not facilitated by the Federal sector in any efficient manner. The private sector has extensive relationships with most of the fire research community, and it is these (informal) relationships that seem to result in most of the technology transfer. Conversely, it is equally important that the end-user, the practicing fire and emergency services community, be able to communicate to the research community its problems and issues, and to directly influence research priorities.

The Commission considered this latter aspect when it evaluated the lack of empirical research results to support changes to model codes and standards. Many such changes have been based on the "equivalency" concept, and assume that the building owner is making offsetting structural improvements that obviate or reduce the need for previous fire retardant code requirements. While certain fire loss prevention components of the construction may have been researched, there reportedly has not been research into the impact of these decisions on the safety of firefighters who, if a fire did occur, would have to enter the building to conduct manual fire suppression activities.

Because of the all-hazard responsibilities of the fire services and emergency management community, the number of researchers involved grows significantly, the prioritization of needs compounds, and coordination and technology transfer becomes even more important.

The roots of the current lack of coordinated research effort may lie in the separation of certain functions between FEMA/USFA and NIST (then the National Bureau of Standards) when FEMA was formed in 1979. However, as indicated elsewhere in this report, the character of the fire and emergency services has changed dramatically since the Fire Prevention and Control Act of 1974. Therefore reverting to the earlier research arrangements contemplated in the Act would not be appropriate.

Recommendations:

FEMA/USFA should take a leadership role in setting agendas for research into fire and other risks for which the fire and emergency services community have responsibility. As a first step, a reasonable set of priorities should be established for fire issues. Research agendas should be set with significant user input and influence. In addition, partnerships among NIST and other governmental, university, international and private research organizations can be utilized to develop research agendas that include issues connected with building codes and standards.

The agendas should be followed by the development of an implementation plan that specifies the organization, institution, or private sector partner responsible for the completion of the research. Resource needs should also be identified and adequate funding should be pursued vigorously.

FEMA/USFA should not allow the development of an agenda for "fire" to become a single-hazard issue, for two important reasons. First, as stated elsewhere in the Commission's findings and recommendations, because of the all-hazard nature of their responsibilities, the fire services have clearly become the fire and emergency services. Secondly, FEMA conducts or participates in other hazards programs – e.g., hazardous materials, terrorism, and earthquake and other natural hazards – that include research within the programs' activities. Within a reasonable time, the "competing" agendas of these programs should be coordinated and ultimately integrated.

With respect to the critical subject of technology transfer, the Commission understands that FEMA/USFA already does important work to make research results available, but believes that other initiatives can be pursued in order to make the process more efficient and expedient. Trade press columns, conferences or conventions, and partnerships with public and private sector organizations can be utilized to accomplish the goal. In addition, the new technologies and other results of relevant research should be incorporated into the courses and documents offered at the National Fire Academy.

FINDING #6

Codes and Standards for Fire Loss Reduction in the Built Environment

There should be an active and aggressive approach by FEMA/USFA in the utilization of building codes and standards for construction in order to prevent or reduce fire losses. To date, there has been success in the use of codes and standards. However, the success must be accelerated and intensified.

The adoption and enforcement of those codes and standards for construction or rehabilitation that affect fire safety (as well as safety for all hazards) must be extended. The Commission's discussions focused on the need to address more of the residential losses, the potential losses in existing (or new) critical facilities, and the losses in structures that contain vulnerable populations (e.g., retirement homes). Changes to model codes and standards that reflect research that validates the revisions would thus provide the technical basis for local and state adoption and enforcement of measures that address local and state risk management priorities.

The need for emphasis on residential construction is born out by statistics. For the most recently compiled year, 1997, there were 552,000 structure fires in the United States. Almost three-quarters of structure fires occurred in residential properties including homes, hotels, motels, rooming houses and dormitories. Fifty-five percent (55%) or 302,500 were in one- and two-family homes and seventeen percent (17%) or 93,000 occurred in apartments. The largest number of civilian deaths occurred in residential buildings. Eighty-three percent (83%) of the 4035 total civilian deaths occurred in home structure fires – with sixty-seven percent (67%) or 2700 in one-and two-family homes.

There are major improvements in the effectiveness and efficiency of the U.S. codes and standards system that would be realized from the joint efforts of appropriate organizations from the fire, emergency services, and building communities. The Fire Prevention and Control Act of 1974 give USFA an important role and authority to effect this integration (from the fire services point of view) but that authority has not been exercised. The safety of new buildings, and the ongoing inspection and enforcement of those safety provisions in existing buildings, would be improved by this integration.

Recommendations:

The USFA should review its authority under the Fire Prevention and Control Act of 1974 in order to identify those activities it could support, but currently does not, with respect to building codes and standards. These activities would include:

- The development and promulgation of a set of performance standards for buildings, with respect to fire hazards and risks, against which model codes and standards can be measured for equivalency. The participation and consensus processes used by FEMA to develop such standards for seismic vulnerability in buildings may serve as a useful paradigm;

- The active involvement of the fire services community in the consensus process of model code promulgation gives the drafters the benefit of real experience in the prevention and suppression of fire and to ensure that the current trend towards "equivalency" does not unintentionally put firefighters at additional risk;

- The development of training courses on the enforcement of building and fire codes in new and existing buildings at the National Fire Academy (NFA) that can be handed off to state and local governments. In addition, USFA should utilize its

present and emerging academic partnerships with colleges and universities that have architectural and engineering programs to ensure that fire safety inspections and code enforcement are a part of the curriculum; and

- The identification of improved or enhanced insurance incentives for community-based fire loss prevention measures and homeowner loss reduction implementation, especially fire sprinklers and alarms.

FINDING #7

Public Education and Awareness

There is wide acknowledgment and acceptance that public education programs on fire prevention are effective. The reduction of the number of fire deaths since the first America Burning report is due to a number of factors, including increased awareness that fire is not an inevitable tragedy. As with efforts to prevent or reduce losses from other hazards, such as earthquake, flood and hurricane, public education will not be totally effective on its own. Nevertheless, no prevention effort can succeed without a public education component. Social marketing techniques appear to have the greatest likelihood for success on fire issues since they seek to change the way people think and make decisions.

A public education approach should be mindful of two essential elements: first, the public education must make the target audience aware of the hazards on both an intellectual and emotional level. Second, the target audience must receive and accept the message that the hazard or problem is within its control.

Recommendations:

FEMA/USFA should develop and support a public awareness campaign strategy that includes the following features:

- Measurable results, goals and objectives;

- Targeting high-risk areas with concentrated efforts and appropriate messages on public education and fire prevention;

- Use of existing community resources (e.g., schools, community groups and activities, houses of worship, and social, medical, and other education services), to deliver the message to audiences already in place;

- The development and utilization of private sector partnerships with enterprises that have investments in the reduction of fire losses, such as insurance companies, both property casualty and life and health;

- Though instituted at the national level, capable of being carried out at the local level;

- Training to prepare fire officers to deal with the media - for public information, education, and relations; and

- A multi-hazard approach that advances prevention and safety messages for all of the risks which fire departments respond to and address and that educates about the multifaceted approaches involving code enforcement, construction standards, education, and enhanced technology usage such as sprinklers and smoke detectors.

FINDING #8

National Accrediting and Certification

Fire training and education in the United States remains disparate and unequal. There are recognized standards, accreditation and certification processes, but the country still lacks a nationally recognized system envisioned by the 1973 Commission. Firefighters and officers trained in one state may have to repeat all of their training before they can serve as a firefighter in another state. Colleges and universities do not have a model curriculum upon which to base their degree programs.

Recommendations:

FEMA/USFA/NFA should begin the process of establishing a system of training and education that is nationally recognized and reciprocal among the states. Participation in the system by state, local and college-based training systems should be voluntary, but USFA/NFA should provide incentives for participation.

In order to enhance distribution of USFA/NFA training, state fire training systems should be authorized to deliver USFA/NFA campus-based programs, use USFA/NFA instructors, and issue USFA/NFA certificates to students. Courses should be delivered at times and places convenient to the state systems. Though independent, state training systems should be considered extensions of the USFA/NFA delivery system.

USFA/NFA should establish a peer-review process by which courses developed by state training systems are reviewed for endorsement by the USFA/NFA. These endorsed courses should be shared among state and local training systems. The endorsement process will increase the number of courses available to state training systems, provide local systems with courses on subjects that meet local needs, and begin the process of establishing a national system of training and education envisioned by the original America Burning Commission.

The process by which courses are "handed off" to state training systems should be re-engineered. The focus should be on getting USFA/NFA developed courses into state and local training systems more quickly and involving instructors in the course revision/edits process.

The number of technology-based courses should be increased. CD and Internet technologies should be utilized to reduce the amount of paper based materials currently printed, stored and shipped to state and local training systems.

As an additional incentive to the development of courses and the establishment of a reciprocity system, performance-based training grants should be made to state training systems that permit them to deliver not only USFA/NFA developed courses but also courses that have met USFA/NFA endorsement criteria for off-campus delivery.

Participation by colleges and universities in the national fire prevention efforts should be expanded and a group of colleges and universities should be convened to help design a model curriculum.

FINDING #9

Firefighter Health and Safety

It is evident that a key element in the reduction or prevention of the loss of life and property at a fire emergency is a properly organized, staffed and deployed fire department. A fire emergency is a time sensitive and labor intensive task. Many fire departments in the United States today do not have the capacity to provide all the requisite functions required for an initial first alarm response in a timely manner.

Moreover, as noted elsewhere in the Commission's Findings and Recommendations, firefighters respond to all hazardous incidents in a community, not only fires. Firefighters respond to over a quarter of a million hazardous material incidents each year in the U.S. They are tasked with protecting the public during and after an incident involving weapons of mass destruction. They perform rescue operations in a multitude of circumstances ranging from natural disasters to voluntary endangerment by ultimate sports participants. Training for these operations is frequently substandard where it exists. Worse, it is usually absent in key areas such as safety for firefighters from hazards external to the incident site (e.g., high-speed traffic at the site of a highway accident) and responder health and safety with respect to the causative hazard (e.g., appropriate equipment for response to a hazardous materials incident).

Fire departments are also now called upon to provide emergency medical response at various levels from first responder to advanced life support and transport. Existing EMS response systems, including some under the fire service, often provide inconsistent emergency medical response coverage, are understaffed and undertrained, and do not deploy and arrive at medical emergencies within medically accepted response times.

Thousands of fire fighters and emergency medical personnel lack rudimentary medical evaluation and wellness/fitness programs that can dramatically work to ameliorate the negative effects of emergency response and toxic exposure. Too many fire fighters and paramedics suffer from cancer as the result of chronic exposure to toxic products of combustion and the numbers continue to increase. Additionally, each year more firefighters are exposed to infectious diseases during the provision of basic and advanced life support in uncontrolled, emergency environments.

Protective clothing and equipment utilized by fire fighters and emergency medical personnel are not always properly selected, used, and maintained. Inferior products are still sold to and procured by fire departments.

Recommendations:

Communities that fund fire departments to respond to fire emergencies within their jurisdiction should be fully cognizant of the capacity of the department in terms of its deployment capability, including structural fire response, special operations and hazardous materials response, and emergency medical response. Fire departments should be evaluated based on their effectiveness, efficiency and worker safety. The decision of the jurisdictions' level of service should be based on technically, scientifically and medically sound criteria for organization, staffing and deployment of such services. Fire fighters and emergency medical personnel should be selected for the job based on consistent medical and performance standards.

All fire departments should provide protective clothing and equipment as well as specific training for the prevention of occupationally acquired infectious diseases, cancer, heart disease and other occupationally related diseases. Such clothing and equipment must provide continual protection during its use against the hazardous conditions encountered during fire fighting, emergency medical and special operation functions.

FEMA/USFA should directly support or advocate the development of nationally applicable assessment and evaluation systems on the full range of operating capabilities and capacities of public fire departments. Such systems should be adopted, and if necessary promulgated by the appropriate federal agency. The evaluation system should be based on the minimum functions and tasks required for fire, medical or other emergencies, as well as the minimum response times required to deliver such services, and should measure the effectiveness and efficiency of public fire suppression, emergency medical services, and special operations delivery in protecting both the public and the occupational safety and health of fire department employees.

FEMA/USFA and other appropriate federal agencies should encourage all fire departments to adopt a standard operating procedure addressing safe incident-site staffing that includes accountability and teams for fire fighter rescue.

Fire departments should provide a wellness/fitness program to maintain the medical, physical and behavioral health of all personnel. The federal government should provide funding for fire department adoption of fire fighter wellness/fitness programs based on the Wellness-Fitness Initiative and the Candidate Physical Ability Test of the International Association of Fire Fighters and the International Association of Fire Chiefs.

The federal government should also provide funding for training, equipping and staffing of fire department special operations, including hazardous materials, technical rescue and terrorist/weapons of mass destruction response.

The subject of problem-focused research activities, supported by the federal government, has been addressed elsewhere in these findings and recommendations. A critical component of such research should be the funding of additional research in fire fighter protective clothing and equipment. Appropriate government agencies should also provide consistent certification, testing, field research and when necessary, product recall of all fire fighter protective clothing and equipment.

FINDING #10

Emergency Medical Services

As discussed earlier, today's fire services confront the full range of hazards and risks for America's communities. Primary emergency medical response to incidents that require rescue operations has become a dominant role of the fire services. In the last ten years, Emergency Medical Services (EMS), ranging from primary response to advanced life support, have grown to occupy a particularly unique and prominent position - virtually the "gate-keepers" of the health and medical service when trauma or emergency are involved. Emergency Medical Technicians (EMT's) and Paramedics have a greater level of training than ever before and are as much a part of the health care environment as they are of the firefighter environment.

Not all fire departments and their employees have welcomed the larger role of EMS. Emergency medical response often requires significant financial resources for each emergency call, regardless of the number and nature of medical emergencies that necessitated the call. In addition, the personal and interpersonal skills needed for EMS often differ sharply from those needed to suppress a structural fire. This aspect has hindered the professional development of many in the fire services, both career and volunteer, with respect to their EMS responsibilities.

The budgets in many fire departments favor fire suppression at the expense of EMS, particularly in the area of training. EMS systems often provide inconsistent response because of this insufficient training as well as insufficient staffing. The result too often is a failure to deploy and arrive at a medical emergency within medically acceptable response times.

Federal support currently provided to the fire services' EMS component is inadequate and EMS suffers from a lack of broad programmatic support and close working relationships with the health care and health insurance industries.

Recommendations:

Support for EMS should include advocacy, improved training and equipment, research and data improvements. Strategies should be implemented that improve the practical equality of EMS within the fire service. Simply put, EMS should be adequately funded and staffed. Achieving this adequacy is the joint responsibility of government and the health care system. Emergency medical service delivery should be consistent with medically acceptable response times through the deployment of sufficient numbers of trained personnel. Fire departments should be accountable for activities conducted at the defined incident location as well as for other emergency location safety, including the provision of adequate personnel prior to the commencement of operations.

Each fire department, volunteer and career alike, should assess the EMS training needs of its current staffing. Training programs that treat career and volunteer members differently should be eliminated. Training policies that allow senior members to avoid enhanced training when newer members must obtain it should also be eliminated.

FEMA should review the collective support provided by the federal sector to the EMS activity of communities' fire departments and, based on a needs assessment, determine whether that support can be revised in order to enhance the EMS capability of these departments.

FEMA should facilitate the development of a working partnership among the health care industry, the health insurance industry, and the fire services with the goal of enhancing the provision of emergency medical services to the public and improving the efficiency and effectiveness of the health service industry.

FINDING #11

Diversity

Today's fire service has a diverse membership. Through the initiation of public policies intended to enhance the diversity of community fire departments, the face of the fire service in most metropolitan areas has changed significantly since the publication of *America Burning* in 1973. The fire service today is more inclusive of minorities and women. There has been a giant leap forward from the era in which minority representation was limited to certain stations in certain areas and there were no women firefighters. However, although the overall membership of the fire service has become more diverse, there are still a number of fire departments in which diversity does not exist

or where there are barriers that limit either the upward or lateral mobility of minorities and women, irrespective of merit. There is still much to be done in building diversity into the service's organizational structure and the agenda of the emergency services.

Surveys clearly show that the most trusted societal element of today's villages, towns, cities and counties are the members of the fire services. Fire service departments and organizations have the closest personal relationship with the neighborhoods in which they operate and should be extremely reflective of our communities. Much of the strength of the fire and emergency services derives from their acceptance by the communities and neighborhoods they serve. This strength is enhanced to the extent that the fire services reflect the make-up of the community they serve.

Recommendations:

In order to improve fairness and diversity within the fire services, there should be a commitment to alter traditional attitudes with respect to the activities that are most important to the fire services. There should be recognition for those leaders and departments that effectively put an end to those traditions that limit evolution toward a diverse fire and emergency services organization.

Such leaders should establish policies and practices that improve the lateral and upward mobility of all, based on merit, and should enhance the connection of the firehouses to their neighborhoods. Both firefighters and their organizational management representatives should address the issues of fairness to all employees within their organizations.

The conduct of activities and initiatives that are intended to diminish improper imbalances with respect to diversity within a fire department should also be directed outside of the department, toward the community and the neighborhood. Fire plans and general response plans that are developed for the community should anticipate the additional concerns and challenges that occur in diverse communities, such as communication challenges, requirements for faith-related practices, societal habits and mores, and safety requirements. In addition, diversity should be considered in the conduct of prevention and preparedness activities, not only to anticipate the concerns that will arise in the response environment, but also to take advantage of the diversity achieved within the department and enhance the effectiveness of prevention and preparedness messages.

FINDING #12

Burn Injuries and Care

The trauma caused by burn injuries to civilians and firefighters is well understood within the medical community. Prompt treatment of a burn victim at a burn center as opposed to most hospitals usually is the difference between life and death. Burn survival has improved significantly over the past thirty years. On a yearly basis, deaths, once the

victim has been placed into the burn care system, have decreased from around 4000 to 1000. Today, over 100 centers provide burn care, with 25 of them being full service burn treatment, research and rehabilitation. In comparison, only 12 facilities then were capable of offering a full spectrum of burn care treatment when the original America Burning report was issued.

Unfortunately, the current trend in burn care treatment, research and rehabilitation services indicates the progress has stagnated and in many respects regressed in medical research and available treatments. The Commission heard testimony that economics are discouraging many hospitals from continuing their emphasis on burn treatment. The high cost to hospitals of burn treatment and limitations on reimbursement under many existing insurance policies is currently driving down the quality and quantity of burn treatment facilities. However shortsighted this approach may be, it still exists.

Moreover, the United States has not given priority to either the broad distribution of information or the development of the technology to treat burn victims in a comprehensive manner. The federal government has actually decreased its financial investment in burn injury issues and fewer federal burn facilities exist today than did in 1973.

Recommendations:

Prompt and comprehensive care for the burn victim is essential, benefiting not only the victim, but also society as a whole. This care should not be limited to the physical needs of the victim alone, but should be expanded to consider the mental and emotional needs of the victim and his or her family, friends, and often times, co-workers.

FEMA and the United States Fire Administration should build partnerships that will support both the prevention and care giving and expand the capability to manage all aspects of burn-related issues.

With regard to treatment, these partnerships:

- Should include advocating within the health industry the needs of victims. This advocacy should impress on insurers the benefits of immediate and comprehensive treatment as contrasted with the alternative costs of delays caused by inadequate insurance coverage; and

- Should lead to the maintenance of training centers, the development of programs to recruit and retain burn physicians and nurses, and an increase in federal research such as that once provided by Brook Army Medical Center.