

**Committee Name:**

**Assembly Committee – Rural Affairs and Forestry  
(AC-RAF)**

**Appointments**

99hr\_AC-RAF\_Appt\_pt00

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99hr\_ab0000

99hr\_sb0000

**Misc.**

99hr\_AC-RAF\_Misc\_Fire\_pt01b

**Record of Committee Proceedings**

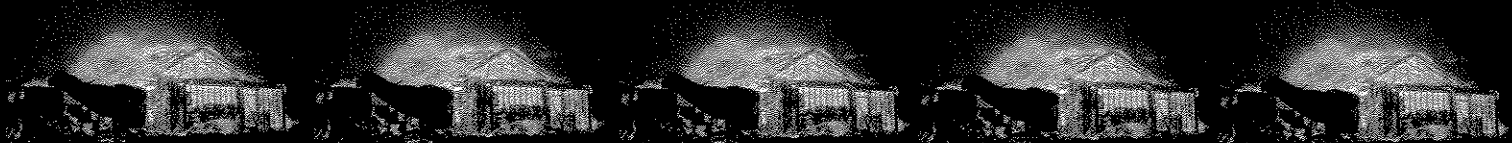
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# *Fire Protection in Rural America: A Challenge for the Future*

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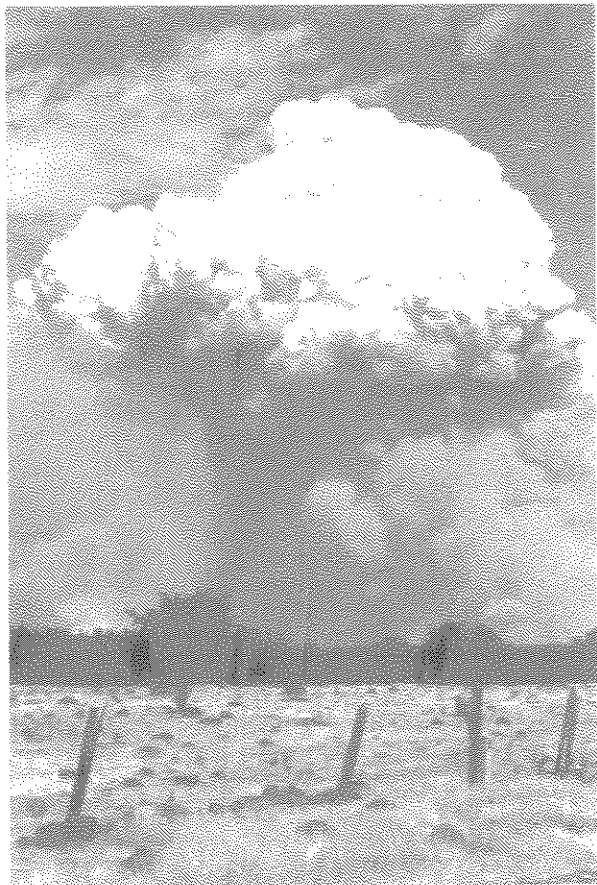
*A Report to the  
Congress of the United States  
and Other Policy Makers*

*with  
recommendations for improving the  
protection of rural America from the  
ravages of uncontrolled wildfires*





**Front Cover Photo:**  
Fountain Fire in Northern California,  
*Courtesy of California Department of Forestry, 1992*



**Back Cover Photos:**  
*Courtesy of California Department of Forestry, 1992*

# *Fire Protection in Rural America: A Challenge for the Future*

*A report to the  
Congress of the United States  
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with recommendations for improving  
the protection of rural America from the  
ravages of uncontrolled wildfires*

**Rural Fire Protection in America  
Steering Committee**

**Sponsored by  
the National Association of State Foresters  
Washington, DC**

January 1994

# Rural Fire Protection in America Steering Committee

*Sponsored by the National Association of State Foresters - January, 1994*

## Rural Fire Protection in America Steering Committee

Each individual and each agency represented on the Rural Fire Protection in America (RFPIA) Steering Committee contributed to this final report, which was designed for use by the Congress of the United States and other policy makers. The steering committee offers its recommendations with the hope that fire protection in rural America can be improved before the end of this century.

### RFPIA Steering Committee:

**Gerald A. Rose**, *National Association of State Foresters (chair)*  
**Larry D. Adams**, *National Volunteer Fire Council*  
**Lawrence "Mic" Amicarella**, *National Wildfire Coordinating Group*  
**Jim Coyle**, *U.S. Fire Administration*  
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### Acknowledgments

The RFPIA Steering Committee wishes to thank the many fire departments that responded to their 1993 survey. It also wants to extend its appreciation to the following individuals and staff groups that cooperated with them in various ways and contributed background information and analysis for this report.

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The committee is also grateful to the following who provided assistance that ensured that this report was published in a timely manner.

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## Foreword

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### Fire Protection in Rural America: A Challenge for the Future


Providing fire protection to rural America has become increasingly more challenging. As more people build homes in rural areas, cities annex wildland, and industry takes over what was once agricultural land, rural fires become more dangerous and more costly. Marshalling the resources to deal with the challenge in a socially acceptable manner is taxing the ingenuity and capability of governments and organizations providing fire protection and other emergency services.

To help respond to the challenge, the National Association of State Foresters has joined the National Fire Protection Association, U.S. Fire Administration, National Volunteer Fire Council, Congressional Fire Services Institute, USDA Forest Service, National Wildfire Coordinating Group, and National Emergency Management Association to charter the Rural Fire Protection in America (RFPIA) Steering Committee. The charge for RFPIA was to identify ways in which existing resources could be used more effectively and also to identify gaps where additional resources—Federal, State, or local—may be needed.

The strength of the RFPIA effort has been in the diversity of the organizations represented on the steering committee. The cooperative approaches to the delivery of rural fire and emergency service were very evident and provided a strong basis for our deliberations and recommendations. The RFPIA Steering Committee members have been a dedicated and highly motivated group of professionals committed to finding solutions. Participation in steering committee meetings and site visits demonstrated strong interest and resulted in important recommendations unanimously supported by RFPIA.

The site visit teams were impressed with the dedication and concern shown by the fire managers in the communities and forest areas visited. Firefighters and managers all had serious concerns about dealing with the mounting challenges. The site visit teams also had great empathy with the homeowners and landowners along the way, many of whom had lost their homes and/or investment in their land.

I encourage you to read this report and act, where you can, on the recommendations of the RFPIA Steering Committee. We can achieve the changes recommended in the report, but they require new ways of planning for and delivering rural fire protection. Our future ability to protect rural Americans from the ravages of uncontrolled wildfire rests in all our hands.



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Chair, RFPIA Steering Committee  
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## CONGRESSIONAL FIRE SERVICES INSTITUTE

November 30, 1993

Dear Friend,

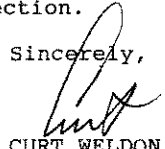
As the founder of the Congressional Fire Services Caucus, I want to take this opportunity to acknowledge the work of the Rural Fire Protection in America Steering Committee and ask you to carefully study this report. This study clearly illustrates the need to help America's rural fire departments and adopt sweeping changes to our rural fire response organizations.

To ensure that rural America receives the best fire protection possible, it is imperative for fire response organizations at the local, state, and national level to coordinate their efforts. Partnerships, like those described by the Rural Fire Protection In America (RFPIA), would allow better and more efficient use of limited resources in times of tight budgets, and would create an effective effort to address government decision making on funding and requirements for fire protection in rural areas.

This report provides valuable insight into how some agencies and organizations are "making it happen," regardless of fiscal constraints, greater wildland fire problems, and growing responsibilities with wildland-urban interface fire protection. The answer to today's rural fire protection problems are change and partnerships.

Please join me and the RFPIA in supporting efforts to ensure that America's rural citizens have affordable, efficient fire protection.

Sincerely,

  
CURT WELDON  
Member of Congress



## Executive Summary

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In 1992, the National Association of State Foresters (NASF) convened a consortium of national fire and emergency response agencies and organizations to focus on issues and opportunities related to the effective delivery of fire and emergency services. This consortium subsequently formed the Rural Fire Protection in America (RFPIA) Steering Committee, representing the National Volunteer Fire Council (NVFC), the USDA Forest Service (USDA FS), the National Emergency Management Association (NEMA), the National Fire Protection Association (NFPA), the U.S. Fire Administration (USFA), the National Wildfire Coordinating Group (NWCG), the Congressional Fire Services Institute (CFSI), and the NASF.

The RFPIA Steering Committee determined that its goals should be to increase the understanding and awareness of the importance of rural fire protection by finding and disseminating answers to the following questions:

**How is rural fire protection currently provided?**

**What happens when there is inadequate or inefficient fire protection?**

**Whose responsibility is it to prevent rural fires?**

**What impact do fire losses have on both rural communities and on insurance rates throughout America?**

**How can we fund rural fire protection when values protected increase and fire protection dollars decrease?**

**Why is rural fire protection necessary to those who live in rural areas as well as to the rest of the U.S. citizens?**

**Is rural fire protection the responsibility of local governments only?**

To help achieve its goals, the RFPIA Steering Committee made a comprehensive study of rural fire protection in America. This study included a survey of over 35,000 fire departments that protect populations of 100,000 or below and analyses of the results of the survey. It also included field visits to fire sites in California, Florida, and West Virginia, followed by analyses of each of these visits.

From their analyses of the results of the survey and field visits and after a great deal of discussion, the steering committee reached a number of conclusions. They subsequently offered a variety of recommendations based on these findings. Following is a summary of their answers to the seven questions posed above:

- **Rural fire protection in America is provided through a loose-knit, multijurisdictional partnership, with each partner representing an essential building block in the system.**
- **Significant and unacceptable losses occur when these partners are unable to share their resources and coordinate their response actions.**

- **Prevention of rural fires is a shared responsibility of every citizen, homeowner, landowner, fire service unit, and governmental entity.**
- **Rural fire losses constitute a direct negative impact on rural communities, but they also drive up the costs of protection and fire insurance for everyone.**
- **As fire protection dollars continue to decrease while protected values continue to increase, it is important to maximize the positive effects of the dollars that are available.**
- **Fire protection is absolutely essential to the conservation of America's natural resources and to rural economic stability.**
- **All levels of government—local, State, and Federal—must cooperate to help provide rural fire protection by coordinating resource mobilization, training, and equipment.**

Recurrent themes of the comprehensive study and this accompanying report are 1) the importance of local, rural fire departments to the rural fire and emergency response system in this country and 2) the critical need to integrate all rural fire and emergency response activities under a common incident management system.

The steering committee hopes this report will be a useful model for other agencies, organizations, and institutions. They also hope that each individual, organization, and governmental entity with responsibility for fire prevention and emergency response will assume ownership of the findings and cooperate in the continued search for long-term, cost-effective solutions to the problems inherent in the protection of our Nation's rural areas against wildfires. The rural fire service is a national asset that has too often been taken for granted. If it is to be the foundation of the fire and emergency response system in rural America in the next century, it must be recognized, supported, coordinated, and enhanced.

## Introduction

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From the 1990 census, the Bureau of the Census found that roughly one-fourth of the United States population lives in what the Bureau defines as rural communities. These communities with populations of under 2,500 accounted for 24.8 percent of the population living in 97.5 percent of the land area. Rural population was up about 4 percent from 1980.

Many people live in communities that are not technically *rural*—their homes are in what is known as the wildland-urban interface. The National Fire Protection Association (NFPA) defines this interface as *an area where development and wildland fuels meet with no clearly defined boundary* (Technical Committee on Forest and Rural Fire Protection 1991). Those who live in this interface as well as those who live in rural areas need their lives and property protected against the threat of uncontrolled, outdoor fires—commonly known as *wildfires*.

According to 1991 NFPA figures (Karter 1992a), 27 percent of the fires attended by public fire departments occurred in timber, brush, grass, and wildlands. These wildfires can have dramatic and far-reaching negative effects on the health and productivity of American natural resources. Because these resources must be protected for future generations of Americans, it is clear that governments in the wildland-urban interface and rural areas face major challenges in providing adequate protection against such fires for the people, property, and natural resources in their jurisdictions.

In 1991, William P. Meade conducted a study to determine the cost of providing fire protection in America for the Center for Fire Research at the National Institute of Standards and Technology (NIST). One of the findings was how valuable volunteer firefighters are to America:

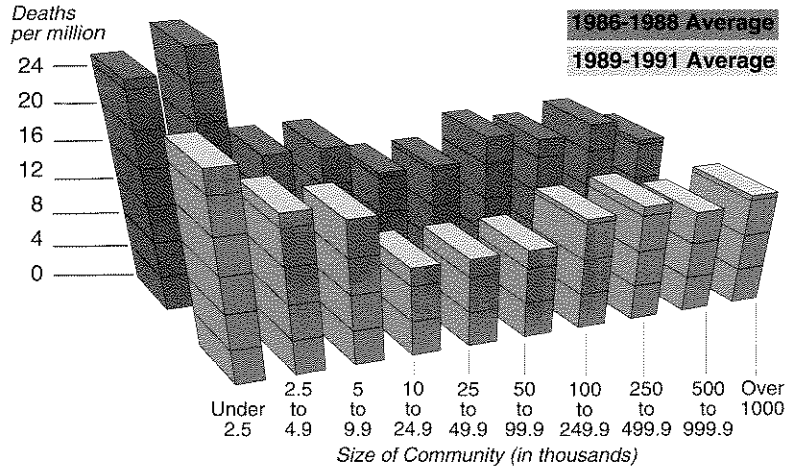
*On a national basis, \$38,196 per annum per firefighter, for each of the estimated 964,500 volunteer firefighters concurrently serving, represents a national conversion cost of \$36.8 billion. . . to convert volunteer firefighters to paid firefighters* (Meade 1991).

These volunteers benefit the taxpayer at no cost or at a greatly reduced cost compared to career firefighters. And while historically they have had an admirable tradition of service to their communities, they are the first to admit that *they need assistance in organization, training, and equipment to become more efficient in dealing with the rural fire problem*.

As the first line of emergency response in their communities, rural volunteer firefighters face unique challenges and risks. The NFPA conducted studies that highlight risks confronting citizen firefighters and the rural communities they serve:

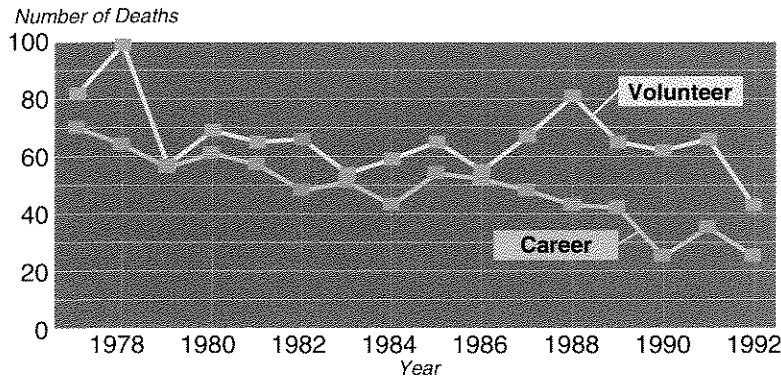
- People in rural communities with populations below 2,500 are almost twice as likely to die in a fire as people living in communities with populations of 10,000 to 99,999 (Karter 1992). (See Figure 1.)

**Figure 1.--** Residents living in communities of 5,000 population or less are almost twice as likely to die in a house fire than residents in communities of 5,000 or larger. Source: NFPA Journal. 1992 86(5). Used by permission.



- Compared to city dwellers, rural homeowners suffer more than twice the property loss from fire each year (Karter 1992a).
- In 1992, nearly one-fourth of all firefighter deaths at the actual site of a fire occurred at uncontrolled wildland fires—all of those who died were volunteer firefighters (Washburn *et al.* 1993). (See Figure 2.)

**Figure 2.--** While the number of volunteer firefighters has decreased between 1977 and 1992, the number of volunteer firefighter deaths does not reflect the same decrease as that experienced by career firefighters during the same period. Source: NFPA Journal. 1993 87(4): Used by permission.



These startling statistics are clear: Per capita, more lives and property are lost to fire in rural communities than in urban areas.

This report analyzes the results of an extensive national survey of rural fire departments and three case histories to provide Congress and other policy makers with recommendations for improving the protection of rural America from the ravages of uncontrolled wildfires.

## Background

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The Cooperative Forestry Assistance Act of 1978 (16 U.S.C. 2101(note)) authorizes the Secretary of Agriculture to assist in “the prevention and control of rural fires” by working “through and in cooperation with [the 50] State foresters, or equivalent State officials, nongovernmental organizations, and the private sector in implementing Federal programs affecting non-Federal forest lands.” Congress had found that “fires in rural areas threaten human lives, property, forests and other resources, and Federal-State cooperation in forest fire protection has proven effective and valuable.” While valiant efforts have been made to assist rural fire departments in the past, further challenges remain. Recent events such as the Yellowstone fires of 1988, the Oakland Hills Fire of 1991, and the Malibu/Laguna Beach Fires of 1993 have drawn attention to the need for improvement in the fire protection provided to rural and wildland-urban interface areas.

Since 1992, the NASF has sponsored Rural Fire Protection in America (RFPIA), a national initiative to focus on problems of delivering adequate rural fire protection services. They formed a multiorganizational RFPIA Steering Committee comprised of individuals who represent agencies and organizations concerned in some way with rural fire protection. For a complete list of committee members, they are listed on the inside front cover.

The RFPIA Steering Committee determined that its goals should be to increase the understanding and awareness of the importance of rural fire protection by finding and disseminating answers to the following questions:

How is rural fire protection currently provided?

What happens when there is inadequate or inefficient fire protection?

Whose responsibility is it to prevent rural fires?

What impact do fire losses have on both rural communities and on insurance rates throughout America?

How can we fund rural fire protection when values protected increase and fire protection dollars decrease?

Why is rural fire protection necessary to those who live in rural areas as well as to the rest of the U.S. citizens?

Is rural fire protection the responsibility of local governments only?

To increase its own awareness of the problems of rural fire protection, the steering committee surveyed rural fire departments. They also visited three sites of varying terrain and demographics that had sustained large wildfires, located in California, Florida, and West Virginia. The survey and site visits were designed to determine the effectiveness of current funding, levels of existing cooperation, the roles played by all levels of government in providing rural fire protection in America, and the current as well as future needs of the rural fire departments.

## The Survey

### Questionnaire.

After much deliberation and discussion, the RFPIA Steering Committee compiled a 23-question survey (see Appendix I) that in January, 1992, they mailed to the chiefs of over 35,000 fire departments protecting areas with a population of 100,000 or lower. The questions on the form ranged from the most pressing problem faced by the fire department (other than funding) to the kind of mutual aid agreements that the department has in place. Since nearly one in five departments responded, the results are representative of the rural fire service in America.

### Tabulation and Analysis

The USDA Forest Service, Northeastern Area State and Private Forestry Office in Radnor, PA, tabulated the data (USDA 1993), and the Fire Analysis and Research Division of the NFPA in Quincy, MA, analyzed it. From the analysis, John R. Hall, Jr., assistant vice president for NFPA's Fire Analysis and Research Division, prepared a report (1993) in which he concentrates on the survey data from fire departments in rural communities.

## Demographics

Table 1—Population and area protected by responding fire departments

Population	Under 10	10 to 24	25 to 99	At least 100	Total
	Area (mi. <sup>2</sup> )				
Under 2,500	422	479	1,061	600	2,562
2,500 to 4,999	191	218	646	283	1,338
5,000 to 9,999	186	189	440	200	1,015
10,000 to 15,000	215	225	337	235	1,012
25,000 to 100,000	74	151	204	104	533
<b>Total</b>	<b>1,088</b>	<b>1,262</b>	<b>2,688</b>	<b>1,422</b>	<b>6,460</b>

### Population

Forty percent of the departments responding to the survey were designated "first responders" in areas with populations below 2,500—precisely the communities that the Bureau of Census defines as "rural" (Table 1). To ensure that limiting the analysis to areas with populations below 2,500 made no difference in the analysis, Dr. Hall compared the answers of the "rural" group to the next largest group—fire departments with populations of 2,500 to 4,999 in their first-responder area. He found there were no major differences in the answers given except for those that would be expected to increase for a larger community; i.e., when the population doubled, the fire departments had more firefighters, a larger operating budget, and more calls per year.

### **Size of Area Served**

Because large geographic areas require longer response times for fire departments and stretch the limited resources of rural communities, it is important to note the sizes of the areas served by rural fire departments. Obviously, delays in responding to fire incidents significantly increase the risks of a fire quickly becoming an uncontrolled wildfire that can devastate lives, investments, and forests.

Of the “rural” departments responding to the survey, 65 percent protect areas of 25 square miles or more. About one in four departments protect areas of 100 or more square miles—an area roughly one-third larger than Washington, DC (Table 1).

### **Firefighters per Department**

Volunteer firefighters live in the rural communities they protect. These citizens have many demands on their time such as work, school, and family responsibilities and cannot always respond immediately to every fire incident that occurs in their area. Because the local community can't rely upon the entire membership of its volunteer fire department to respond to each emergency, large numbers of volunteers must be recruited and trained to ensure an effective response by qualified firefighters to a given emergency.

Responses to the survey indicated that 95 percent of the rural fire departments do not have any full-time, salaried firefighters, and 83 percent do not have any part-time, salaried firefighters. Dr. Hall reports that the typical fire department has roughly 100 members (including inactive members).

“NFPA’s annual survey of fire departments shows an average of 20 active fire fighters per fire department in the under-2,500 population range, which is consistent with the 10-20 fire fighters reporting per fire estimate” (Hall 1993).

The NIST study reported that more firefighters are required in a community of 2,500 than in a community with twice the population:

“Since there are fewer structures with greater distances between structures, to get from the fire house to a fire as rapidly as in cities of 5,000, more fire houses, equipment and firefighters will be required . . . to allow for the lower population density in places less than 5,000” (Meade 1991).

This quotation further illustrates the challenges faced by rural volunteer fire departments that protect large areas with low population density.

## Problems and Priorities

**Table 2**—*Most pressing problem of rural fire departments*

Problem	Responses (number)	Responses (percent)
Equipment	944	36.8
Securing firefighters	602	23.5
Training	443	17.3
Homes in unprotected rural areas	243	9.5
Local support	218	8.5
Building codes	35	1.4
Other	81	3.2
No responses/unknown	27	*
<b>Total</b>	<b>2,593</b>	<b>100.0</b>

\* Unknowns were excluded

**Table 3**—*Top priorities for Federal assistance*

Priority	Percent listing as top priority	Percent listing in top two	Percent Listing in top three
Water supply enhancement	28.4	45.4	57.3
Training	12.5	30.0	46.8
Radio communication	11.0	23.8	36.8
Protective clothing	12.4	24.8	35.8
Personnel	13.7	24.3	34.2
Increase pumping capabilities	13.8	24.6	33.6
Fire department building	10.3	17.7	28.7
Nozzles, hoses, etc.	3.0	11.3	21.9
Access to earth moving equipment	0.5	1.3	3.5

### Most Pressing Problem

When asked their most pressing problem (other than funding), about 37 percent of the rural fire departments cited "equipment" (Table 2). The next two pressing problems listed were "securing firefighters" and "training." Communities of 5,000 to 10,000 population indicated the same problems. Less than 10 percent of those responding to the survey cited "homes in unprotected rural areas," "local support," and "building codes" as their most pressing problem.



### Priority for Federal Assistance

When asked to rank their three top priorities for Federal assistance, over 28 percent of rural fire departments gave the highest priority to "water supply enhancement" (Table 3). Because water is sometimes not available in rural areas and where hydrants do exist they are not always reliable, fire departments need methods to deliver and use water more efficiently. Water enhancement extends the fire fighting capability of a fire truck, aircraft, or other equipment and refers to technologies such as dry hydrants, tankers, drop tanks, portable pumps, and Class A foam.

Next in order of priority for assistance needed was "training" followed by four roughly equal needs: "radio communication," "protective clothing," "personnel," and "increase pumping capabilities."

### Fewer Volunteers

Retaining and recruiting volunteer fire fighters is becoming a national problem. According to "NFPA Surveys U.S. Fire Departments" (Karter 1993), the number of volunteer fire fighters in America has steadily decreased from 884,600 in 1983 to 771,800 in 1991—about a 13 percent decrease (Table 4).

During this same period, career fire fighters have increased by 13 percent.

Table 4—Number of fire fighters in the U.S., 1983-1991

Year	Total	Career	Volunteer
1983	1,111,200	226,600	884,600
1984	1,129,350	231,600	879,750
1985	1,077,950	238,500	839,450
1986	1,045,950	237,750	808,200
1987	1,060,000	243,200	816,800
1988	1,040,750	252,500	788,250
1989	1,020,700	250,600	770,100
1990	1,025,650	253,000	772,650
1991	1,033,600	261,800	771,800

Source: *NFPA Journal*, 1993 87(4): Used by permission

Another study (NVFC *et al.*, 1993) stated that a ". . . leading reason for people leaving the volunteer fire service is that they simply do not have enough time, given the economic pressures and changes in people's lifestyle that have occurred." The study also cited "poor management" and "The increased burden of training to meet new government and professional standards . . ." among the reasons that individuals leave volunteer fire service.

### Training as a Priority

Fire departments in communities with populations between 5,000 and 10,000 listed "personnel" and "training" as areas where aid was most needed. It appeared the larger communities were more in need of trained personnel than equipment. These same departments have a higher percentage of training paid by their municipality than "rural" departments have. Many of

the latter have insufficient funds to pay for training, so not only do volunteer firefighters commit personal time to meet certification standards set by the State in which they serve, they often have to spend their own money to get the training required of them.

The typical "rural" fire department's responses to the survey question about types of basic fire training showed that while 80 percent of their firefighters had taken "structural" fire training, only 50 percent had "wildfire" training. In addition, only 20 percent of the firefighters had taken basic "emergency medical service" (EMS) training and 15 percent had "hazardous material" (HAZ-MAT) training. Departments serving towns of over 5,000 generally had a slightly higher percentage of trained firefighters in each category.

Both urban and rural fire departments find it difficult to obtain training that helps their firefighters meet required standards. Rural firefighters want to perform safely and effectively in the wildland-urban interface, yet in most States their training must comply to standards predominately geared to fire suppression in urban areas—not wildland areas.

## Fire Calls and Alarms

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### Types of Incidents.

Volunteer fire departments are the primary (and often the only) line of emergency defense in protecting lives, investments, and natural resources in rural America. In 1991, departments protecting populations of 2,500 or below made the following median numbers of runs on each type of incident: 5 structure, 6 wildland, 8 EMS, 0 HAZ-MAT, and 6 "other." According to Dr. Hall (1993), "These figures would total to about one call every two weeks and are also very close to the average number of calls per year in these categories for fire departments in this population range participating in the NFPA's annual survey."

One-fourth of these departments reported at least 10 structure fires, 12 wildland fires, 36 EMS runs, 1 HAZ-MAT run, and 17 "other" in 1991—meaning that they respond to one alarm every 5 days. From these reports, it is clear that rural fire departments make more EMS runs than any other kind of run. There is no question that fire departments in rural America not only respond to fire emergencies, but they also help with other emergencies occurring within their communities.

## Safety Equipment

**Table 5**—Number of self-contained breathing apparatus (SCBAs) owned by rural fire departments

Number of SCBAs	Departments owning SCBAs (percent)
None	4.2
1	0.6
2	7.8
3	3.8
4	17.7
5	6.2
6	16.4
7	5.5
8	12.2
9	3.4
10	7.4
More than 10	14.1
Unknown	4.1

minimum

### Breathing Apparatus

Firefighters need self-contained breathing apparatus (SCBAs) when they rescue people from burning buildings or control fires from within structures. However, most of the fire departments do not have enough SCBAs to equip the usual number of firefighters reporting to an alarm. The median number of SCBAs reported was six (Table 5) while, as noted earlier, the approximate number of active firefighters is 20. Thus this low number of SCBAs often will not allow enough firefighters to enter a building long enough to assure an adequate measure of safety.

### Protective Clothing

Personal protective clothing is most often used by firefighters in structure and vehicle fires. Most of the responding departments reported that 76-100 percent of their firefighters had personal protective clothing. Departments serving towns of over 5,000 population also indicated about the same percentages for protective clothing.

In contrast to protective clothing for structure and vehicle fires, nearly half of the departments reported that they had no protective clothing for wildfires. Eighty percent of the departments reported that none of their firefighters have proper HAZ-MAT response equipment and clothing.

## Fire Department Funding

Survey results showed that the median total operating budget for "rural" fire departments was \$18,000 per year. Compared with NIST calculations (Meade 1991), this budget is lower than 2.5 percent of the \$763,000 worth of annual services contributed by a 20-member volunteer fire department.

When asked to “indicate all appropriate sources for funding,” rural departments most often named “direct tax levied in your community,” followed by “county or township funds.” Fund raisers and donations were the only other sources listed. This means that rural fire departments receive only a marginal public investment from “municipal funds,” “State money,” “insurance industry funds,” and “Federal money.”

Nearly one-fifth of the departments reported receiving “other financial or operating assistance” beyond their operating budgets to pay for insurance coverage, apparatus, buildings or structures, maintenance costs, or other. This is a general assistance from local or State government that is not included in the fire department’s operational budget.

## Mutual Aid and Communications

**Table 6**—Rural fire departments reporting mutual aid agreements with other organizations

Organization	Fire departments having agreement (percent)
“Other” volunteer fire departments	96.7
State forestry or natural resource agencies	48.5
Paid fire departments	34.1
Federal agencies	10.4
Industrial fire brigades	3.4
Other	3.1

Nearly all the fire departments reported mutual aid agreements with “other volunteer fire departments” (Table 6). No doubt this is because they operate with limited resources; and by entering into agreements with their neighboring communities, they know they will have assistance in responding to crises. To ensure fire protection in rural America, it is critical that these communities can continue to coordinate and communicate their needs and responses. However, while the survey shows that rural departments are cooperating with one another, it also indicates there is a major need for mutual aid agreements with organizations other than fire departments.

Less than half of the respondents reported having mutual aid agreements with “State forestry or natural resource agencies”, and only 10 percent reported agreements with “Federal agencies.” Thirty-four percent report having agreements with paid or career fire departments and 3 percent have agreements with industrial brigades.

According to the survey, nearly all the departments having mutual aid agreements with other volunteer or paid fire departments use radios to communicate with one another. However, roughly one in four departments that have agreements with State

or Federal agencies cannot communicate via radio with those agencies. Less than 50 percent of the few departments that have mutual aid agreements with industrial fire brigades could communicate via radio with those brigades.

It is very clear that if effective fire protection and emergency response is to add to the quality of life in rural communities, the large gap between what these departments have and what is needed by them needs to be closed.

## Case Studies

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During each site visit, the steering committee interviewed individuals who participated on a specific fire incident at that location. The committee wanted to ascertain how those affected by a major wildfire identified the problems of fire protection in their community; they also wanted to find good examples of fire prevention and protection programs. Following are short summaries of the site visit reports including steering committee conclusions. Copies of the complete reports are available from the address given in the "List of Works Cited."

### Fountain Fire (California 1992)



*The fast-moving Fountain Fire burned almost two-thirds of the homes in this mobile park. Two weeks later, fire victims sift through debris as they clean up and look for possessions that weren't destroyed by the wildfire. Photo: Bill Terry, USDA Forest Service, Northeastern Area.*

Representatives from the RFPIA Steering Committee visited the site of the Fountain Fire that burned on August 20th, 1992, about 30 miles north of Redding, CA (RFPIA Steering Committee, 1993b). This forest fire was believed to have been deliberately set. It destroyed 64,000 acres of forest land and 330 homes, damaged 78 others, and razed more than 37 businesses and 250 other structures. Suppression costs to taxpayers totaled over \$20 million, and losses due to damage exceeded \$105 million. Due to the well-coordinated response of all fire organizations, residents were evacuated and no lives were lost. The fire was also stopped from entering the nearby town of Burney.



*Air tankers such as this one successfully helped defend the town of Burney, CA, from the Fountain Fire by applying fire retardant to homes, streets, and the adjacent area. Cooperative efforts among Federal, State, and county agencies made the air tankers available. Photo: Bill Terry, USDA Forest Service, Northeastern Area.*

Federal, State, and local agencies responded to the emergency. Local responders included 400 volunteers from Shasta County, Burney Volunteer, and Montgomery Creek Volunteer Fire Departments.



*Crown fires moved so fast that this Fountain Fire home in the Montgomery Creek area of California, east of Burney, was completely consumed by the intense flames. Firefighter efforts were in vain—the wildfire not only consumed this home but also the trees and vegetation surrounding it. Photo: Bill Terry, USDA Forest Service, Northeastern Area.*

In addition, the California Fire and Rescue Emergency Mutual Aid System made personnel and equipment available from volunteer departments throughout the State. This system also served as a link to Federal resources available through existing agreements between Federal wildfire agencies and the California Department of Forestry and Fire Protection. The State of California structured the mutual aid system so that each jurisdiction retains control of its own personnel and facilities but can give and receive help when needed. The system supports the National Interagency Incident Management System (NIIMS) and the use of the Incident Command System (ICS) and provides:

- a comprehensive emergency response plan.
- joint annual training for all cooperators.
- guidelines for training auxiliary personnel.
- a communication plan and communication facilities for the interchange of fire and rescue related directives and information.
- efficient fire resource mobilization.
- an annual fire and rescue inventory for the entire State.



*An example of an indefensible property—extinguishing the wildfire that burned this house was virtually impossible because of its close proximity to dense, combustible stands of Ponderosa pine. In addition, drivers of fire protection vehicles found it very difficult to gain easy access to the wildfire because of road conditions and remoteness of the site. Photo: Bill Terry, USDA Forest Service, Northeastern Area.*

Following the visit to the Fountain Fire site, the RFPIA Steering Committee concluded that losses would have been much greater if the system had not been in place to deploy forces quickly and in a systematic manner. The committee further concluded:

- When State and county governments share leadership with local fire departments, effective delivery of rural fire protection occurs.
- County government, in this case, played a significant role in rural fire protection delivery, e.g., the county provided the dispatch facilities, training incentive, and mobilization plan.
- Improving communication and coordination among various levels of government leads to more effective delivery of rural fire protection.
- To gain public support, local fire departments must look and act professional.



## Rural Florida Fire (1985)



*One of the homes in northeast Florida that burned in 1985 along with hundreds of others as a result of a wildfire that residents called the "Black Friday Fire." Vegetation covering the old foundation is typical of the area and consists of palmetto, southern pine, and yaupon—it is extremely flammable. Photo: Ken Strauss, USDA Forest Service, Region 9.*

Representatives of the RFPIA Steering Committee visited a site in Florida where in 1985 a wildfire destroyed over \$5 million in homes (RFPIA Steering Committee 1993a). The incident occurred in a rural area protected by volunteer fire departments and the Florida Division of Forestry (FDF). This rural wildfire convinced the FDF that many improvements in the State's rural fire protection system were needed. Consequently, the division has helped fire departments within each of its 15 wildfire control districts develop mutual aid agreements, obtain equipment, and participate in joint training programs. In addition, the FDF has encouraged counties to take the lead in establishing fire districts and hiring local fire administrators to facilitate county fire operations.

During the site visit, the RFPIA Steering Committee met with the fire administrator from Citrus County, FL. He described an incident similar to the 1985 fire, but because there was a coordinated response from the State and two counties for the second wildfire, no property was lost. In fact, suppression costs for the second wildfire were below \$5,000. If the homes threatened by the fire had been destroyed, there would have been a loss of several million dollars in property. The steering committee recognized that the fire was controlled because the county had an administrator who could help the county cooperate with the State through the FDF.



*Gerald Rose, RFPIA Steering Committee chair, left, discusses fire plans and areas of responsibility with Chuck Schneider and Jim Whitson, center, of the Florida Division of Forestry. Mike Petallat, right, Citrus County Fire Administrator, explains how joint plans, training, and radio communications between Citrus County fire departments and both State and Federal agencies have improved fire response capabilities and reduced cost. Photo: Ken Strauss, USDA Forest Service, Region 9.*

The committee made the following conclusions from the Florida site visit:

- Volunteer fire departments need a link to each other as well as to State and Federal agencies.
- When fire departments share leadership, they eliminate barriers to cooperation and improve all aspects of fire control and prevention activity.
- A county fire administrator can see that funds are not wasted but are used to their maximum potential.
- Radio communication is important in improving fire response. Good communication not only depends on funding, but also on developing good working relationships among local fire departments, State agencies, and Federal agencies.

## West Virginia Wildfires (1991)

The third site visit was to West Virginia, where in 1991 a prolonged drought caused a number of fires to burn from October 26 to November 10 in its ten southwestern counties (RFPIA Steering Committee, 1993c). These fires caused \$94 million in resource damage and cost taxpayers well over \$1 million for suppression.

Because the West Virginia Division of Forestry (WVDF) had a small staff, it was not able to deal with the wildfire problem alone. The WVDF obtained assistance from the National Guard, local fire departments, local land companies, and company contractors. However, the division was unable to develop and maintain adequate radio communications with these cooperators throughout the incident.

Volunteer fire departments were the first line of defense during the 1991 fire and represented a force of over 1,400 firefighters. Their efforts were executed independently of any central plan and produced few visible results. Similarly, National Guard troops were unable to obtain necessary equipment or adequately trained personnel to do an effective job of fire fighting. Since a disaster was never declared, little assistance was given by the West Virginia Division of Emergency Management.

The RFPIA Steering Committee concluded the following about the West Virginia fires:

- The WVDF and county fire organizations need to establish agreements that not only support the local fire departments but also create a link to existing agreements between the State and Federal agencies.
- A State fire plan should be developed to include agreements between fire departments, the National Guard, private land companies, and the WVDF 1) locate fire equipment and personnel, 2) determine the function of the National Guard in emergencies, and 3) operate a statewide emergency communication and dispatch system for use during periods of high fire danger.
- Land companies should establish cooperative agreements with the WVDF 1) educate the public about fire prevention to reduce incendiary and careless fires, 2) increase assistance given to local fire departments to protect company lands (e.g., help purchase needed equipment), and 3) intensify their own detection of fire on their own lands.
- The WVDF should secure low-cost four-wheel-drive vehicles through the Federal Excess Personal Property program so fire departments in the State can convert them to off-road fire trucks.

## Success Stories

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### **The Minnesota Incident Command System (MNICS):**

#### *A Minnesota Success Story*

During 1977, Minnesota suffered a severe drought that lasted for many months. In June, wildfires destroyed hundreds of thousands of acres of forest land and millions of dollars in homes and improved property. Suppression costs that year totaled around \$25 million dollars, quadrupling annual suppression costs encountered previously by the State.

Costs and losses were so high that concerned local, State, and Federal fire suppression agencies met to ensure that such damages would be curtailed in the future. The agencies developed a State all-risk response plan called MNICS (acronym for Minnesota Incident Command System) based on the National Interagency Incident Management System (NIIMS). MNICS required the use of the Incident Command System (ICS), established common communications networks, instituted common terminology, and made available shared training and support technology. Slowly, between 1978 and 1988, MNICS was adopted agency by agency, county by county, and fire department by fire department.

Another drought occurred in 1988 that lasted longer and was far worse than the drought of 1977. Again, Federal land agencies, the Minnesota DNR, the Minnesota Division of Emergency Management, and local fire departments had to confront large, devastating wildfires. Just as in 1977, the wildfires required mobilization of virtually all the fire fighting resources within the State and many from outside Minnesota. But the aftermath of the wildfires in 1988 differed greatly from a decade before—MNICS had been in effect and it worked.

At the end of the drought, suppression costs were below \$10 million—quite a reduction from the \$25 million of 1977. Losses of homes and private property were also dramatically reduced. The adoption of MNICS meant that well-trained and equipped local fire departments within many counties were capable of initial fire attack on the ground. With improved communications and an integrated plan of operation facilitated by the ICS, there were fewer wasted efforts among agencies, and there was less need for costly equipment and people from the outside.

Minnesota is only one State and this is just one success story. The United States needs more such successes. Many States belong to wildfire compacts designed to cooperate on a regional basis and deal with situations similar to the ones Minnesota faced in 1977 and 1988. But, many States have not adopted NIIMS. Many have not established common communications networks. Many have not made volunteer fire departments an integral part of an all-risk response plan. In short, many States have no all-risk response plan in effect. Unfortunately, it's a fact of life that those who have not planned ahead will undoubtedly suffer high losses and costs when they are forced to face devastating wildfires in the future.

## **The Northeast Forest Fire Protection Commission:** *A Regional and International Success Story*

What happens when a fire protection compact wants to improve response? The Northeast Forest Fire Protection Commission (NFFPC), the oldest interstate compact in the Nation, realized it needed a complete reassessment of every aspect of its operations. The result was a number of recommendations that will no doubt improve readiness of its member States and Provinces.

The NFFPC includes New York, Maine, New Hampshire, Massachusetts, Connecticut, Vermont, Rhode Island, and the Canadian Provinces of Quebec and New Brunswick. It was created with the approval of Congress in 1949 and is the only compact that employs an "executive Director" to coordinate and manage its business.

The bylaws of the NFFPC state its purpose is to "... promote effective prevention and control of forest fires in the Northeastern Region of the United States and adjacent areas in Canada by the maintenance of adequate forest fire fighting services by the member states, by providing for mutual aid in fighting forest fires among the states of the region and for procedures that will facilitate such aid, and by the establishment of a central agency to coordinate the services of member states and perform such common services as member states may deem desirable."

In 1993, the NFFPC sought to modernize its approach in accordance with its very broad mandate and sanctioned a thorough evaluation of its operational assumptions and organizational structure. With a modest grant from the USDA Forest Service's Northeastern Area State and Private Forestry, an NFFPC interagency assessment team conducted a 3-month study of its members' fire control capabilities and limitations. They consolidated the findings into a number of recommendations.

Their recommendations included dramatic changes in organizational structure, training, Incident Command System (ICS) implementation, and equipment standardization. These changes will include operative planning, training, and response with other emergency organizations such as fire departments, police departments, and State and provincial emergency management agencies.

The NFFPC initiative represents a success story at a regional and international level. They joined with other State/Province and local fire fighting organizations to establish an integrated rural fire and emergency response model for the Northeast and for the Nation. It is based upon common planning, interagency sharing, and the management and operating concepts of the ICS. With time, it will save taxpayer dollars and help reduce incident loss by making cost-effective use of all public, private, and volunteer emergency resources.

## **Maryland's East Shore:**

### *A Six-County Cooperative Fire Organization<sup>1</sup>*

On June 25, 1991, the Maryland Public Land's Forestry Division, in cooperation with the Blackwater National Wildlife Refuge of the U.S. Department of Interior (DOI) Fish and Wildlife Service (FWS), cohosted the Comprehensive Fire Planning workshop. The workshop was organized to solicit input from the public, representatives from local and State government, elected officials, DOI FWS and National Park Service, Maryland Forestry Division, Maryland Park Service, Chesapeake Forest Products Company, and Glatfelter Timber Company on the best approach for providing wildland fire protection in Maryland's Eastern Shore. The area to be serviced included Talbot, Caroline, Dorchester, Wicomico, Somerset, and Worcester Counties.

The representatives of each of the agencies and timber companies spoke about fire preparedness status and needs in their organizations. They summarized their equipment and unit strength capabilities for cooperating with the Maryland Forestry Division in the event of a severe wildfire.

More importantly, the meeting generated a spirit of teamwork that was subsequently channeled into developing a comprehensive wildland fire protection plan for the lower six-county area of the Eastern Shore and creating the Delmarva Fire Management Group. It also spawned new ideas and provided a forum for the representatives of the various organizations to meet and interact for a common cause.

The meeting also identified new players, such as Assateague National Seashore and the Blackwater National Wildlife Refuge, which had not been actively involved in wildland fire suppression in the past. Major benefits were derived by consolidating the identified resources and capitalizing on the special skills and talents of various individuals. As a result, all of the participants created a closer working team that was prepared and equipped to provide better fire protection at less cost than if they operated independently.

<sup>1</sup> Excerpted from a 1992-93 *Fire Management Notes* article by Glenn A. Carowan, Jr., "Partnerships—Making Them Work in Times of Limited Resources," 53-54(2): 23-24.

## Steering Committee Findings and Recommendations

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### **Finding: The rural fire service is a national asset that needs national support.**

The steering committee found that the Nation's rural fire departments are the first line of defense in coping with rural fires and a broad spectrum of other rural emergencies. Volunteer firefighters are delivering these essential services, but they are increasingly unable to continue to donate the time needed to serve, get required training, and/or generate the kinds of financial and material support needed to continue to be safe and effective. The value of the combined services they freely contribute is estimated to exceed \$36 billion annually, yet many volunteer firefighters feel they cannot influence nor do they have the resources to meet fire certification standards required of them.

#### **Recommendations:**

Develop local, State, and Federal strategies to provide a fair and consistent means of public and private support and funding for the rural fire service.

Give high national priority to the development of nontraditional incentives to encourage citizens to join their local fire department and to encourage employers to permit and support their employees' commitment.

Congress should continue to authorize and give a high priority to the USDA Forest Service to deliver Federal Excess Personal Property (FEPP) to rural communities through State forestry organizations.

Continue and strengthen other local, State, and Federal programs that benefit fire protection in rural communities.

### **Finding: The formal coordination and use of rural fire resources is essential to reducing fire losses and suppression costs in rural America.**

The committee found only isolated examples of formal coordination between rural fire departments and local, State, and Federal agencies and organizations with fire and emergency management responsibilities. Existing coordination results from exemplary leadership and has been key to reducing fire losses and suppression costs, which in turn results in significant savings to taxpayers. The committee also found that no universal incident management system is in current use by all emergency response agencies.

#### **Recommendations:**

In each State, the State Forester, the State Fire Marshal, the Emergency Management Coordinator, and each rural fire department should develop a formal, cooperative relationship to ensure effective training, planning, and coordination of all resources at all levels.

All emergency response agencies should adopt the Incident Command System (ICS) of the National Interagency Incident Management System (NIIMS) and each firefighter and emergency responder should receive ICS training as part of the certification process.

**Finding: Most rural communities and State fire service agencies do not have contingency financial support to cover costs before a fire or other emergency is declared a disaster. (Most property is lost and most lives are threatened just prior to a disaster declaration.)**

**Recommendation:**

Each State should establish a fire contingency fund for use when emergencies are increasing in complexity, and the Federal Emergency Management Agency should simplify its guidelines for providing fire suppression assistance.

**Finding: Modern, reliable radio communications are essential to quick, effective, and coordinated action for all fire organizations and departments within a jurisdictional boundary.**

**Recommendations:**

Emergency management organizations should give a high priority to the development and installation of modern radio communication networks and systems to ensure effective coordination at each incident.

The Federal Communications Commission should allocate, protect, and safeguard a band of radio frequencies solely for fire and emergency response.

The fire community should increase its cooperative effort to work toward better radio frequency management.

**Finding: The short- and long-term impacts of rural fires on natural resource values, rural investments, and the quality of life in rural America are not well understood.**

**Recommendations:**

A national goal should be to develop in each citizen a consciousness of the dangers of unwanted fires and a commitment to prevent them.

A major priority of every fire and emergency response organization should be fire prevention.

The economic and social impacts of rural fire occurrence on rural communities and the costs of organizing rural fire protection services must be tracked and quantified.

Broaden the National Fire Information Reporting System (NFIRS) to include the collection of accurate rural fire data, and redesign the system so that it is simpler to use and includes user feedback.



## Summary

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The steering committee found that:

- Rural fire protection in America is provided through a loose-knit, multijurisdictional partnership, with each partner representing an essential building block in the system.
- Significant and unacceptable losses occur when these partners are unable to share their resources and coordinate their response actions.
- Prevention of rural fires is a shared responsibility of every citizen, homeowner, landowner, business owner, fire service, and governmental entity.
- Rural fire losses constitute a direct negative impact on rural communities, but they also drive up the costs of protection and fire insurance for everyone.
- As fire protection dollars continue to decrease while values protected continue to increase, it is important to maximize the positive effects of the dollars that are available.
- Fire protection is absolutely essential to the conservation of America's natural resources and to rural economic stability.
- All levels of government—local, State, and Federal—must cooperate to help provide rural fire protection by coordinating resource mobilization, training, and equipment.

Recurrent themes of the comprehensive study and this accompanying report are 1) the importance of local, rural fire departments to the rural fire and emergency response system in this country and 2) the critical need to integrate all rural fire and emergency response activities under a common incident management system.

The steering committee employed considerable interaction, discussion, and debate during its investigations. Each individual on the committee and the agency each person represented contributed greatly to this final, consensus-based report. The committee hopes that the process they employed in this study and the findings, conclusions, and recommendations here presented will be a useful model for other agencies, organizations, and institutions.

The committee also hopes that each individual, organization, and governmental entity with responsibility for fire prevention and emergency response will assume ownership of the findings and cooperate in the continued search for long-term, cost-effective solutions to the problems inherent in the protection of our Nation's rural areas against wildfires. The rural fire service is a national asset that has too often been taken for granted. If it is to be the foundation of the fire and emergency response system in rural America in the next century, it must be recognized, supported, coordinated, and enhanced.

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# Appendix I—The RFPIA Steering Committee's Wildfire Survey

## Please Answer the Following Questions Concerning Wildfires (Grass, Forest and Range) in Your Area.

### DIRECTIONS

- USE A NO. 2 PENCIL
- FILL BUBBLE POSITION IN COMPLETELY
- MAKE DARK MARKS
- ERASE COMPLETELY TO CHANGE

CODE ID NUMBER BY FILLING IN THE APPROPRIATE BOXES ACCORDING TO THE EXAMPLE BELOW

Mark the first 5 numbers in your zip code.

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

Example: 79406

7	0	1	2	3	4	5	6	7	8	9
9	0	1	2	3	4	5	6	7	8	9
4	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
6	0	1	2	3	4	5	6	7	8	9

Fire Department Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Name of person responding: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_

1. Which do you consider the most pressing problem for your fire department other than funding?

(MARK ONLY ONE)

<input type="checkbox"/>	Local support
<input type="checkbox"/>	Equipment
<input type="checkbox"/>	Homes in unprotected rural areas
<input type="checkbox"/>	Securing fire fighters
<input type="checkbox"/>	Building codes
<input type="checkbox"/>	Training
<input type="checkbox"/>	Other: _____

2. If you were able to apply for federal assistance to provide better protection to your jurisdiction, rank the top three following items in order of importance with 1 being the most important.

(DO NOT MARK MORE THAN THREE ITEMS)

<input type="checkbox"/>	Radio communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Increase pumping capabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Water supply enhancement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Protective clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Nozzles, Hose, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Access to earth moving equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Fire department buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. What is the approximate population of the designated area in which you are the first responder?

<input type="checkbox"/>	Under 1000	<input type="checkbox"/>	1000 to 2499	<input type="checkbox"/>	2500 to 4999	<input type="checkbox"/>	5000 to 9999
<input type="checkbox"/>	10,000 to 24,999	<input type="checkbox"/>	25,000 to 49,999	<input type="checkbox"/>	50,000 to 99,999	<input type="checkbox"/>	100,000 or more

4. What is the approximate population outside of the area in which you are the designated first responder for which you furnish primary fire response? (THIS IS AN AREA WHERE NO OTHER DEPARTMENT IS LOCATED AND IS OTHER THAN A MUTUAL AID AREA FOR AN ADJOINING DEPARTMENT)

<input type="checkbox"/>	Under 1000	<input type="checkbox"/>	1000 to 2499	<input type="checkbox"/>	2500 to 4999	<input type="checkbox"/>	5000 to 9999
<input type="checkbox"/>	10,000 to 24,999	<input type="checkbox"/>	25,000 to 49,999	<input type="checkbox"/>	50,000 to 99,999	<input type="checkbox"/>	100,000 or more

5. Approximately how many fire fighters do you have in each category?

	1 to 2	3 to 9	10 to 19	20 to 49	50 to 74	75 to 99	100 or MORE
Full time salaried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Part time salaried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paid per call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not paid per call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. What is the approximate number of square miles in your jurisdiction?

<input type="checkbox"/>	1 to 4	<input type="checkbox"/>	5 to 9	<input type="checkbox"/>	10 to 24	<input type="checkbox"/>	25 to 99
<input type="checkbox"/>	100 to 249	<input type="checkbox"/>	250 to 499	<input type="checkbox"/>	500 or more	<input type="checkbox"/>	

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