



U.S. Fire Administration

Fiscal Year 2018 Report to Congress
July 17, 2019



Homeland
Security

Federal Emergency Management Agency

Message from the U.S. Fire Administrator

July 17, 2019

I am pleased to submit the U.S. Fire Administration's (USFA's) Annual Report for Fiscal Year 2018, as required by the *Federal Fire Prevention and Control Act of 1974* (Public Law No. 93-498). The reporting requirement is codified at 15 United States Code § 2215.

This report highlights the achievements of the USFA's activities during the period of Oct. 1, 2017 to Sept. 30, 2018.

The USFA supports the U.S. Department of Homeland Security and Federal Emergency Management Agency missions of preparedness, mitigation, response and recovery through our commitment to fire and emergency services stakeholders through National Fire Academy training activities, public education and awareness initiatives, research and technology development, and data collection and analysis.



Pursuant to congressional requirements, this report can be found at www.usfa.fema.gov and is provided to the following members of Congress:

The Honorable Roger Wicker
Chairman, U.S. Senate Committee on Commerce, Science, and Transportation

The Honorable Maria Cantwell
Ranking Member, U.S. Senate Committee on Commerce, Science, and Transportation

The Honorable Eddie Bernice Johnson
Chairman, U.S. House Committee on Science, Space, and Technology

The Honorable Frank Lucas
Ranking Member, U.S. House Committee on Science, Space, and Technology

The Honorable Haley Stevens
Chairwoman, Subcommittee on Research and Technology
U.S. House Committee on Science, Space, and Technology

The Honorable Jim Baird
Ranking Member, Subcommittee on Research and Technology
U.S. House Committee on Science, Space, and Technology

The Honorable Peter A. DeFazio
Chairman, U.S. House Committee on Transportation and Infrastructure

The Honorable Sam Graves
Ranking Member, U.S. House Committee on Transportation and Infrastructure

The Honorable Nita M. Lowey
Chairwoman, U.S. House Committee on Appropriations

The Honorable Kay Granger
Ranking Member, U.S. House Committee on Appropriations

The Honorable Lucille Roybal-Allard
Chairwoman, Subcommittee on Homeland Security
U.S. House Committee on Appropriations

The Honorable Chuck Fleischmann
Ranking Member, Subcommittee on Homeland Security
U.S. House Committee on Appropriations

The Honorable Richard Shelby
Chairman, U.S. Senate Committee on Appropriations

The Honorable Patrick Leahy
Vice Chairman, U.S. Senate Committee on Appropriations

The Honorable Shelley Moore Capito
Chairwoman, Subcommittee on Homeland Security
U.S. Senate Committee on Appropriations

The Honorable Jon Tester
Ranking Member, Subcommittee on Homeland Security
U.S. Senate Committee on Appropriations

The Honorable Bennie G. Thompson
Chairman, U.S. House Committee on Homeland Security

The Honorable Mike Rogers
Ranking Member, U.S. House Committee on Homeland Security

The Honorable Ron Johnson
Chairman, U.S. Senate Committee on Homeland Security and Governmental Affairs

The Honorable Gary Peters
Ranking Member, U.S. Senate Committee on Homeland Security and Governmental Affairs

For questions regarding this report, please contact the FEMA Congressional Affairs Division
at 202-646-4500.

Sincerely,

A handwritten signature in black ink, appearing to read "G. Keith Bryant", with a long horizontal stroke extending to the right.

G. Keith Bryant
Administrator
U.S. Fire Administration

Executive Summary

Background

In 1971, our nation lost more than 9,000 civilians and 250 firefighters to fire. Thanks to the nation's fire service organizations, in cooperation with the U.S. Fire Administration (USFA), the United States' fire losses have been reduced significantly. There has been a reduction of more than 60 percent in the fatalities among civilians and firefighters. The USFA recognizes the serious threat fires pose to the nation and is committed to working with its partners to safeguard the U.S. and its citizens.

From its beginning, the USFA focused on supplementing, not duplicating, existing programs of training, technology and research, data collections and analysis, and public education. Over the years, the USFA has adjusted to new developments and challenges facing the fire and emergency services community (e.g. the expanded need for Emergency Medical Services (EMS) and Wildland Urban Interface (WUI) impacts), always with the intention of providing leadership and support to stakeholders in our shared responsibility for public safety. Recognizing the evolving roles and expanding responsibilities of U.S. fire services, the National Fire Incident Reporting System (NFIRS) collects information on the full range of fire department responses. Participation in the NFIRS is voluntary, and more than 24,000 fire departments report to the NFIRS. The NFIRS is an all-hazard database, and firefighters are all-hazard responders. Of approximately 27 million incidents reported to the NFIRS annually, approximately 1.3 million are fires. The largest percentage of incidents reported are related to Emergency Medical Services (EMS). In addition, fire departments respond to an endless variety of calls for assistance, including hazardous material spills, motor vehicle accidents, floods and water rescues, and explosions or bomb disposals. When there is a natural or man-made disaster, firefighters respond.

In fiscal year (FY) 2018, the USFA continued its role in providing national leadership for fire and emergency services stakeholders in mitigation, prevention, preparedness, and response. As an integral part of the U.S. Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA), the USFA embraces a whole community concept for emergency management and recognizes it takes all elements of a community to effectively prepare for, protect against, respond to, recover from, and mitigate all hazards and emergencies.

The U.S. Fire Administration Strategic Plan

The USFA developed a five-year Strategic Plan for FY 2014 to 2018¹, providing strategic and operational direction. The effectiveness of U.S. fire and emergency services relies on the USFA's efforts to lead on issues important to the nation. The USFA partners with fire and emergency services' organizations and stakeholders at the State, Local, Tribal and Territorial level to achieve the desired outcomes outlined in the strategic plan. The following performance goals provide the foundation for the USFA's strategic planning and desired future for a fire-safe country:

¹ Available at http://www.usfa.fema.gov/downloads/pdf/publications/strategic_plan_2014-2018.pdf.

- Reduce fire and life-safety risk through prevention, preparedness, and mitigation.
- Promote response, local planning, and preparedness for all hazards.
- Enhance fire and emergency services' capabilities for response to and recovery from all hazards.
- Advance the professional development of fire-service personnel and others engaged in fire prevention and control activities.
- Establish and sustain the USFA as a dynamic organization.

The USFA supports the above goals in partnership with the fire and emergency services' community, strives for continuous improvements, and seeks positive results in our programs and initiatives. The USFA measures its performance through long-term evaluation of its courses which includes feedback from supervisors who report that NFA's training improved their subordinate's job performance. In FY 2018, USFA's performance was 90.9 percent which exceeds the 5-year target rate of 87 percent. In addition, USFA performance is measured by the data analysis conducted on the loss of life per million people due to fire in the U.S. The 5-year target goal is to reduce the per capita loss of life to fewer than 10.7 fatalities per million population. In FY 2018, USFA met this measure with an annual rate of 10.4 fire related civilian fatalities per million population. This metric was used in the strategic planning to identify opportunities for enhancements in the USFA's training, public education and fire prevention programs designed to address the nation's fire problem. This collaborative process will continue yielding benefits to the nation.

Current State of Fire Problems

Analysis of various fire trends during the past decades reveals remarkable progress in many aspects of the fire-related threats in the U.S. However, there remain several areas where additional efforts can reduce fire-related impacts.

For example, while structural fire-loss in absolute and per capita terms has declined significantly (by nearly half since the late 1970s), per-fire performance continues to be a concern. Despite significant progress in detection and prevention, fires requiring fire department response continue to yield similar or higher rates of civilian casualties than a decade ago. As indicated by collected data, fires in wildland urban interface (WUI) locations continue to be a problem. According to the U.S. Forest Service, "Over the past two decades, fires have increased in severity, intensity, and cost as fire seasons have lasted more than 70 days longer, drought and increased temperatures contribute to dangerous conditions, and as more people have moved into fire-prone areas."²

Homes built in or near WUI areas are increasing life and property risks as well as firefighting costs. During the past few years, WUI fires have destroyed entire communities; commercial, industrial and residential structures; and essential critical infrastructure in California, Colorado, Idaho, Montana, Oregon, Utah, Washington, and other states and tribal lands that experience an expanding WUI risk. This trend could be mitigated by state, local, tribal, and territorial jurisdictions adopting the most current model building codes and requiring homeowner management of the immediate, physical environment and surrounding vegetation. These

² http://www.fs.fed.us/sites/default/files/legacy_files/media/types/testimony/Oct-8-Testimony-HAgC-Fire-Forest-Management.pdf.

practices are known as Firewise mitigation concepts. Furthermore, the trend could be mitigated by advocating for public policy that clearly communicates the inherent risk of building in WUI areas, and the public cost of financing emergency response and fire suppression.

Residential fires remain the cause of approximately 80 percent of fire deaths each year. While this number of residential fire deaths has reduced substantially since the creation of the USFA in 1974, the majority of these losses stem from the lack of the oldest and most reliable defensive technology: automatic fire sprinklers. Automatic fire sprinklers are commonplace in businesses and institutions, but have not reached widespread use in all residential occupancies.

Adoption of the most current model codes by local jurisdictions would lead to expanded use and more lives saved. Recent legislation granting tax relief for commercial business sprinkler installation will hopefully increase use of this technology. Section 179 of P.L. 115-97 (Tax Reform Legislation) allows small businesses to fully deduct up to \$1 million for fire protection upgrades or expenses such as the retrofit of automatic sprinklers. The provision applies only to commercial structures and cannot be used for retrofitting sprinklers into residential structures. While it may help prevent another large fatality commercial fire such as the Feb. 20, 2003 The Station Nightclub Fire, (Rhode Island) , it does not address the residential fire problem where some 80 percent of fire deaths occur.

To further reduce the threat of fire in the U.S., the USFA is committed to continuing its efforts working with federal, state, local, tribal and territorial partners, as well as nongovernmental stakeholders, in collecting and analyzing data, administering National Fire Programs, and operating the National Fire Academy.



Table of Contents

Message from the U.S. Fire Administrator.....	2
Executive Summary	5
Table of Contents	8
I. Legislative Requirement	9
II. Background	10
III. The National Fire Problem (15 U.S.C. § 2215(a)).....	11
IV. Summary of Initiatives/Activities (15 U.S.C. § 2215).....	14
Section 4.1 — Research and Technology (15 U.S.C. § 2215(b)).....	14
Section 4.2 — The National Fire Academy (15 U.S.C § 2215(c)).....	17
Section 4.3 — Activities to Assist the Nation’s Fire Services (15 U.S.C. § 2215(d))	26
Section 4.4 — Public Education (15 U.S.C. § 2215(e))	30
Section 4.5 — Fire Safety Effectiveness Statements (15 U.S.C. § 2215(f))	36
Section 4.6 — Outstanding Problems (15 U.S.C. § 2215(g)).....	37
Section 4.7 — Recommendations for Additional Legislation (15 U.S.C. § 2215(h)).....	38
Section 4.8 — Suggested Improvements to Fire Prevention and Building Codes (15 U.S.C. § 2215(i))	39
V. Acronyms	40

I. Legislative Requirement

This document responds to the reporting requirements set forth in the *Federal Fire Prevention and Control Act of 1974* (Public Law No. 93-498), codified at 15 U.S.C. § 2215, which states:

The Director shall report to the Congress and the President not later than ninety calendar days following the year ending September 30, 1980 and similarly each year thereafter on all activities relating to fire prevention and control and all measures taken to implement and carry out this chapter during the preceding calendar year. Such report shall include, but need not be limited to:

- (a) a thorough appraisal, including statistical analysis, estimates, and long-term projections of the human and economic losses due to fire;
- (b) a survey and summary, in such detail as is deemed advisable, of the research and technology program undertaken or sponsored pursuant to this chapter;
- (c) a summary of the activities of the [National Fire] Academy for the preceding 12 months, including, but not limited to—
 - (1) an explanation of the curriculum of study;
 - (2) a description of the standards of admission and performance;
 - (3) the criteria for the awarding of degrees and certificates; and
 - (4) a statistical compilation of the number of students attending the Academy and receiving degrees or certificates;
- (d) a summary of the activities undertaken to assist the Nation's fire services;
- (e) a summary of the public education programs undertaken;
- (f) an analysis of the extent of participation in preparing and submitting Fire Safety Effectiveness Statements;
- (g) a summary of outstanding problems confronting the administration of this chapter, in order of priority;
- (h) such recommendations for additional legislation as are deemed necessary or appropriate; and
- (i) a summary of reviews, evaluations, and suggested improvements in state and local fire prevention and building codes, fire services, and any relevant federal or private codes, regulations, and fire services.

II. Background

On May 4, 1973, the National Commission on Fire Prevention and Control issued a report, “America Burning,” that focused attention on the nation’s fire problem and the needs of the fire services and allied professions. Much of the subsequent fire-prevention and response-enabling legislation was developed to address issues raised in “America Burning.” Consequently, to help decrease tragic losses and to promote professional development of the fire and emergency response community, Congress passed the *Federal Fire Prevention and Control Act of 1974* (Public Law No. 93-498), which, among other things, established the United States Fire Administration (USFA).

Section 5 of the United States Fire Administration, AFG, and SAFER Program Reauthorization Act of 2017, Pub. L. 115–98 provides that the Federal Emergency Management Agency (FEMA) Administrator “may develop and make widely available an electronic, online training course for members of the fire and emergency response community on matters relating to the administration of grants.” Section 6 of that Act further provides that the FEMA Administrator “shall develop and implement a grant monitoring and oversight framework to mitigate and minimize risks of fraud, waste, abuse, and mismanagement relating to such grants programs” under sections 33 and 34 of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2229 and 2229a).” Both provisions require the FEMA Administrator to undertake the two provisions by acting through the USFA Administrator. USFA will provide the subject matter expertise and necessary assistance for the FEMA Administrator’s successful fulfillment of the two provisions.

Under authorities of the FEMA Administrator, the USFA operates in support of 2014-2018 FEMA strategic goals by: including all-hazard community risk reduction in National Fire Academy (NFA) curriculum; staffing select positions in the National Response Coordination Center; serving the Emergency Services Sector through the operation of the Emergency Management and Response Information Sharing and Analysis Center; advocating “whole community” in all programs; and actively participating in Joint Counterterrorism Assessment Team events at the National Counterterrorism Center to ensure fire-service representation and collaboration with law enforcement.

III. The National Fire Problem (15 U.S.C. § 2215(a))

During the past four decades, the USFA has contributed to remarkable progress in reducing the adverse effects of fire on the U.S. Most notably, civilian fire-related fatalities and total fires are less than half of what they were in the late 1970s.³ Through partnerships with state, local, tribal, and territorial government, and private organizations, children up to 4 years of age are no longer a statistically high-risk group.

Despite this progress in the reduction of fires in the U.S., there is still a need to continue the work of lessening the fire problem. Although there is an overall reduction in the number of fires and casualties in absolute number, the U.S. still has similar rates of civilian casualties per reported fire. Certain demographic groups remain at high risk, potentially driven by socioeconomic and physical conditions. For example, as the population of older adults (age 65 and older) increases, their risk of fire death increases.⁴

This section provides a statistical portrait of the fire problem in the U.S., meeting the legislative requirement to provide a thorough appraisal, including statistical analysis and estimates of the human and economic losses due to fire. The primary sources of data are the National Fire Incident Reporting System (NFIRS), a voluntary system that has had tremendous success shown by more than 24,000 fire departments who participate in submitting data, and the National Fire Protection Association's (NFPA's) Annual Survey of Fire Department Experience. The report lags behind the data collection date due to the challenges of receiving timely input from states, tribes, and territories. Data are collected on a calendar year (CY) basis, and they must be released by the states and tribes prior to analysis. Therefore, some of the data elements collected in the NFIRS are not yet available for 2018, which explains why the most current statistical information contained in this report represents CY 2017. Some comparisons are made from 1977, which is the first year the most reliable data was available. The NFIRS individual state profiles for fire loss are available at <https://www.usfa.fema.gov/data/statistics/states/>.

The following are summaries of the nation's fire problem:⁴

Total fires: The estimate for total fires during 2017 is 1,319,500 — a 60 percent reduction from the number of fires in 1977 (3,264,000). During the past 10 years (2008 to 2017), the U.S. has averaged 1.3 million fires per year. In 1977, there were 14,820 fires per million population. In 2017, there were 4,051 fires per million population. From 1977 to 2017, there was a 73 percent reduction in the number of fires per million population.

Residential structure fires: The estimate for residential structure fires during 2017 is 379,000 — a 49 percent reduction in residential fires from 1977 (750,000). During the past 10 years (2008 to 2017), the U.S. has averaged 384,300 residential structure fires per year. In 1977, there were 3,405 residential structure fires per million population. In 2017, there were 1,164 residential structure fires per million population. From 1977 to 2017, there was a 66 percent reduction in the number of residential structure fires per million population.

³ Data sources: USFA's National Fire Incident Reporting System (NFIRS); National Fire Protection Association's (NFPA's) annual Fire Experience survey; U.S. Census Bureau; National Interagency Fire Center (NIFC); and various National Fire Data Center staff analyses and reports.

⁴ Sources for statistics gathered in this section were taken from references noted in footnote 3.

Civilian fire fatalities: The estimate for total civilian fire fatalities during 2017 is 3,400 — a 54 percent reduction in fatalities since 1977 (7,395). During the past 10 years (2008 to 2017), the U.S. has averaged 3,190 civilian fire fatalities per year. In 1977, there were 33.6 civilian fire fatalities per million population. In 2017, there were 10.4 civilian fire fatalities per million population. From 1977 to 2017, there was a 69 percent reduction in the number of civilian fire fatalities per million population.

Civilian fire injuries: The estimate for total civilian fire injuries during 2017 is 14,670 — a 53 percent reduction in injuries since 1977 (31,190). During the past 10 years (2008 to 2017), the average was 16,220 civilian fire injuries per year. In 1977, there were 141.6 civilian fire injuries per million population. In 2017, there were 45.0 civilian fire injuries per million population. From 1977 to 2017, there was a 68 percent reduction in the number of civilian fire injuries per million population.

Civilian casualties (fatalities and injuries) per 1,000 fires: The estimate for civilian casualties (fatalities and injuries) per 1,000 fires in 2017 was 13.7, an increase of 16 percent since 1977 (11.8). During the past 10 years (2008 to 2017), the average was 14.5 civilian casualties per 1,000 fires.

Firefighter fatalities: Eighty-seven firefighters died while on duty in 2017 — a 29 percent decrease from 2008 (122). During the past ten years (2008 to 2017), the U.S. has averaged 95 on-duty firefighter deaths per year. Occupational-related cancer deaths continue to be a concern in the fire service.

The USFA released the “Firefighter Fatalities in the United States” study in 2017 detailing on-duty firefighter deaths⁵.

Property damage – dollar loss: The estimate for total dollar loss during 2017 was \$23.0 billion, an increase of 21 percent from 1977 (\$19.0 billion, adjusted to 2017 dollars).⁶ Over the past 10 years (2008 to 2017), the average was \$14.4 billion per year (in 2017 dollars).

Wildland fires: There were 71,499 wildland fires reported during 2017. This resulted in 10,026,086 acres burned – an 82 percent increase from 2016 (5,509,995 acres burned). During the past 10 years (2008 to 2017), the average was 68,993 wildland fires and 6,625,097 acres burned.

Emergency Medical Services: The growth of fire service-based Emergency Medical Services (EMS) has had a significant impact on local fire departments requiring additional resources to address the increased scope of responsibilities. According to the latest data, 64.9 percent of the nation’s fire departments response volume is EMS.⁷

Fire risk to children: With the general population indexed at 1.0, the relative risk for child fire deaths (0 to 4 years of age) in 1983 was 2.0, twice the general population. In 2016, the relative

⁵ https://www.usfa.fema.gov/data/statistics/ff_fatality_reports.html.

⁶ The 2017 estimate of total dollar loss includes the \$10 billion loss in wildland fires in Northern California.

⁷ USFA National Fire Department Registry, as of October 1, 2018.

risk for child fire deaths (0 to 4 years of age) was 0.7. Although the fire death risk for children in this age group has declined, when compared to children in older age groups (i.e., ages 5 to 9 and ages 10 to 14), children ages 4 and under are still at greater risk of dying from fire.⁸

Fire risk to older adults: With the general population indexed at 1.0, the relative risk for adults ages 65 and older who died in fires in 1983 was 2.5. In 2016, that relative risk was also 2.5.⁹

Overall summary: While structural fire loss has significantly declined (by nearly half since the late 1970s), per-fire performance continues to be a concern. Despite progress in detection and prevention, fires requiring fire department response continue to yield similar or higher rates of civilian injuries and deaths to the rates from more than a decade earlier. As indicated by collected data, fires in wildland urban interface (WUI) locations continue to be a problem. According to the U.S. Forest Service, “Over the past two decades, fires have increased in severity, intensity, and cost as fire seasons have lasted more than 70 days longer, drought and increased temperatures contribute to dangerous conditions, and as more people have moved into fire-prone areas.”¹⁰

The USFA serves as a valuable catalyst for great progress in overcoming the fire problem across the nation; however, we recognize the need to increase efforts to further reduce the adverse impacts of fire in the U.S. (e.g., increased fire activity in the WUI). To further reduce the threat of fire in the U.S., the USFA is committed to continuing its efforts in working with federal, state, local, tribal, and territorial partners, as well as nongovernmental stakeholders, in collecting and analyzing incident data, administering National Fire Programs, and operating the NFA.

⁸ 2016 Centers for Disease Control and Prevention/National Center for Health Statistics Mortality data file.

⁹ Ibid.

¹⁰ http://www.fs.fed.us/sites/default/files/legacy_files/media/types/testimony/Oct-8-Testimony-HAgC-Fire-Forest-Management.pdf.

IV. Summary of Initiatives/Activities (15 U.S.C. § 2215)

Section 4.1 — Research and Technology

(15 U.S.C. § 2215(b))

The USFA provides federal fire focus for applied research and technology. Studies and research are accomplished in partnership with a wide range of organizations that share the USFA's mission in reducing the nation's fire loss. The following activities are brief summaries of the USFA's significant initiatives in research and technology for FY 2018. Additional details are available online at <https://www.usfa.fema.gov/>.

Cancer among firefighters: The USFA has continued an interagency partnership with the National Institute for Occupational Safety and Health (NIOSH) to research the relationship between firefighter occupational exposures and cancer. This work allowed for an increase of the scope of the study by including at-risk fire departments and firefighters who were unable to participate in previous phases of the original study due to resource limitations.

Emergency vehicle and roadway safety: The USFA and the U.S. Department of Justice, National Institute of Justice, continue their partnership to study first responder agencies (law enforcement, fire, and EMS at the state, local, tribal, and territorial levels) that have enacted new emergency lighting and conspicuity technology and practices to look at how the changes were enacted, successes, obstacles, and lessons learned. This work continues to be performed in conjunction with the Cumberland Valley Volunteer Firemen's Association (CVVFA) Emergency Responder Safety Institute. It supports the development and dissemination of best practices for law enforcement and the fire service in roadway operations safety, and is documented in the CVVFA Responder Safety website at <http://www.respondersafety.com>.

Study of safety and health of fire and EMS stations: The USFA, in partnership with the International Fire Service Training Association (IFSTA), performed a study to assist in the design of safe, healthy, and functional fire and EMS facilities. The results of this study were provided in the May 2018 report – "Safety and Health Considerations for the Design of Fire and EMS Stations."¹¹ This publication provides recommendations which are specifically directed toward those injury, health, and accident concerns associated with activities that occur at fire and emergency services stations.

Risk management practices in the fire service: USFA and IFSTA formed an initiative to develop approaches for state, local, tribal, and territorial fire and EMS departments to manage organizational, operational, and community risk into the delivery of fire department services. A USFA report was released in January 2018 from this study.¹²

First responder safety tools: The existing alternating current (AC) "Hot Stick" used by first responders cannot detect direct current (DC). The USFA, in partnership with Oak Ridge National Laboratories, developed a DC "Hot Stick" probe prototype that detects DC voltage while

¹¹ https://www.usfa.fema.gov/downloads/pdf/publications/design_of_fire_ems_stations.pdf.

¹² https://www.usfa.fema.gov/downloads/pdf/publications/risk_management_practices.pdf.

ensuring that the probe is properly tapped into the electrical lines. The confirmation of proper contact is essential because dangerous false negative readings may be obtained if a meter is not making proper contact. Exposure to high voltage DC electric current is increasingly common as technologies such as electric vehicles and solar panel arrays, which contain large amounts of DC power, are appearing in greater numbers in every community in the country. The technology developed has been patented, and the patent has been licensed and is being used in a new tool that should be available to first responders in early 2019.

Fire safety in manufactured housing units: The USFA continued to provide expertise and extensive technical support to FEMA Headquarters Logistics staff on the installation of residential fire sprinklers in FEMA Manufactured Housing Units. In FY 2018, all manufactured homes provided to disaster survivors by FEMA were equipped with lifesaving residential sprinkler systems.

National Fire Department Registry: The number of fire departments registered with the USFA’s National Fire Department Registry increased by 44 departments — from 27,214 in FY 2017 to 27,258 in FY 2018. The registered departments represent 92 percent of the NFPA-estimated 29,727 departments in the U.S. in 2015.

Topical reports: The USFA published eight topical reports in FY 2018; “Heating Fires in Residential Buildings (2013-2015),” “Portable Heater Fires in Residential Buildings (2013-2015),” “Vacant Residential Building Fires (2013-2015),” “Fatal Fires in Residential Buildings (2014-2016),” “Highway Vehicle Fires (2014-2016),” “Hotel and Motel Fires (2014-2016),” “Fire Department Overall Run Profile as Reported to the National Fire Incident Reporting System (2016),” and “Nonresidential Building Fires (2014-2016).”¹³ These reports, part of the USFA’s Topical Fire Report Series¹⁴ are designed to explore facets of the U.S. fire problem as depicted through data collected in the USFA’s NFIRS. Each report briefly addresses the nature of the specific fire or fire-related topic, highlights important findings from the data, and may suggest other resources to consider for further information.

In addition to these reports, the USFA also published “Fire in the United States (2006-2015)” 19th edition¹⁵. This report is a statistical overview of the fires in the U.S. with the focus on the latest year in which data was available. This report provides the fire service and others with information that motivates corrective action, sets priorities, targets specific fire programs, serves as a model for state and local analyses of fire data, and provides a baseline for evaluating programs. In “USFA’s Fire Estimate Summary Series (2007-2016),”¹⁶ each summary addresses the size of the specific fire or fire-related issue and highlights important trends in the data. Also published in FY 2018 was a specialty report, “Halloween Fires (2014-2016)”¹⁷ that looks at the impact of the Halloween holiday on the fire service compared to the rest of the year

Fires are not the primary emergency that fire departments respond to. The “Fire Department Overall Run Profile as Reported to the National Fire Incident Reporting System 2016”¹⁸ reports

¹³ https://www.usfa.fema.gov/downloads/pdf/statistics/nonres_bldg_fire_estimates.pdf.

¹⁴ <https://www.usfa.fema.gov/data/statistics/reports/>.

¹⁵ <https://www.usfa.fema.gov/downloads/pdf/publications/fius19th.pdf>.

¹⁶ https://www.usfa.fema.gov/downloads/pdf/statistics/res_bldg_fire_estimates.pdf.

¹⁷ https://www.usfa.fema.gov/downloads/pdf/statistics/snapshot_halloween.pdf.

¹⁸ <https://www.usfa.fema.gov/data/statistics/reports/>.

that, in 2016, fire departments responded to 25,693,300 incident calls that were reported to the NFIRS. Of these calls, almost two-thirds (64 percent) required EMS and rescue services and only 5 percent were fires. The remaining 30 percent included good intent, false alarm, service, hazardous condition (no fire) and other special incident type calls.

Section 4.2 — The National Fire Academy

(15 U.S.C. § 2215(c))

The NFA delivers classes and programs that are not readily available throughout the nation, for reasons of economy, scale, or demand. Students are selected for participation in NFA classes based on their current job responsibilities and the completion of prerequisite training (which varies from course to course). The NFA courses are externally reviewed, validated, and recommended for college credit by the American Council on Education, as the NFA is not a degree granting institution. Certificates of completion are issued to students who meet the requirements of the respective course.

The NFA also provides all 50 state fire-training systems eligibility to receive state fire-training assistance to deliver NFA courses. In FY 2018, forty-seven states participated in the state fire-training assistance grant program. These states received \$20,000 each for a total of \$940,000. The FY 2018 training data by individual states is available at <https://www.usfa.fema.gov/training/nfa/about/profiles>.

In FY 2018, within two of the NFA course delivery methods, the NFA provided 3,499 course offerings, reaching 101,943 students, and providing 209,701 student days of instruction. This was accomplished through the strong and far-reaching delivery system of NFA-sponsored courses held on campus at the National Emergency Training Center (NETC), off-campus courses held at state and local sites, state and local partner-sponsored courses, technology-based (instructor-led and self-study) courses, and higher education courses delivered in cooperation with 105 colleges and universities.

Other course delivery methods providing increased student numbers include technology-based self-study program courses, technology-based mediated-study program courses, technology-based noncredit subscription learning, and NFA-approved state courses. These provided an additional 3,541 course offerings to 157,738 students, resulting in 403,535 student days of instruction. One of the NFA's most popular learning venues, "Coffee Break Bulletin," delivers short, one-topic training messages directly to students through the Listserv technology. The NFA delivered 622,212 noncredit subscription learning opportunities via this initiative.

Included in the NFA overall delivery system are the NFA-approved State Courses. This cooperative effort adds state-developed courses to the NFA curriculum, thereby reducing some development costs. This adds curriculum content that is otherwise unavailable to other state and local training partners. The NFA delivered 603 of these courses to 8,802 students, resulting in 41,505 student days of instruction.

Executive Fire Officer Program: The Executive Fire Officer (EFO) Program is a four-year executive education program for senior fire executives and other mid-level managers. At any given time, there are more than 800 students in one of the four phases of the EFO Program. In FY 2018, the EFO Program had 109 graduates.

The EFO Program is undergoing a program revision, which will be released in FY 2020.

Each year, the NFA holds an EFO Program symposium. This two-day symposium provides cutting-edge topics for fire and emergency services leaders. Over two hundred leaders attended this year's symposium. The NFA recognized Outstanding Research Award recipients who represented each EFO class within the program, and recipients of the EFO Honor Roll for achieving a 4.0 grade point average in each of their applied research papers.

Managing Officer Program: The Managing Officer (MO) Program is a two-year program for first-level or mid-level officers/supervisors. The purpose of the program is to engage emergency service leaders in professional development earlier in their careers and to instill within the student the whole community risk-reduction model. The MO Program currently includes 600 students in their first or second year. To date, 228 students have successfully completed all program requirements and have received their MO certificates.

National Professional Development Symposium: The NFA held the fifth National Professional Development Symposium at the NETC, with a national audience of 116 attendees. The focus of the event was to provide opportunities regarding multigenerational leadership in the digital age. A total of 18 presenters delivered 34 learning opportunities with a different keynote speaker and afternoon panel discussion each day.

College- and University-based course deliveries/Fire and Emergency Services Higher Education: The Fire and Emergency Services Higher Education (FESHE) Program is an acknowledgment that a collegiate emergency services degree program meets the minimum standards of excellence established by FESHE professional development committees and the NFA.

These regionally or nationally accredited colleges and universities deliver a standard curriculum using standard syllabi and course titles, easing credit transfer when students change schools. It is a competency-based curriculum that standardizes what a "fire degree" means to the student and employer. As a result of the FESHE Program, all fire textbook publishers produce texts that comport with the syllabi and curriculum. The standard degree program concentrates on fire engineering, prevention and mitigation, emergency response, fire administration, and EMS management. Currently there are 107 colleges/universities (an increase of two) from 34 states recognized through this program. In FY 2018, the NFA provided 830 course offerings to 5,449 students through FESHE.

Training evaluation: The NFA continually evaluates the outcome of its training using the Kirkpatrick Training Evaluation Model. This model helps the NFA to measure the effectiveness of training in an objective way. Through the NFA evaluation process, three of the four levels are measured (reaction, learning, and behavior) from student and supervisor evaluations. This is a systematic study of resident courses soliciting anonymous feedback from students and their supervisors to determine long-term training effectiveness. During FY 2018, 346 students and 306 supervisors responded. As with responses from previous years, students indicated that they were able to transfer the training and learning skills to their jobs, and supervisors reported improved performance as follows:

Long-term evaluation reporting elements	2017	2018
Students reporting that they were able to apply NFA training at home	96.4%	91.0%
Students reporting that NFA training improved their job performance	96.6%	97.1%
Students reporting that they shared NFA training with their peers	99.0%	97.0%
Students reporting that they conducted formal courses with NFA material	26.6%	24.8%
Students reporting that they established new policies and procedures based on NFA training	69.3%	77.1%
Supervisors reporting improved performance from NFA training	85.5%	90.9%
Supervisors reporting improved departmental performance	88.4%	88.4%
Supervisors who say that they will recommend NFA training to others	95.7%	97.4%
Supervisors reporting that NFA benefits outweigh costs	99.2%	94.7%

Note: Reported data were derived from NFA Long-Term Evaluation forms sent to both students and their supervisors four to six months after the NFA training class ended.

NFA Online: The online training catalog currently includes 42 web-based, self-study courses. This includes 10 WUI courses offered in conjunction with the National Wildland Coordinating Group. In FY 2018, the NFA developed three new self-study courses that are scheduled for delivery next fiscal year.

In FY 2018, the NFA focused resources to continue expansion of its online mediated program, specifically, the conversion of resident courses to an online mediated format. This expansion continues to be a priority of stakeholders and students. Currently there are 10 mediated courses in development.

Also in FY 2018, the NFA continued to explore various options of using online blended learning. Blended courses are those classes where a portion (25 to 70 percent) of the traditional face-to-face instruction or activities are replaced and/or supplemented by web-based, online learning. These activities include participating in group blogs or individual discussion threads, multimedia assignments and/or completing individual activities.

American Council on Education: The FY 2018 annual review included 24 courses. The results indicate all courses will receive college credit recommendations transferrable to local degree programs.

Continuing Education Units: The Continuing Education Units (CEUs) are awarded through the International Association of Continuing Education and Training for all 10-, six-, and two-day on- and off-campus courses, and online courses.

International Code Council: The NFA is an approved Preferred Provider with the International Code Council (ICC). This program recognizes and promotes ICC-approved educational opportunities as they relate to codes, standards, building construction, and other subject-related areas. Six NFA courses have been approved for CEUs through the ICC and are listed in their catalog at <https://ppp.iccsafe.org>.

Significant curriculum enhancements

The NFA will continue to use the recommendations provided by the subject matter experts to provide curriculum that is both current and relevant to today and future needs. These recommendations included establishing career tracks, increasing the offered online and blended delivery training, decreasing the duration of courses that are five or more days long, developing new courses to meet national needs and serve a wider target audience, implementing standardization and consistency across courses and course materials, increasing the use of media and technology, and incorporating more interactivity into the training. The primary outcome of the curriculum review identified four career tracks. The courses within those tracks will provide fire service personnel with a comprehensive and effective community risk reduction training program, thereby continuing to raise the professionalism of the fire service.

The NFA reviewed and updated curricula to address students' needs and emerging issues. Needs assessments were conducted in six curriculum areas in FY 2018. Final reports on the six curriculum areas will be reviewed and recommendations forwarded to the NFA's Curriculum Management Committee for consideration and approval. One contract was awarded in FY 2018 to completely redesign NFA's Fire Investigation curriculum as recommended in the FY 2017 curriculum review.

Emergency Medical Services curriculum: The NFA continued the evaluation and revision of EMS course work to identify and update content that appropriately reflects EMS system management and implementation. Content development and revision includes the medical components of a National Incident Management System (NIMS) guided response to mass casualty incidents such as active shooter/threat events and natural disasters. Revisions to the "Management of Emergency Medical Services" and "Advanced Leadership Issues in Emergency Medical Services" courses, as well as development of the new "Supervising Emergency Medical Services," "Mobile Integrated Healthcare Program Management," and "EMS Hazard and Disaster Planning" courses continued in FY 2018.

Fire and Investigative Sciences curriculum: With an emphasis on the convergence of science, law, and investigative responsibility, courses and instructors ensure learners receive exceptional education and training. Conducted in cooperation with the Bureau of Alcohol, Tobacco, Firearms and Explosives, Underwriters Laboratories, and professional associations, the NFA continues to lead the nation in the delivery of fire investigation, forensic and fire science, arson investigation, interviewing and courtroom testimony education and training. The programs feature extensive student activities, hands-on participation, live burns, scene processing, mock testimony, and an instructor/mentor student interaction that is unparalleled and consistently results in highly positive feedback from the students. In FY 2018, construction was completed on a major refurbishment of the NFA Burn Lab, including a 15 by 36 foot complex burn building which is configurable into multiple occupancies. This addition provides a "whole structure" concept in allowing the investigators to work in multiple rooms. This practical exercise area is used by students in the program and other stakeholders. Our partnership with the DHS Science and Technology Directorate continued and was strengthened in FY 2018, which resulted in combined use of the Burn Lab for cross-directorate training and testing.

Beginning in FY 2018 and continuing into FY 2019, the entire curriculum is under extensive revision. The final result, expected in FY 2020, will be a fire investigation program updated with student activities and content unmatched by any other program in the country.

Fire Prevention — Management curriculum: This curriculum area offers a wide array of courses intended for individuals new to fire prevention and up to the senior fire officers who are enrolled in the second year EFO Program course “Executive Analysis of Community Risk Reduction.” The curriculum addresses how to manage fire-prevention programs for a new fire marshal or those responsible for a program area within a fire-prevention bureau, community risk reduction for mid-management, using public policy to address risk, and developing programs to prevent and intervene in youth fire-setting. These courses are offered on and off campus.

Acting on recommendations from the 2017 comprehensive curriculum review, the NFA launched development of three new courses to supplement the Public Education and Fire Prevention Management curricula. “Introduction to Community Risk Reduction” and “Community Risk Assessment” will be online self-study courses. Both courses will become entry points for the NFA risk reduction program so students enter with a strong baseline knowledge of what constitutes strategic risk-reduction. The third course will be an online mediated offering entitled “Fundamentals of Fire and Life Safety Education.” This course will empower learners with the knowledge, skills, and abilities to deliver programs that facilitate measurable learning outcomes resulting in behavioral change. It will feature a section on how to strengthen partnerships with local schools, so fire and life safety education becomes a key component of an educational institution’s essential core curriculum and is evaluated accordingly.

Fire Prevention — Public Education curriculum: This curriculum area offers courses for a person newly assigned to fire and life safety education and/or community risk reduction, as well as those seeking ways to evaluate their programs. Revisions were made to “Demonstrating Your Fire Prevention Program’s Worth” and the new course materials were delivered in February 2018.

Fire Prevention — Technical curriculum: Revisions/updates were completed for the following courses: “Residential Sprinkler Plans Review,” “Commissioning New Occupancies for Code Officials,” “Fire Inspection Principles I” and “Fire Inspection Principles II.” New courses included a WUI/Planning Series: “Introduction to Adopting WUI Regulations,” “Introduction to WUI Evacuation Planning,” and “Introduction to WUI Land Use Planning.”

Hazardous Materials curriculum: In 2018, the USFA entered into another interagency agreement with the Pipeline and Hazardous Materials Safety Administration of the Department of Transportation. This partnership provides for the continuation and final products development for online hazardous materials awareness and operations courses, and supports the Hazardous Materials Emergency Planning Grant Process. The current agreement provides for a collaboration with the International Association of Fire Chiefs to host the annual Roundtable Meetings. These meetings identify gaps, needs, and emerging issues related to planning, training, and response within the hazardous materials response community.

The USFA and the NFA continue to support and participate in the development of output products, as data becomes available, associated with the DHS Science and Technology Jack Rabbit project. The USFA and NFA continue to evaluate the data from the trials to affect change in planning, response, and training associated with catastrophic bulk carrier releases of compressed liquefied gases in an urban environment. The lessons learned are currently being disseminated nationally and incorporated into training programs across the nation.

In 2018, two courses were revised, and a new course, “Advanced Science for Hazardous Materials Response” was piloted and will be finalized in 2019.

Incident Management curriculum: In FY 2018, the NFA continued to update and enhance the curriculum and simulations to reflect the current best practices as related to complex incidents as well as the current relevant national standards.

Simulations were enhanced to reflect current trends from incidents nationwide. Increased technology use has provided a higher degree of image fidelity and better display. The NFA also introduced a virtual capability that allows us to engage audiences around the nation to discuss some of the nation’s critical yet infrequent incidents. Scenarios were enhanced to account for changes in building construction and learning objectives, which promote a better understanding of fire progression and the impact of student actions.

Courses were updated to reflect the refreshed NIMS doctrine. NIMS applies to all incidents, regardless of cause, size, location or complexity. These concepts and principles are integrated within all of the Incident Management curriculum to include lessons learned from incidents, whole community approaches, and best practices.

The NFA has started deploying resources to major incidents such as the Parkland, Florida, school shooting and the Thomas Fire in Ventura County, California. These activities support our efforts to maintain current and relevant training and education by learning from real-world incidents and the successes, best practices, and issues associated with those events. This program will allow continuous improvement of NFA’s courses and advances the NFA’s ability to enhance the delivery of programs, services, and support in a manner that can measurably improve outcomes for the fire and emergency services community.

The Incident Management area continued to bolster its partnership with DHS Science and Technology with participation in the Enhanced Dynamic Geo-Social Environment, Predictive Modeling, Next Generation First Responder, and the DHS First Responder Group. This partnership allows the USFA/NFA to strengthen their stakeholders’ ability to respond to events in an all hazards environment.

Leadership and Executive Development curriculum: The delivery methodology for 32 courses in the Leadership and Executive Development curriculum are under revision, moving from an instructor-led lecture format to a facilitator-led Socratic method.

In FY 2017, a new series titled “Leadership in Supervision” was released, replacing the Leadership I, II, and III courses. In FY 2018, 2,960 students attended one or more of the new two-day courses and 350 students have completed the six-day version of the series. This curriculum is in direct support of the MO Program.

A new online course, “Introduction to Fire & EMS Supervision and Management,” was released in July 2018. To date, 1,555 students have already registered for this course and 580 have successfully completed the instruction.

In FY 2018 a curriculum development project, “Effective Communications for Fire and EMS Success” was started. This is the first truly blended course development whereby students will participate in both on-line (mediated) and in-classroom environments. An additional development process was launched to combine three self-study research design courses into a single comprehensive research methodology course that directly supports the EFO Program.

Planning and Information Management curriculum: The “Financial Management and Decision Making” and “Emerging Uses for Geographical Information Systems” courses were revised, renamed, and piloted as mediated, online deliveries. The “Decision-Making and Financial Management for Fire and EMS Organizations” course is critical in providing the skills and abilities needed to develop and manage financial resources — especially for small and volunteer fire departments where there is rarely a single individual dedicated to financial management and planning. The “Introduction to Geographic Intelligence for Fire and Emergency Services Leaders” course is designed to provide basic skills related to the use and application of Geographic Information Systems (GIS) for emergency services planning and response using technology to identify and describe community weaknesses and model improvements as part of the all-hazards planning process. These courses conclude with final projects. These projects are based on local needs and are intended to be implemented to enhance the ability of local communities to address their fire and EMS needs.

The “Introduction to NFIRS 5.0” course was reintroduced to the states to help communities properly describe their community fire problem and provide information to drive data-based decision-making at the state, local, tribal, and territorial levels. The accurate collection of NFIRS data is critical to understanding the nation’s fire problem. The self-study course replacement for “Introduction to NFIRS 5.0” is being developed in house and is projected to be delivered to the field by the summer of 2019.

A self-directed, on-line course, “Management Tools for Fire and Emergency Services Leaders,” was developed and piloted during the year. This course provides instruction on the application of common software and its use in managing fire and EMS programs. The course provides attendees with the knowledge and skills to analyze data, manage projects and graphically demonstrate fire and EMS issues, leading to improved planning and response.

Responder Health and Safety curriculum: The NFA continues to incorporate lessons learned and current emerging information into existing courses through the revision process to ensure the safety and effectiveness of first responders. This year a thorough curriculum review team comprised of fire officers and clinical psychiatrists as subject matter experts from throughout the country were charged with creating a short- and long-term action plan to ensure the Emergency Responder Safety, Health, and Wellness curriculum is current and relevant.

The team identified the emerging trends in emergency responder health and safety that deserve attention and focus in this curriculum area. This included technology, leadership, health and wellness, and risk management. In addition to identifying emerging trends, a high-level gap

analysis on the entire curriculum was conducted, determining a significant need for a course to address critical thinking skills and human performance, based on the five causal factors of firefighter deaths from NIOSH.

Additional recommendations included several new courses, ranging in topics from human performance to occupational exposures on the fire ground, and behavioral health emergencies in the workplace and on the scene. The Emergency Responder Safety, Health, and Wellness curriculum at the NFA is uniquely positioned to provide students with the knowledge and skills necessary to positively impact the culture of safety in the fire service and EMS.

Training Program curriculum: The “Contemporary Training Concepts for Fire and EMS” course was replaced with “Training and Professional Development Challenges for Fire and Emergency Services Leaders.” This six-day course is a survey course in fire service professional development. It moves participants from the role of instructor and company officer to the managing and administrative officer, as it relates to the training function of an organization. The program reviews the Analysis, Design, Develop, Implement, and Evaluate model of instructional system design; introduces research-based techniques to improve training and learning retention; examines how community expectations, community finances, and politics influence training, ethics, and legal requirements; and provides partnering to enhance the training.

The “21st Century Training Concepts for Fire and EMS” course was revised from a six-day, on-campus course to a six-week, online mediated course. The revised course shifts its focus from specific programs to concepts related to web 1.0 through 5.0 and shows how technology can enhance learning transfer. The course was piloted with great success.

Facilities and support

The NETC Management, Operations, and Support Services (MOSS) Division is responsible for managing, operating, and providing administrative and emergency support services for all USFA activities (which includes the National Fire Academy (NFA) and National Fire Programs (NFP)) and the Emergency Management Institute (EMI) located on the 107-acre campus in Emmitsburg, Maryland.

In FY 2018, MOSS provided numerous facilities and support services for 200 federal employees, 200 federal contractors, and approximately 400 students each week from across the nation. Operations and support consisted of, but were not limited to, the following: facility operations and maintenance; renovation and improvements; food services; security; information technology; and student admissions, housing and transportation for NFA, EMI, and FEMA students. On campus in FY 2018 13,571 students completed resident training.

Numerous specific construction/renovation projects were completed, such as: the NETC Historic Storage Barn roof replacement which included the installation of solar panels (solar panels power all of Building I and some other campus buildings; cost savings of approximately \$25K a year; with future cost savings being greater in out-years); 100 percent completion of the energy-efficient lighting upgrades in Buildings A, C, G, R, J, O, and I; and completion of the renovation of six rest-rooms in Building J.

Campus personnel participated in the development of a “NETC Installation Master Plan”; this plan was published in August, 2018. In addition, in conjunction with FEMA Headquarters, the campus participated in a “complete” condition assessment of all buildings; both the installation master plan and assessment efforts will assist us in future planning and budgetary efforts.

In FY 2018, NETC MOSS personnel coordinated FEMA’s Just-in-Time Training for Public Assistance cadres for hurricanes Harvey, Irma, and Maria. Our primary responsibilities included the distribution of equipment to employees, admissions, housing, transportation, feeding, and facility support. A total of 1,871 students were trained on campus and then deployed to the field to assist state, local, tribal, and territorial governments.

Section 4.3 — Activities to Assist the Nation’s Fire Services

(15 U.S.C. § 2215(d))

The USFA provided support and assistance to the nation’s fire services operations and response through the following activities in FY 2018.

National Fire Academy Board of Visitors: The NFA Board of Visitors (BOV) plays an important role in supporting the academic stature of the NFA. The BOV is charged with the annual review of the NFA programs, and it also provides advice and recommendations to the USFA.

In FY 2018, the NFA BOV:

- Provided oversight and approval of the finalization of the EFO Program sub-committee reports for Admissions, Evaluation and Outcomes, Design and Delivery, and Curriculum
- Inspected the NFA physical facility which included the review of the NETC campus upgrades and audits of various NFA resident course deliveries.
- Maintained sub-committees and conducted activities addressing the NFIRS, the NFA’s Professional Development Initiative, and the EFO Program.
- Conducted two meetings which were efficiently supported by the use of online conferencing technology and one in-person meeting at the NETC.
- Developed their annual report.

The culmination of the year’s activities included numerous recommendations for the enhancement of the NFA’s educational program including expanded outreach efforts and the need for increased diversity, upgrades and expansion of the NETC physical facility, and support for budgetary increases.

Federal Fire Working Group: The Federal Fire Working Group (FFWG) provides an opportunity for federal agencies to share and discuss one another’s programs, research, and additional resources in an effort to promote coordination and collaboration among federal partners. It is the only interagency group within the Federal Government with a focus only on fire and life safety. The FFWG was established in 2001. The USFA is required to provide federal agency coordination and information exchange activities under Sections 8(e), 12, and 21(e) of Public Law 93-498, October 29, 1974, the Federal Fire Prevention and Control Act. The FFWG provides the forum for USFA to lead that coordination.

Federal Interagency Committee on Emergency Medical Services: The USFA is a statutory member of the Federal Interagency Committee on Emergency Medical Services (FICEMS), established by Congress in 2005 through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), to ensure coordination among federal agencies supporting local, regional, state, tribal, and territorial EMS and 911 systems. The FICEMS was also created to improve the delivery of EMS throughout the nation.

Wildland and wildland urban interface coordination: The USFA collaborated with the NFPA and various FEMA components to promote the Wildfire Community Preparedness Day. This year marked the fifth anniversary for this activity. According to NFPA, the purpose of the event is to improve a community's ability to withstand and recover from a wildfire, which may also improve the safety of firefighters. Almost 10 million Twitter followers were touched through various social media outreach efforts.

The USFA provides full-time staffing at the National Interagency Fire Center (NIFC) in Boise, Idaho, which enhances interagency functions and technical assistance programs that are critical to wildland firefighting operations. Working directly with the NIFC Office of Predictive Services, interagency partners, and Geographical Area Coordination Centers, the USFA provides technical support on numerous wildland firefighting resource management programs.

Additionally, the USFA has served as the Interagency Coordinator to interface various FEMA national and regional programs with existing programs from the interagency representation at NIFC. Serving as host, the USFA has supported various mitigation, planning, logistics, and grant meetings through the year. The USFA also hosted the annual National Wildfire Coordinating Group Executive Board meeting for the interagency group.

The USFA maintained membership with the following interagency groups: Wildland Fire Leadership Council (the U.S. Fire Administrator is a principal member), National Wildfire Coordinating Group, National Multiagency Coordination Group, Fire Management Board, WUI Mitigation Committee, Fire-Adapted Communities Coalition, Fire Executive Council and Federal Fire Policy Council. Through these groups, the USFA represented the state, local, tribal, and territorial structural fire and emergency services, and encouraged collaboration on how the federal land management agencies and departments manage existing resources, research, technical development, training, qualifications, and mobilizations.

The USFA is currently engaged with the DHS Science & Technology Directorate assessing what technology exists or needs developed to aid in the reduction of loss of life from WUI fires. This was a direct task from the FEMA Administrator following the catastrophic wildland fire in Santa Rosa, California in 2017.

Volunteer firefighter recruitment and retention: In 2018, the USFA hosted a meeting of subject matter experts representing the various national-level fire service organizations and associations representing local-level governmental agencies to provide guidance and input in support of updating the 2007 USFA report, "Retention and Recruitment for the Volunteer Emergency Services: Challenges and Solutions."

National preparedness and exercise: The USFA supports the FEMA National Integration Center projects in the development, review and adjudication of the NIMS National Qualification System, NIMS Refresh and Resource Typing projects. Also, technical assistance was provided to the FEMA National Training and Exercise program in the roles of trusted agent, planner, evaluator, and player in FEMA — Federal Partner exercises, which included National Level Exercise 2018 and Eagle Horizon, as well as National Response Coordination Center (NRCC) Exercises. The USFA participated and contributed to the FEMA Training and Exercise Planning Workshop for the purpose of determining strategy and structure for establishing plans, conduct, and evaluation of FEMA exercises for the next three years.

Federal operations and National Response Framework: During disaster activations, the USFA deployed staff in the various leadership roles of the FEMA NRCC, which included Geospatial Information Specialist, Emergency Services Group Supervisor, Resources and Capability Branch Director, Resource Support Section Deputy Chief, and Resource Support Section Chief. As part of the federal response to the Carolinas during hurricane Florence and to Florida during hurricane Michael, the USFA deployed representatives to provide structural firefighting technical assistance to support the development of a fire department capabilities analysis of the response. The USFA advocated a concept for sustaining fire and emergency services operational capabilities that can be incorporated into national response catastrophic planning through Emergency Support Function #4-Firefighting. As a member of the FEMA Emergency Support Function Leadership Group, the USFA contributed guidance and direction for the National Safety and Security Lifelines and Senior Leadership Brief distributed through FEMA.

Type 3 All-Hazards Incident Management Teams: During 2018, the USFA provided technical development materials for 53 “All-Hazards Incident Management Team” (AHIMT) course deliveries that trained 1,248 students for the nation’s emergency services. Currently, the USFA has 72 AHIMT points of contact throughout the country that represent state, local, tribal, or territorial incident management teams that establish a robust national capability for emergency services. For professional development and sustainment of established teams, the USFA coordinates with NIFC to provide mentoring or coaching opportunities for AHIMT team members that are position-specific and team-oriented.

Critical Infrastructure Protection: The USFA’s Critical Infrastructure Protection (CIP) Program promotes information sharing and threat analysis with Emergency Services sector departments and agencies nationwide. The USFA manages the Emergency Management and Response-Information Sharing and Analysis Center (EMR-ISAC), which is a national clearinghouse for CIP and emergent threat information specifically targeted to the nation’s emergency services sector personnel. The EMR-ISAC publishes a weekly InfoGram that addresses current issues impacting first responder operations, planning, health, and safety concerns and the challenges of responding during incidents of civil unrest and active shooter situations. In FY 2018, distribution of the weekly InfoGram increased 9 percent to more than 95,000 emergency services-sector personnel nationwide.

Also, through a USFA-managed community of interest for the Emergency Services on the Homeland Security Information Network, more than 26,000 vetted emergency service leaders are provided with current situation reports, emerging threat information, public health and safety bulletins, current cyber, and terrorism threats and other critical “For Official Use Only” information. The USFA also hosts monthly webinars to exchange information on developing trends with fire service personnel that function as analysts within the national fusion center network.

National outreach: The USFA continues to refine the Daily National Operations Briefing that provides an operational snapshot of significant information, emerging issues, all-hazard incidents, special security events, and hazardous weather. Additional information is available to

first responders and emergency managers with hyperlinks that are implanted in the document, which allow subscribers to view details and to check for updates. The briefing is distributed to more than 14,500 subscribers.

Geospatial technology and situational awareness: The USFA used GIS for fire and emergency services situational awareness. In collaboration with other FEMA components, enhancement of geospatial databases and map products supported decision making of forecasted impact zones and affected areas. The USFA used GIS to conduct spatial analysis of program delivery and preparedness in WUI training. Using geospatial approaches identifies gaps and informs future community outreach and training programs.

Section 4.4 — Public Education

(15 U.S.C. § 2215(e))

In FY 2018, the USFA led or participated in the following activities to deliver public education materials and messages that were easily understood by the general public and specific at-risk groups, while emphasizing the whole community concept modeled by the Fire is Everyone's Fight™ initiative. Additional information is available at <https://www.usfa.fema.gov/prevention/outreach>.

Arson Awareness Week: The 2018 theme for Arson Awareness Week was “Reducing Arson in Vacant and Abandoned Buildings.” It focused on the importance of a cooperative effort with fire and emergency service departments, law enforcement, and public works to help prevent the horrendous crime of arson at vacant and abandoned buildings. The USFA partnered for the first time with the U.S. Department of Housing and Urban Development. “Unsecured vacant or abandoned structures create an inherent risk to the courageous firefighters that respond to these fires,” said USFA Administrator Keith Bryant. Outreach information included a webinar and an increased presence on social media using the hashtag #arsonawareness. The USFA 2018 Arson Awareness Week webpage had 3,082 visits.

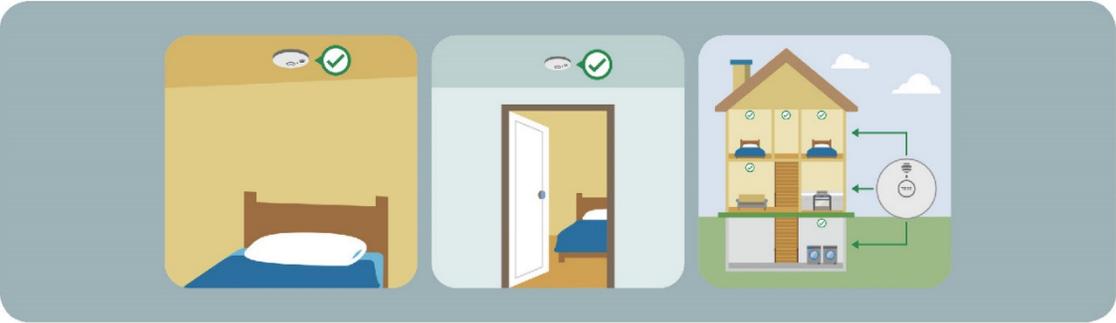
Fire and Life Safety Professional Development: The USFA held three educational webinars that reached partners and constituents across the nation. They are posted on the USFA website, so we expect additional individuals to view the webinars. The following topics were presented by subject matter experts selected from across the country: “Combatting Human Trafficking: The Role of Fire Service and EMS,” “Safety Stand Down: Annual Firefighter Medicals & Physicals. Be Aware. Get Checked,” and “Smart Smoke Alarms and New UL Testing Standards.”

Staff worked with fire and life safety partners to identify community risk reduction and other fire and life safety subject matter experts for the USFA's National Professional Development Summit. Strong outreach efforts were made to reach this audience with messages to attend the summit.

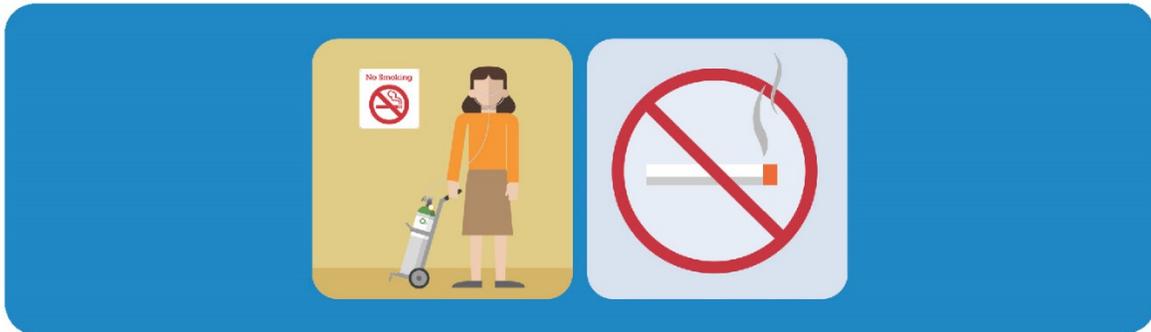
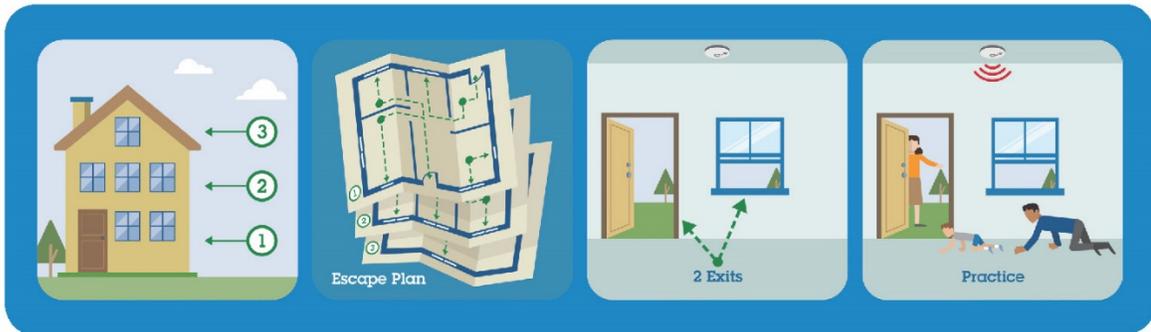
Fire and Life Safety Messages: The USFA is involved with a wide variety of outreach efforts in partnership with fire and life safety organizations and agencies. One unique initiative for this report is fire and life safety pictographs. These specially designed tools address the ever-increasing need from our constituents for messages for their at-risk public. Pictographs may very well be the next fire and life safety success story, much like smoke alarms and sprinklers.

This year, the USFA released 51 pictographs to assist fire departments and key fire and life safety stakeholders in teaching fire safety to people with low literacy and for those with limited English proficiency. Pictographs can help overcome literacy barriers by communicating messages with pictures. These pictographs help to communicate fire safety messages to high-risk populations. Each was tested nationally with people who have low literacy, as well as those who speak Chinese, Hindi, and Spanish — the nation's largest immigrant groups. The pictographs can be used in educational outreach materials such as flyers, posters, and banners. The USFA created templates to assist departments in creating these outreach materials. They are available on the USFA website and have been extremely well-received.

The U.S. Fire Administration has developed a collection of fire prevention and safety pictographs used to effectively deliver fire safety messages to people with low literacy and those whose first language is not English.



To find our entire catalog of pictographs, please visit: www.usfa.fema.gov/prevention/outreach/media/pictographs/index.html.



National Emergency Training Center library: The NETC library continued work on a research-to-practice effort that involved writing brief summaries, and capturing key actionable takeaways from recent research articles. The target audience for the research summaries was working fire and EMS personnel. The topics included mobile integrated health, shared wildfire risk mitigation, educating firefighters on sleep health, after action reports, risk management, geo-mapping fires, post-traumatic stress disorder, and personal protective equipment use. The content is posted at: https://www.usfa.fema.gov/current_events.

The library emphasizes short training sessions that help students further hone their ability to find, evaluate, effectively use, and cite needed information. Topics include an introduction to the research process — how to cite a reference in accordance with the *Publication Manual of the American Psychological Association*, sixth edition, accessing full-text scholarly articles and e-books via the library’s online database, creating an online search strategy, establishing a research topic, and more.

For students in the “Executive Development” course, the library staff delivered classes on defining scholarly articles, where to find articles in print and online, and how to evaluate and correctly cite research papers. To improve student research paper outcomes and encourage better use of the library’s collections, a wide array of guides on information and research topics were made available. Topics include the types of survey instruments used in research, brainstorming research ideas, how to take research notes, getting started on the research process, scholarly versus trade journals, and American Psychological Association citation style resources. One-on-one consultation with a NETC librarian for personal assistance on research-related topics is now available to EFO Program students.

Hotel-Motel National Master List: The Hotel–Motel National Master List, published on the USFA website, is one of the fire and life safety assets created as a result of the “Hotel and Motel Fire Safety Act of 1990.” Only properties that provide lodging to the public and meet the list’s requirements are approved for official travel by U.S. federal government employees. A property can apply to be on the list if it has at least one single-station, hard-wired smoke alarm in each guest room. If the building is four or more stories tall, fire sprinklers must be in each guest room. The property receives a FEMA ID that can also be used for the Emergency Lodging Assistance Program funded by FEMA.

In early FY 2018, the USFA provided information to evacuees seeking lodging assistance and to lodging property owners registering their property for disaster housing during hurricanes Harvey, Irma, and Maria.

This year, the USFA added 1,814 new lodging properties to the list, bringing the number of properties to 49,775. The USFA partners with the General Services Administration to assist in maintaining accurate property information.

Digital communications and social media: Our followers on the USFA’s Twitter account (@usfire) totaled 47,400 people. This year we posted over 600 tweets. Our likes on the USFA Facebook page are over 16,500, and we had 174 posts. In addition to supporting FEMA digital platforms by sharing/retweeting posts, we participated in several major campaigns on our platforms, such as PrepareAthon, National Preparedness Month, and Fire Prevention Week. New to our social media outreach this year was the addition of Facebook Live video. We posted

several successful live videos, but our most popular was of the NFA's Fire Science Burn Complex which reached over 20,000 Facebook viewers. In 2018, the USFA added a LinkedIn page to enhance our social media platform.

USFA staff sent approximately 800 bulletins to GovDelivery subscribers on community risk reduction, fire prevention and life safety, and available USFA resources, including NFA training. The number of subscribers to one or more USFA email lists is 391,000.

US. Fire Administration's website: The USFA's website received 3.6 million visits from 2.3 million unique visitors during the reporting period. The USFA upgraded the backup system to maintain a reliable backup and recovery capability for the 11 applications residing on the site.

A variety of fire prevention outreach materials were added to the USFA's website: animated social media cards in both English and Spanish, customizable home fire-safety handouts for local fire prevention campaigns, resources for Arson Awareness Week/Fire Prevention Week/EMS Week/National Preparedness Month, and previously recorded webinars. Also added to the site were 10 social media toolkits and 51 pictographs: illustrations and animations to help overcome literacy barriers by communicating fire-safety messages with pictures.

The USFA continued to publish a series of articles on current events and emergent issues relevant to the fire service to increase national awareness about them. Over 700 content assets on USFA's website were audited for accuracy, currency, and relevancy.

Fire is Everyone's Fight®: The USFA's initiative has 2,598 fire department and organization supporters, including all 50 state fire marshal offices. The initiative also partners with Australia, Canada, Denmark, Egypt, England, Guam, Mexico, New Zealand, and South Africa. In 2018, the USFA presented two Fire is Everyone's Fight® webinars: "Visual Language: Overcoming Literacy Barriers in Communication," and "Fire Safety Pictographs: Images that Teach in Any Language." These webinars had over 700 attendees, combined with several hundred accessing the recordings available online.

Outreach to fire service, stakeholders, and constituents: The USFA participated as an exhibitor in 10 national fire service and partner meetings. This provided the USFA with opportunities to interact one-on-one with an estimated 70,000 fire service personnel, stakeholders, and public constituents.

Publications Center: The center processed nearly 6,000 publication orders, accounting for the distribution of more than 1.2 million fire prevention and life safety items. The outreach products include booklets, manuals, technical reports, handouts, CDs, and DVDs — many provided in both English and Spanish. In addition to providing hard copy publications upon request, most of the USFA publications are searchable and available for electronic download through the USFA's website as 508-compliant PDF files. Many of the electronic fire prevention and public education outreach publications can be customized by fire/EMS departments and community organizations for use within their local communities.

The Publications Center saw an increase in on-campus visits and tours from NFA classes. The Publications Center's presentation provides students with a greater understanding as they navigate the USFA's vast online catalog of fire prevention and safety-related materials. Visiting students are also provided an online tour of the USFA website's wealth of assets.

Publications Center staff set up and staffed a USFA publications display during six of the NFA State Weekends. Staff greeted participants as they checked in for the weekend and provided an assortment of USFA publications, took publication orders, and shared information about the downloadable resources on the USFA website.

The Media Production Center: The center creates a wide variety of communication graphics including 3D animations, posters, displays, animated social media messages, presentations, publications, etc., for display on the USFA's website; in NFA courses, classrooms and on-campus locations; and at conferences, meetings, and course locations across the country. The Media Production Center also supports EMI with communication graphics, posters, displays, and online electronic assets.

U.S. Department of Homeland Security *Blue Campaign* on human trafficking: The USFA supported the *Blue Campaign* by providing a suite of materials to enhance first-responder awareness of human trafficking. These materials are disseminated at the NETC campus and across the U.S. at various meetings where the USFA exhibits for first responders and the general public. USFA staff members also worked with DHS and the International Association of Fire Chiefs' staff to present the webinar "Human Trafficking: How the Fire Service Can Help." This webinar resulted in USFA staff members being contacted by private organizations to begin collaboration efforts.

Section 4.5 — Fire Safety Effectiveness Statements

(15 U.S.C. § 2215(f))

Although initially a reporting requirement for the USFA, the authority for code enforcement remains at the state local, tribal, and territorial levels and is outside the federal purview. The code development and compliance process has evolved since the 1970s and essentially meets the need to provide fire safety standards to which buildings should comply. The USFA continues to support the promotion of codes and compliance through training at the NFA and through staff involvement in the consensus standards process.

Section 4.6 — Outstanding Problems

(15 U.S.C. § 2215(g))

National Fire Incident Reporting System: Today, there is an increased demand for data/evidence-based decisions and solutions to complex problems; the fire problem in the U.S. is one such problem. Accurate, comprehensive, and current data is essential for pinpointing issues, forecasting trends, setting goals, and identifying actions and areas of focus.

The NFIRS is the largest incident-based system in the nation. The NFIRS is an invaluable resource to state, local, tribal, and territorial fire agencies, and serves as a leading platform for collecting and analyzing a wide range of all-hazards data from the nation's fire and emergency services. Today, the NFIRS receives about 27 million incident reports annually, of which about 1.3 million are fires. The remaining 24.7 million reports are dominated by EMS and include technical rescues, hazardous materials, and bomb disposals. The NFIRS also documents increased levels of service demand during disasters. Unfortunately, the NFIRS was not originally created to handle and examine such large national data sets. Having the ability to access and analyze the full data collection could improve the measurement of the national capacity for response and the operational effectiveness of state, local, tribal, and territorial emergency services. In addition, the resulting information could support FEMA and DHS information gathered on natural and man-made disasters.

The data environment has changed significantly since the creation of the NFIRS. The aging system (a FEMA legacy system) is expected to function in the DHS's high cyber security environment that was never envisioned when the NFIRS was created. Security and data protection mandates continuously evolve in response to safeguarding the system and its assets from vulnerabilities. Emergent security requirements are continuous and demand that resources be first committed to addressing these needs while system enhancements become a secondary priority. In 2017, agency response to unprecedented hurricane activity limited enhancement releases.

The challenge with obtaining complete information from firefighters is that it is not something the NFIRS or the USFA can enforce or mandate. Participation in the NFIRS is voluntary, and how well or completely the firefighters fill out their NFIRS report involves several factors, such as, how much information is available at the incident scene, proper training on entering NFIRS data reports, or efficiency of the department's software or the department's process to update incident reports with new information. Some NFIRS users will report fields with generic values just to "complete" a report, but the result is the slightly different issue of lesser data quality. The USFA attempts to reach out to as many NFIRS users as we can to support them in their efforts to input high quality data in the NFIRS. Since 2017, the NFIRS has used a set of data quality reports and a schedule to provide that information to states, tribes, territories and departments so they can review and update specific data values as necessary.

Section 4.7 — Recommendations for Additional Legislation
(15 U.S.C. § 2215(h))

None recommended at this time.

Section 4.8 — Suggested Improvements to Fire Prevention and Building Codes

(15 U.S.C. § 2215(i))

The USFA monitors the code change activities of the NFPA and the ICC on an ongoing basis, and supports various initiatives with technical expertise as appropriate. The USFA regularly coordinates with our partners in the fire service and the fire prevention community in these efforts. The USFA recommends that local jurisdictions adhere to the latest edition of one of the model building and fire codes promulgated by either the NFPA or the ICC. The codes and standards promulgated by these two organizations include consensus requirements that adequately address home smoke and carbon monoxide alarms, residential fire sprinklers, and fire safety in the WUI using the whole community approach.

V. Acronyms

AFG	Assistance to Firefighter Grants
AHIMT	All-Hazards Incident Management Team
BOV	Board of Visitors
CEUs	Continuing Education Units
CIP	Critical Infrastructure Protection
CVVFA	Cumberland Valley Volunteer Firemen's Association
CY	Calendar Year
DC	Direct Current
DHS	U.S. Department of Homeland Security
EFO	Executive Fire Officer
EMI	Emergency Management Institute
EMR-ISAC	Emergency Management and Response-Information Sharing and Analysis Center
EMS	Emergency Medical Services
FEMA	Federal Emergency Management Agency
FESHE	Fire and Emergency Services Higher Education
FFWG	Federal Fire Working Group
FICEMS	Federal Interagency Committee on Emergency Medical Services
FY	Fiscal Year
GIS	Geographic Information Systems
ICC	International Code Council
IFSTA	International Fire Service Training Association

MO	Managing Officer
MOSS	Management, Operations, and Support Services
NETC	National Emergency Training Center
NFA	National Fire Academy
NFIRS	National Fire Incident Reporting System
NFPA	National Fire Protection Association
NIFC	National Interagency Fire Center
NIMS	National Incident Management System
NIOSH	National Institute for Occupational Safety and Health
NRCC	National Response Coordination Center
SAFER	Staffing for Adequate Fire and Emergency Response Grant
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
U.S.C.	United States Code
USFA	U.S. Fire Administration
WUI	Wildland Urban Interface