



U.S. Fire Administration

Fiscal Year 2022 Report to Congress

October 6, 2023



FEMA

Message from the U.S. Fire Administrator

October 6, 2023

I am pleased to submit the U.S. Fire Administration (USFA) Annual Report for Fiscal Year 2022, 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 achievements of USFA's activities during the period of Oct. 1, 2021, to Sept. 30, 2022.

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



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

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

The Honorable Zoe Lofgren
Ranking Member, U.S. House Committee on Science, Space, and Technology

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

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

The Honorable Dave Joyce
Chairman, Subcommittee on Homeland Security
U.S. House Committee on Appropriations

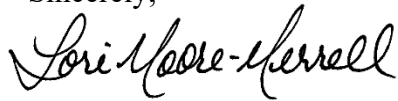
The Honorable Henry Cuellar
Ranking Member, Subcommittee on Homeland Security
U.S. House Committee on Appropriations

The Honorable Christopher Murphy
Chairman, Subcommittee on Homeland Security
U.S. Senate Committee on Appropriations

The Honorable Katie Britt
Ranking Member, Subcommittee on Homeland Security
U.S. Senate Committee on Appropriations

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

Sincerely,

A handwritten signature in black ink that reads "Lori Moore-Merrell". The signature is written in a cursive, flowing style.

Lori Moore-Merrell, DrPH, MPH
Fire Administrator
United States Fire Administration

Executive Summary

Background

In 1971, our nation lost over 12,000 civilians and 250 firefighters to fire. 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), that established the United States Fire Administration (USFA). Thanks to cooperation between our nation's fire service, national fire service organizations, and the USFA, the United States' fire losses were reduced significantly. Since 1974, there was a reduction of more than 70 percent in civilian fire fatalities and more than 60 percent fewer firefighter fatalities annually (excluding firefighter fatalities attributed to 9/11 and the Coronavirus Disease 2019 (COVID-19) pandemic). These are substantial improvements; however, there is still a significant fire problem across the nation and the threat of climate change-driven wildfire is expanding as communities continue to be developed in fire prone wildland areas. The USFA is committed to working with its partners at the federal, state, tribal, and local levels to safeguard United States citizens and visitors from fire.

The U.S. Fire Administration Strategic Plan

U.S. fire and emergency services effectiveness is dependent on USFA's efforts to gather and analyze information, determine priorities, and lead on fire and emergency medical issues. The USFA five-year Strategic Plan for Fiscal Years (FY) 2019 to 2023 provided operational direction for activities included in this report.¹ The USFA partners with fire and emergency service organizations and stakeholders at the state, local, tribal, and territorial (SLTT) level to achieve outcomes in the USFA Strategic Plan. The following performance goals provide a foundation for the USFA's 2019-2023 Strategic Plan and our desire for a fire-safe nation:

- Build a culture of preparedness in fire and emergency medical services.
- Ready the nation's fire and emergency medical services for all hazards.
- Ensure the USFA is an innovative, knowledgeable, and responsive organization.

The USFA supports these goals through partnership with the fire and emergency services community, strives for continuous improvements, and seeks positive results in our programs and initiatives. One method the USFA uses to measure performance is via long-term evaluation of its National Fire Academy (NFA) courses. This measurement includes feedback from SLTT fire department supervisors who report NFA training improved their subordinates' job performance.

In FY 2022, 93.6 percent of supervisors reported improved subordinate performance, which exceeds our 5-year target rate of 87 percent. Another performance measure is loss of life per million people due to fire in the United States. This metric is used in strategic planning to identify opportunities for enhancements in USFA training, public education, and fire prevention programs designed to address fire problems and preventable fire fatalities. Our 5-year target goal is a reduction of the per capita loss of life to fewer than 10.9 fatalities per million population.

¹ http://www.usfa.fema.gov/downloads/pdf/publications/strategic_plan_2019-2023.pdf.

According to available data, the goal was not achieved in FY 2022, with an annual rate of 11.4 fire-related civilian fatalities per million population. It remains difficult to determine a trend as estimates of fire deaths fluctuate from year to year. Overall, USFA's collaborative process with the nation's fire service and continued focus on rebuilding our national fire data system will improve the quality and accuracy of future reports.

Current State of Fire Problems

American fire service challenges in 2022 included continued impacts of responding to the (COVID-19) pandemic, on-duty loss of many firefighters attributed to COVID-19, a reduction of workforce likely due to exposure or threats of exposure during the pandemic, and a limitation or lack of appropriate personal protective equipment for use in all responses. In addition to the pandemic, fire and emergency medical services responded to increasing violent incidents, including active shooter and civil unrest events in many American communities, while also responding to natural disasters, including major wildfires. The American fire service has also responded to numerous new fire risks associated with emerging technology such as E-bikes and lithium-ion battery powered scooters.

These events taxed the fire service at unprecedented levels. Moreover, challenges with recruitment and retention continue throughout the nations' fire service, in both the career and volunteer ranks. These challenges increase risks for communities struggling to provide day-to-day emergency response leading to a direct impact on capability and capacity to sustain prevention and risk reduction activities. This situation increases local governments' dependence on state and federal governments for assistance before, during, and after a disaster. The USFA provided support and programmatic efforts to the fire service in the areas noted in this report, and data indicates the need for support continues to increase.

Analysis of fire trends reveal remarkable progress in many aspects of structure fire-related threats. However, there remain several areas where additional efforts could reduce ongoing fire-related impacts. While absolute and per capita fire loss declined substantially (by more than half since the late 1970s), per-fire performance remains a concern.² Fires requiring a fire department response continue to yield similar or higher rates of civilian casualties than a decade ago. Climate change driven wildfires in suburban communities and fires in wildland urban interface (WUI) locations are also problematic. Additionally, wildland fire data from Federal partner agencies like the Bureau of Land Management and the U.S. Forest Service shows a drastic increase in acres burned, dollar losses, economic losses, and a negative impact to the landscape over a 10-year period. Homes built in or near WUI areas without proper risk mitigation increase life and property risks and firefighting costs.

Recently, WUI fires destroyed entire communities including commercial, industrial, and residential structures along with essential critical infrastructure in California, Colorado, Idaho, Montana, Oregon, Tennessee, Utah, and Washington. Many other states and tribal lands are also experiencing expanding WUI risk. SLTT jurisdictions adopting the most current model building codes in conjunction with addressing WUI fire risks in land use planning, and WUI codes requiring homeowner management of the immediate physical environment and surrounding vegetation may reduce this trend. Advocating for public policy that clearly communicates

² Per-fire performance is a measure of deaths or injuries per 1,000 fires.

inherent risks and hazards of building in WUI areas, and the public cost of financing emergency response and fire suppression may also mitigate this trend.

Additionally, recognizing impacts of acute and/or systemic climate changes is essential to providing a solid foundation from which to build resilience and enhance preparedness in any community or development area. The Federal Emergency Management Agency (FEMA) Administrator in the Calendar Year (CY) 2021 Annual Planning Guidance called for incentivized data-driven whole community actions to close identified capability gaps, particularly those related to WUI fire threats.

For the last 10 years on average, 81 percent of fire deaths occurred at residential structure fires. While the number of residential fire deaths has reduced substantially since the original “America Burning” report (1974), losses can be further mitigated or eliminated through installation of reliable defensive technology, including operable smoke alarms and automatic fire sprinklers. Though automatic fire sprinklers are commonplace in businesses and institutions, they are not widespread in residential facilities.

Local adoption and enforcement of current construction codes, which include automatic fire sprinkler requirements, can lead to expanded use of life saving systems resulting in reduced loss of life and increased properties saved. Recent legislation granting tax relief for commercial business sprinkler installation should increase installation of this technology in commercial facilities. For example, the *Tax Cuts and Jobs Act* allows small businesses to fully deduct up to \$1 million for fire protection upgrades or expenses such as retrofit of automatic sprinklers (Pub. L. 115-197 § 179 as amended). However, provisions apply only to commercial structures and cannot be used to retrofit sprinklers into residential structures. While it may help prevent another large fatality commercial fire such as the December 2016, Ghost Ship warehouse fire in Oakland, California where 36 civilians were killed, it does not address residential fire problems where most fire deaths occur. A closely related issue is that those dying in residential fires are mostly poor and people of color.

To further reduce the threat of fire, the USFA is holding an annual Summit on Fire Prevention and Control, bringing together the leaders of national fire service organizations to discuss the fire problem in the nation along with the challenges facing America’s fire service and to collaborate on likely solutions. The USFA continues its efforts to work with federal and SLTT partners, and nongovernmental stakeholders, to improve methods of collecting and analyzing data, administer National Fire and Emergency Medical Service (EMS) Programs, increase public awareness about fire safety, reduce community risks, and operate the National Fire Academy.



Table of Contents

Message from the U.S. Fire Administrator.....	1
Executive Summary	3
Table of Contents.....	6
I. Legislative Requirement	7
II. Background.....	8
III. The National Fire Problem (15 U.S.C. § 2215(a)).....	9
IV. Summary of Initiatives/Activities (15 U.S.C. § 2215).....	15
Section 4.1 — Research and Technology (15 U.S.C. § 2215(b)).....	15
Section 4.2 — The National Fire Academy (15 U.S.C § 2215(c)).....	22
Section 4.3 — Activities to Assist the Nation’s Fire Services (15 U.S.C. § 2215(d)).....	31
Section 4.4 — Public Education (15 U.S.C. § 2215(e))	36
Section 4.5 — Fire Safety Effectiveness Statements (15 U.S.C. § 2215(f))	41
Section 4.6 — Outstanding Initiatives (15 U.S.C. § 2215(g)).....	42
Section 4.7 — Recommendations for Additional Legislation (15 U.S.C. § 2215(h)).....	45
Section 4.8 —Suggested Improvements to Fire Prevention and Building Codes (15 U.S.C. § 2215(i))	46
V. National Fire Academy Triennial Report FY 2020-2022 (15 U.S.C. § 2206(n))	47
Section 5.1 — Introduction and Legislative Requirement	48
Section 5.2 — National Need and NFA Delivery System Changes	49
Section 5.3 — Changes to NFA Courses by Curriculum Area.....	54
Section 5.4 — Samples: Incident Lessons Learned Added to the NFA Curriculum	67
VI. Acronyms.....	69

I. Legislative Requirement

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

The Administrator of FEMA 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 fire services and allied professions. Subsequent fire-prevention and response-enabling legislation was developed to address issues raised in “America Burning.” Consequently, to 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* (Pub. L. No. 93-498), that established the United States Fire Administration (USFA).

Section 5 of the *United States Fire Administration, AFG, and Staffing for Adequate Fire and Emergency Response Grant Program Reauthorization Act of 2017* (Pub. L. 115-98) provides that the 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).” The FEMA Administrator undertakes the two provisions by acting through the USFA Administrator. USFA provides 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 FEMA’s strategic goals³ by: including all-hazard community risk reduction in NFA curriculum; providing first responders with training and education to address all-hazard responses; staffing select positions in the National Response Coordination Center (NRCC); serving the emergency services sector through operation of the Emergency Management and Response Information Sharing and Analysis Center; assisting other FEMA programs with a focus on emergency medical services, fire and fire mitigation; advocating “whole community” or “whole of 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.

³ <https://www.fema.gov/about/strategic-plan>. The 2022-2026 FEMA Strategic Plan was released in December 2021. USFA continues to operate in support of current strategic goals and objectives.

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

The USFA contributed to remarkable progress in reducing adverse effects of fire. Most notably, civilian fire-related fatalities and total fires are less than half of what they were in the late 1970s.⁴ In addition, through partnerships with SLTT governments and private organizations, children up to 4 years of age are no longer a statistically high-risk group for fire-related fatalities. In fact, according to the National Center for Health Statistics mortality data in conjunction with U.S. Census Bureau population estimates, children ages 4 and younger in 2020 had a relative risk of fire death that was 50 percent less than that of the general population – the lowest relative risk for this age group since the mid-1970s.

Despite our progress to reduce fires and their adverse effects in the United States, there is still a need to reduce the fire problem. Although there was an overall reduction of fires and casualties in absolute numbers, the United States still has a similar rate of civilian casualties per reported fire dating back to the late 1970s. Trend analysis over the past 10 years indicates an increase of 24.4 percent in civilian fire deaths. Certain demographic groups remain at high risk, potentially driven by socioeconomic and physical conditions. For example, older adults (age 65 and older) experience age-related physical and mental ailments that may decrease their chances of survival during a fire. This vulnerable population is growing, increasing the percentage of the population who are at high risk during a fire. Collected data indicates cooking fires comprise more than 50 percent of residential building fires and nearly 30 percent of non-residential building fires.⁵ Those aged 85 and older now have the highest fire death rate of all age groups.⁶

The following section provides a portrait of the fire problem in the United States, meeting legislative requirements to provide a thorough appraisal, including statistical analysis and estimates of the human and economic losses due to fire. Primary data sources are the USFA's National Fire Incident Reporting System (NFIRS), a voluntary data collection system with more than 24,000 participating fire departments and the National Fire Protection Association's (NFPA's) Fire Experience Survey. Additional data sources include USFA's National Fire Department Registry, the National Interagency Fire Center, the National Center for Health Statistics, and the U.S. Census Bureau. Most of the data referenced in this report represents CY 2021 due to challenges of existing data systems and barriers to receiving timely data input from local fire departments, states, tribes, and territories. While USFA works with Department of Homeland Security (DHS) Science and Technology (S&T) to research and develop a new data analytics platform, information is currently collected by calendar year and is released for use by the SLTT prior to analysis. The NFIRS individual state profiles for fire loss are available at <https://www.usfa.fema.gov/statistics/states/>.

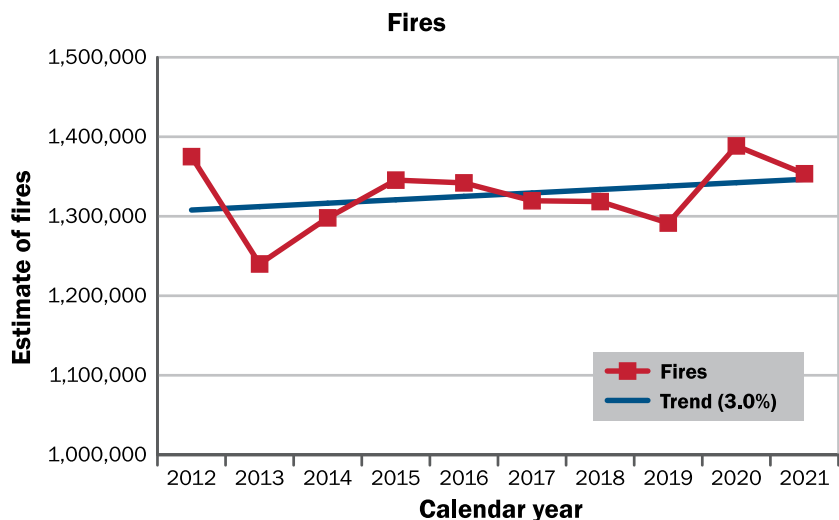
⁴ Data sources: USFA's National Fire Incident Reporting System (NFIRS); National Fire Protection Association's (NFPA's) annual Fire Experience survey; U.S. Census Bureau; National Interagency Fire Center (NIFC); and various National Fire Data Center staff analyses and reports.

⁵ <https://www.usfa.fema.gov/statistics/residential-fires/>.

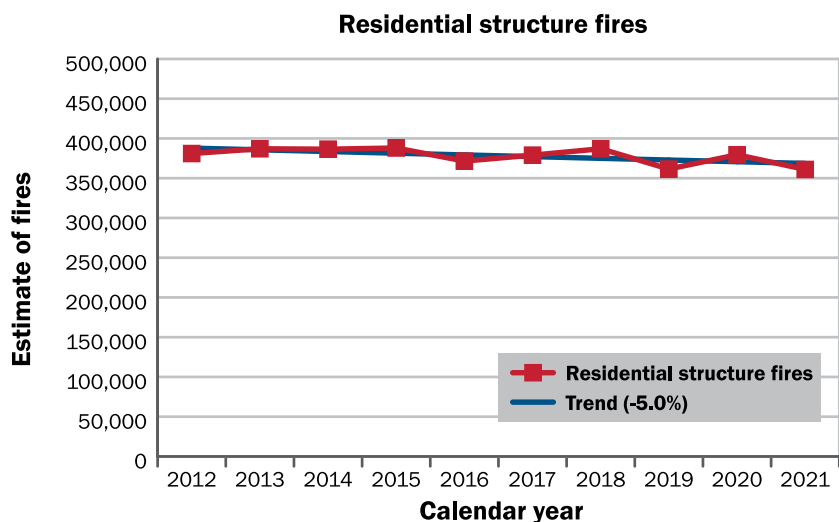
⁶ <https://www.usfa.fema.gov/downloads/pdf/statistics/v21i8.pdf>.

The following are summaries of the nation’s fire problem (referencing calendar years):⁷

Total Fires: The estimate for total fires during 2021 is 1,353,500 – a 2.5 percent decrease from the number of fires in 2020 (1,388,500). During the past 10 years (2012 to 2021), the United States averaged 1.3 million fires per year; linear trend shows an increase of 3.0 percent total fires during this period. **In 2021, there were 4,078 fires per million people** – a 2.6 percent decrease from 2020 (4,189).

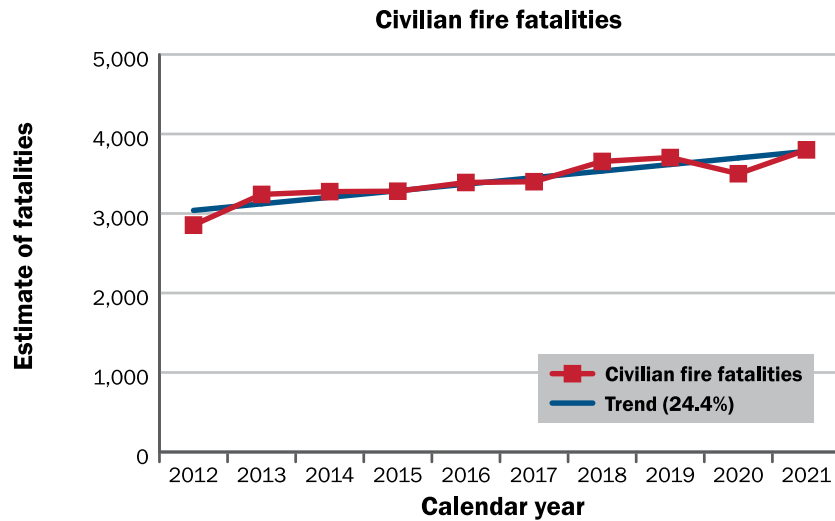


Residential Structure Fires: The estimate for residential structure fires during 2021 is 361,000 – a 4.9 percent decrease in residential fires from 2020 (379,500). During the past 10 years (2012 to 2021), the United States averaged 378,200 residential structure fires per year; linear trend shows a 5.0 percent decrease during this period. **In 2021, there were 1,088 residential structure fires per million people** – a 5.0 percent decrease from 2020 (1,145).

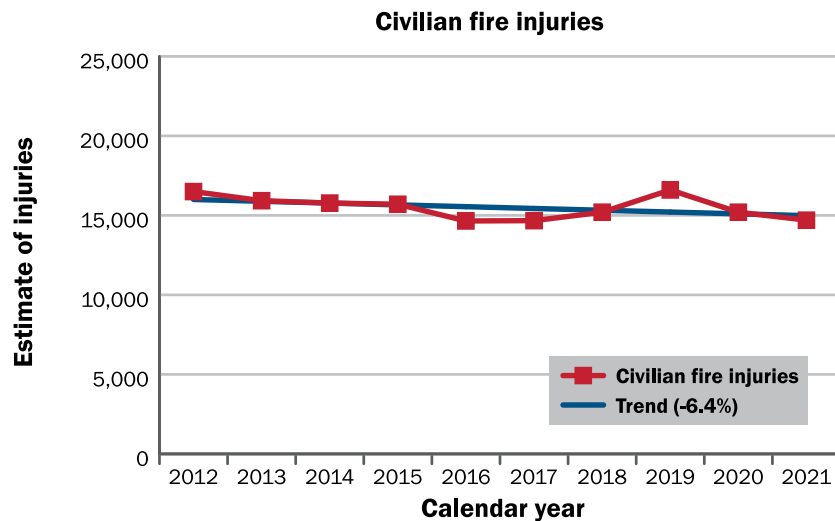


⁷ Sources for statistics gathered in this section were taken from references noted in footnote 4.

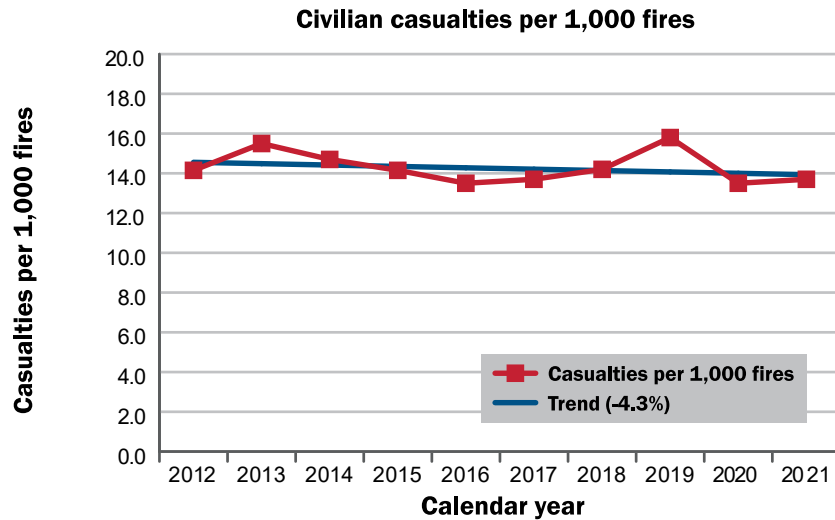
Civilian Fire Fatalities: The estimate for total civilian fire fatalities during 2021 is 3,800 – an 8.6 percent increase since 2020 (3,500). During the past 10 years (2012 to 2021), the United States has averaged 3,410 civilian fire fatalities per year; linear trend shows a 24.4 percent increase during this period. **In 2021, there were 11.4 civilian fire fatalities per million people** – a 7.5 percent increase from 2020 (10.6).



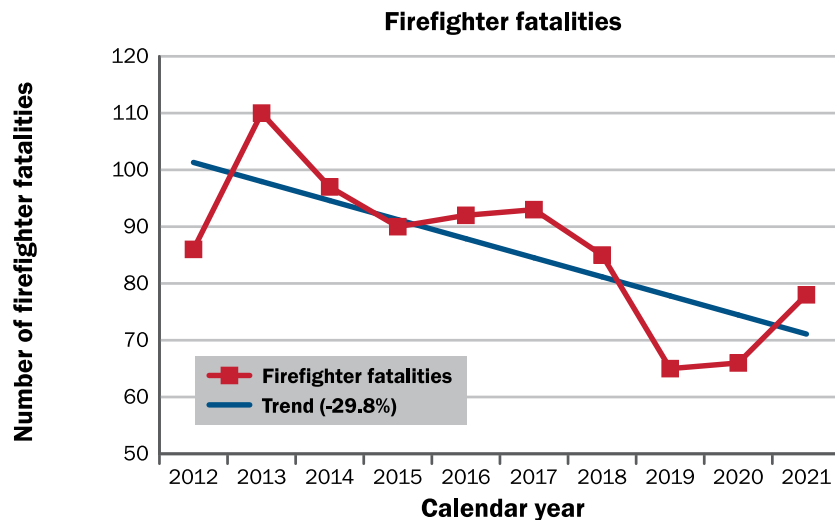
Civilian Fire Injuries: The estimate for total civilian fire injuries during 2021 is 14,700 – a 3.3 percent decrease in injuries since 2020 (15,200). During the past 10 years (2012 to 2021), the average was 15,492 civilian fire injuries per year; linear trend shows a 6.4 percent decrease during this period. **In 2021, there were 44.3 civilian fire injuries per million people** – a decrease of 3.5 percent from 2020 (45.9).



Civilian Casualties (Fatalities and Injuries) Per 1,000 Fires: The estimate for **civilian casualties (fatalities and injuries) per 1,000 fires in 2021 was 13.7** - a decrease of 1.5 percent since 2020 (13.5). During the past 10 years (2012 to 2021), the average was 14.3 civilian casualties per 1,000 fires; linear trend shows a 4.3 percent decrease during this period.



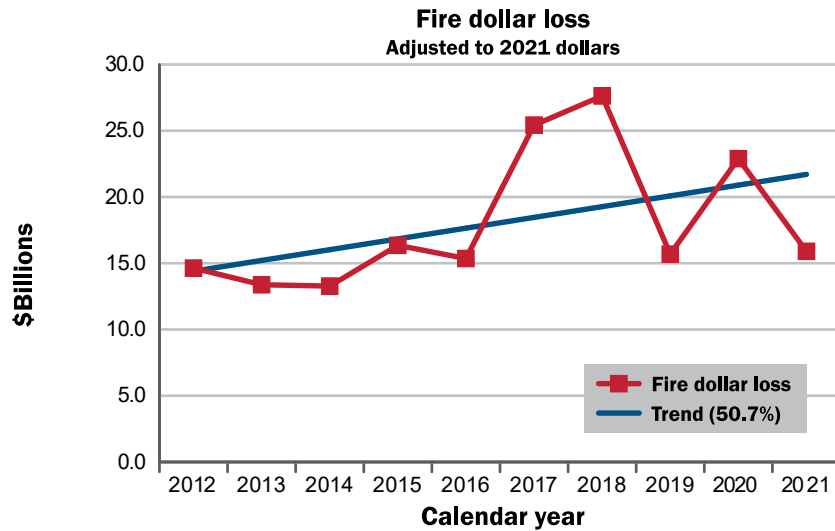
Firefighter Fatalities: While on duty in 2021, 141 firefighters died. Of these, 63 firefighters died from COVID-19 as reported to the USFA. The overall trend from the past 10 years (2012 to 2021) shows a 16.3 percent increase in the number of on-duty firefighter fatalities. Excluding COVID-19 deaths, however, the overall trend from the past 10 years (2012 to 2021) shows a 29.8 percent decrease in the number of on-duty firefighter fatalities. The 10-year average (2012 to 2021) is 96 on-duty firefighter deaths per year. Excluding COVID-19 deaths, the 10-year average is 86 on-duty firefighter deaths per year. Firefighter fatalities in 2021 included 76 career firefighters, 55 volunteer firefighters, and 10 members of wildland or wildland contract fire agencies. A more in-depth analysis of on-duty firefighter deaths can be found in USFA’s report “Firefighter Fatalities in the United States in 2021,” released in FY 2023.⁸



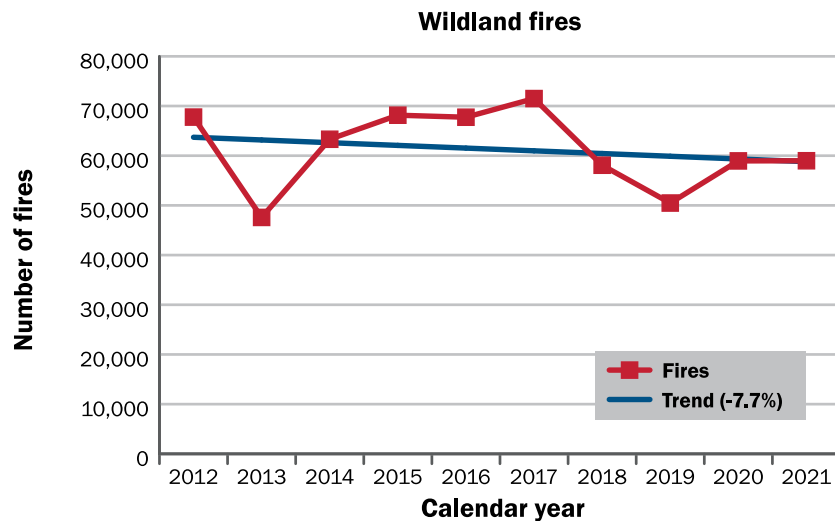
Note: Firefighter fatality counts include firefighters who died under circumstances that were part of inclusion criteria changes resulting from the Hometown Heroes Survivors Benefit Act but does not include COVID-19 fatalities for purposes of a trend analysis.

⁸ <https://www.usfa.fema.gov/statistics/reports/firefighters-departments/firefighter-fatalities.html>.

Property Damage – Dollar Loss: The estimate for total dollar loss during 2021 was \$15.9 billion - a decrease of 30.5 percent from 2020 (\$22.9 billion, adjusted to 2021 dollars).⁹ During the past 10 years (2012 to 2021), the average was \$18.1 billion per year (in 2021 dollars); linear trend shows a 50.7 percent increase during this period.¹⁰



Wildland Fires: There were 58,985 wildland fires reported during 2021, resulting in 7,125,643 acres burned, an insignificant change from 2020 (58,950 wildland fires). During the past 10 years (2012 to 2021), the average was 61,255 wildland fires and 7,358,462 acres burned; linear trend shows a 7.7 percent decrease in wildland fires during this ten-year period.¹¹



⁹ The 2020 estimate of total dollar loss includes \$4.2 billion losses from fires in the California WUI and includes a \$3 billion naval ship fire in California.

¹⁰ The 2018 estimate of total dollar loss includes an over \$12 billion loss in wildland fires.

¹¹ <https://www.nifc.gov/fire-information/statistics/wildfires>.

Emergency Medical Services: Growth of fire service-based emergency medical services (EMS) has a significant impact on local fire departments by requiring additional resources to address increased scope of responsibilities. According to the latest data reported to USFA, 70.9 percent of the nation’s fire departments provide EMS.¹²

Fire Risk to Children: With the general population indexed at 1.0, relative risk for child fire deaths (0 to 4 years of age) in 2020 was 50 percent lower than that of the general population – the lowest relative risk for this age group since the mid-1970s. In 2011, the relative risk for child fire deaths (0 to 4 years of age) was 0.8 (20 percent less than that of the general population). Although, from 2011 to 2020, the relative risk of dying in a fire for children under the age of 5 was lower than the overall U.S. population, children ages 0 to 4 had the highest fire death rates compared to children of all ages and, as a result, had a higher relative risk of dying in a fire compared to older children.¹³ The very young will always remain inherently vulnerable as children age 4 or younger generally lack the mental abilities to understand the need and means of quickly escaping from a burning structure.

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 2020 was 2.5 times higher than that of the general population. In 2011, that relative risk was 2.7.¹⁴ 2020 National Center for Health Statistics mortality data and U.S. Census Bureau population estimates show the relative risk of dying in a fire for individuals ages 85 and older was 4.0 times higher than that of the general population. In 2011, that relative risk was 4.5. Further investigation into all contributors is required to determine cause of this decrease.

Overall Summary: The USFA serves as a valuable catalyst for progress in overcoming the fire problem across the nation; however, we recognize the need to increase efforts to further reduce adverse impacts of fire in the United States (e.g., increased fire activity in the WUI).

The FEMA Administrator in the CY 2021 Annual Planning Guidance called for incentivized data-driven whole community actions to close identified capability gaps, particularly those related to national security, continuity, and WUI fire threats.

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 WUI locations remain a concern. National disasters, such as COVID-19, solidify the importance of well-prepared, resourced, educated, and capable emergency services. Statistical information presented here is critical to emergency responders that not only provide system data but leverage data for decision-making.

To further reduce the threat of fire in the United States, the USFA is committed to continuing its efforts working with federal, SLTT partners, and non-governmental stakeholders in collecting and analyzing incident data, administering National Fire Programs (NFP), and NFA operations.

¹² USFA National Fire Department Registry, as of October 1, 2022 (<https://apps.usfa.fema.gov/registry/summary>).

¹³ <https://www.usfa.fema.gov/statistics/deaths-injuries/>

¹⁴ Ibid.

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 are brief summaries of the USFA’s significant initiatives in research and technology for FY 2022. Additional details are available online at <https://www.usfa.fema.gov/>.

“America Burning” Review – A Report for the USFA: The USFA, through a partnership with the International Association of Fire Chiefs (IAFC), completed a review of this report which is based on past USFA “America Burning” reports, current data sources, and other pertinent information to examine and address the current American fire problem. Study topics include civilian fire deaths, injuries, and property loss. The report further addresses occupational health and safety issues impacting fire and EMS services including behavioral health effects.

NFIRS Needs Assessment: The Needs Assessment – a large scale, thorough, independent investigation of what NFIRS must be and do to meet the needs of the U.S. fire service – was completed during FY 2022. It will serve as a foundation for future work within the USFA including developing detailed requirements and specifications for the USFA’s new data system.

NFIRS Operation, Modernization, and Stabilization Effort: NFIRS is the largest incident-based data collection system in the nation. NFIRS is a valuable resource to SLTT 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. In 2022, NFIRS received over 30 million incident response reports, of which about 1.2 million are fire responses. The remaining 28.8 million reports are dominated by EMS responses and public service calls. USFA regularly engages in efforts to ensure that the NFIRS has continued federal information technology (IT) authority to operate and to provide users with the most valuable and efficiently operable system possible. A modernization and stabilization effort of NFIRS was in the planning and development process for six years and was implemented in October 2020. This effort resulted in web-enablement of all the NFIRS tools, provided an updated user interface as well as architecture that provides ease of data standard changes and system security maintenance. Given that the NFIRS is a high-value dataset, the USFA started to develop and launch a new cloud-based secure data system and a streamlined data standard. Once complete, legacy NFIRS data will be archived and on-premises servers discontinued. Until completion of a new data system and standard, the current NFIRS system will remain stabilized and secure until it is decommissioned.

Throughout 2022, system operation was stable. Modernization and stabilization efforts have specific objectives for several areas of the system:

- (1) update security components to meet DHS/FEMA IT compliance requirements and standards;
- (2) update the web applications to newer technology to support future improvements and feasibility of a future mobile-compatible application; and

- (3) remove old back-end system code that was interfering with security and requiring separate release efforts to maintain.

Per our modernization/stabilization objectives, the capability to make system updates and meet new security requirements is successful. Monthly and quarterly security scans performed by DHS/FEMA IT system staff return fewer vulnerabilities and, therefore, NFIRS meets DHS/FEMA IT standards. Addressing security needs and minor data validation issues are less costly given the ability to have smaller, less complex, and more frequent code releases. In FY 2021, five releases addressed application enhancements as compared to zero releases in the previous two years.

Since NFIRS modernization/stabilization release gave state NFIRS Program Managers the ability to add NFIRS Data Warehouse permissions to users in their state, focus is placed on data quality and output reports training. This provides increased use of NFIRS Data Warehouse report tools among state and fire department users who submit data to NFIRS. Expansion of outreach and training and necessary updates to NFA NFIRS courses are central to success.

Objectives achieved by NFIRS operation and modernization/stabilization efforts are milestones that enable NFIRS and National Fire Data Center (NFDC) staff to focus on improving NFIRS data quality and enable review of third-party data collection procedures. Code and special functions also place NFIRS in a mature IT stature that supports future archival of NFIRS legacy data and development of a cloud-based system. For the second year, NFIRS public data release files were made publicly available before the end of the calendar year for download on [OpenFEMA](#). OpenFEMA is the agency's effort to fulfill several Presidential memorandums and federal legislative mandates to support whole community and data sharing initiatives.

Coronavirus 2019 NFIRS Special Study and Other Pandemic Initiatives: In FY 2022, NFIRS proved itself as a key component for national level studies on fire department responses involving COVID-19. Between the inception of the study in March 2020 and October 26, 2022, over 23.7 million responses were collected. The study goal was to determine if COVID-19 was a factor during responses then use this information to educate and prepare emergency responders for all-hazard situations that impact their community. This study was among the first data collected about fringe interfaces between the public and the response community. Resultant information was used by non-government and other federal entities addressing issues associated with COVID-19. Information provided near real-time analysis and offered a NFIRS-fire service incident analysis at the national level (using geocoded data). This effort was used during the FEMA deployment to COVID-19 as part of the Pre-Hospital Task Force and was briefed to FEMA's NRCC senior staff and FEMA Regional Administrators.

With the increase of COVID-19 incidents and their effect on communities, the need for fire and emergency medical response services to receive timely information was critical. Due to growing concerns surrounding COVID-19 responses, the USFA took a leadership role in providing much-needed information with a direct impact on response capabilities. To provide timely information, the USFA created a resource section on our website for funding, planning, response, infection control, and behavioral health information; implemented bi-weekly communications through widely distributed emails; and offered webinars to share and collect information essential to helping SLTT response partners. This effort included information on personal protective equipment, data studies, response protocols, and public assistance.

USFA also developed and shared the COVID-19 Research Guide on the National Emergency Training Center (NETC) library webpage. This provides a one-stop shop to help researchers, students, practitioners, and the public find COVID-19 pandemic material. These actions resulted in an informed and better-prepared emergency response community offering accurate information to make critical decisions. In FY 2022, USFA's NFP staff contributed over 639 hours in support of these initiatives.

National Fire Incident Reporting System Outreach and Marketing Initiative: In April 2022 the USFA NFDC NFIRS staff conducted a "NFIRS Week" for participating states, users, and their data analysts to review the system's usefulness and its tools' operation. This effort was delivered in webinar format to reach NFIRS' wide audience and provided valuable and practical information to the fire service about NFIRS enhancements and data accuracy. USFA will continue these efforts as the new cloud-based data system is launched.

Firefighter Suicide Data Collection Effort: *The Department of Homeland Security Appropriations Act of 2021* directs USFA to collect and maintain data concerning suicide rates of firefighters who are repeatedly exposed to trauma that impacts their mental health and wellness. Working toward this effort, USFA submitted a second report to Congress in August 2022 summarizing the status of work that included the drafting of several documents to meet privacy law and policies, as well as Paperwork Reduction Act requirements to set up a competent and legally compliant firefighter suicide collection and reporting program.

Emergency Vehicle and Roadway Operations Safety: In FY 2022, USFA completed a study on Emergency Vehicle and Roadway Operations Safety in partnership with the IAFC. The report is intended to address the numerous on-duty firefighter and emergency responder fatalities from vehicle crashes and roadway-struck-by incidents. The findings of this study updated a previous USFA report released in 2014.

Study of Volunteer Firefighter Retention and Recruitment: The USFA completed a study of volunteer retention and recruitment in partnership with the National Volunteer Fire Council. There has been an overall decline in the number of volunteer emergency responders nationwide. This research project concentrated on the essential roles and responsibilities of local governments and innovative retention and recruitment programs. Additionally, it focused on effective recruitment and retention of under-represented populations in the volunteer service including women and minorities. The findings of this study updated the 2007 USFA "Retention and Recruitment for the Volunteer Emergency Services: Challenges and Solutions" report.

Funding Alternatives for Fire and Emergency Medical Services: The USFA completed a study with the Oklahoma State University/International Fire Service Training Association to update the USFA report "Funding Alternatives for Fire and Emergency Medical Services."¹⁵ With tighter agency budgets, fewer government subsidies, fewer donations, etc., it is becoming increasingly hard for fire and EMS departments to meet greater and more complex demands for their services. The findings of this study provide the most up-to-date information on grant and alternative funding for local-level fire and EMS departments.

¹⁵ https://www.usfa.fema.gov/downloads/pdf/publications/fa_331.pdf.

Emergency Medical Services Responder Safety Study: Partnering with the International Association of Firefighters (IAFF), USFA completed the study on the occupational safety of EMS responders. This partnership updated older USFA reports on this topic, one of which was released in 1997. The results of this study were released in the April 2022 USFA report “EMS Safety Practices,” providing the most up-to-date, comprehensive information regarding EMS responder health and safety, including infection control for local level EMS and fire departments.

EMS Medical Directors Handbook and Online Training Program Update: USFA continues its partnership with the IAFC to update the 2012 USFA “Handbook for EMS Medical Directors” as well as the related EMS Medical Director's online training program through the IAFC’s website.

USFA Emergency Medical Services Needs Assessment: USFA continues a study with the IAFC to conduct a large-scale, thorough, and independent EMS Needs Assessment to determine the correct level of organizational coordination as well as the activities to be provided by USFA as referenced in statute.¹⁶ This effort will seek information from federal, SLTT, and non-governmental agencies and develop an assessment of their findings along with recommendations for the activities needed by USFA to effectively address and meet the future and changing needs of EMS.

Fire Department Marketing and Outreach: USFA continues a project revising its 1998 “Strategies for Marketing Your Fire Department – Today and Beyond” report, which needs to be updated.

Response to Civil Unrest by Fire and Emergency Medical Services: USFA is nearing completion of a comprehensive study to assess, improve, and manage situations dealing with civil unrest by local-level fire and EMS to enhance the operational safety of firefighters and EMS responders in these situations.

Fire and Emergency Response to Electric Vehicle Fires: USFA, with support and funding from the U.S. Department of Transportation (DOT) National Highway Traffic Safety Administration, continues a study with the IAFF to enhance the operational safety and effective response to electric vehicle fires and crashes by fire, EMS, law enforcement, and U.S. DOT emergency responders.

Roadway Safety Outreach: Firefighters and other responders have lost their lives and been seriously injured because of emergency responders being struck by vehicles while conducting roadway operations. USFA continues its long-term partnership with the Cumberland Valley Volunteer Firemen’s Association Emergency Responder Safety Institute (CVVFA ERSI) fostering the on-going effort of USFA to better protect emergency responders on the highways and while operating emergency vehicles, specific to equity in underserved communities. As a result of this collaboration, USFA worked with the Responder Safety Learning Network to develop and deploy a training module about wildfire roadway safety for firefighters.

¹⁶ Section 21(e) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2218(e)), as amended Oct. 8, 2008, states: “Coordination of Emergency Medical Service Programs-The Administrator shall provide liaison at an appropriate organizational level to assure coordination of the activities of the Administrator related to emergency medical services provided by fire service-base systems with Federal, State and local government agencies and departments and nongovernmental organizations so concerned, as well as those entities concerned with emergency medical services generally.”

USFA has also initiated a separate study with CVVFA ERSI for an effective Wildland Fires and Traffic Incident Management training program, along with relevant demonstration and pilot projects for SLTT fire departments and other constituents, including Federal Wildland Fire Agencies, to reduce firefighter and emergency responder deaths, injuries, and vehicle damage from being struck on the roadway. These efforts include continuing USFA support to the *ResponderSafety.com* web site (<https://www.respondersafety.com/>).

Health and Safety of Female Firefighter Study: USFA initiated a partnership with Women in Fire with an update of the 2019 [Emerging Health and Safety Issues Among Women in the Fire Service](#) report. This continued study of health and safety issues that women face in the fire service will include women WUI firefighters and develop information on women's reproductive health, such as cancers affecting women firefighters, and the exposures that cause them.

Diversity, Equity, and Inclusion in Fire and EMS: USFA has launched a study of Diversity, Equity, and Inclusion (DEI) in Fire and EMS with the IAFC. It will examine issues of workplace discrimination, harassment, bullying as well as recruitment and retention. This study will involve the entire DEI community including women, people of color, LGBTQ+ individuals, etc. This study will also involve an assessment of DEI in the American Fire and EMS community including all types of fire and EMS departments – career, combination, and volunteer – and the development of potential solutions.

Safety Culture Change Study: USFA initiated an expansion of the USFA/IAFC National Safety Culture Change Initiative providing support and advocacy for the need of a culture change in the fire service – incorporating organizational leadership and personal responsibility which also supports the National Fallen Firefighter Foundation's (NFFF) Life Safety Initiative #1. This new effort will add behavioral health to the previous focus of medical physicals, vehicle safety, and incident risk management. This study will also update the 2015 [National Safety Culture Change Initiative](#) report.

Emergency Incident Rehabilitation: USFA started work with the IAFF updating the 2008 [Emergency Incident Rehabilitation](#) report. This would involve an assessment of the American Fire and EMS community's use of rehabilitation including all types of fire and EMS departments – career, combination, volunteer, etc. - and the development of potential improvements.

Fire and EMS Multi-Agency Preparedness and Operations: USFA initiated the development of a Fire and EMS Multi-Agency Preparedness and Operations Guide in partnership with the IAFC to study effective uses of mutual aid and multi-agency coordination. This study, and the derived best practices, will provide the foundation to develop this guide that will outline partner agency mutual support, missions, capabilities, resources, authorities, needs, etc. to support fire and EMS leadership.

EMS Burn Intervention Study: USFA began the EMS Burn Intervention Study to examine the effectiveness of burn management in the field and the impact of EMS on burn survival and recovery. This will involve a meta-analysis of burn patient outcomes and degrees of survival and long-term patient recovery in comparison with EMS protocols, training, and burn center access.

Wildland Firefighter Health and Safety Study: USFA began a new WUI/Wildland Firefighter Occupational Health and Safety Study to identify and report emergent issues for these firefighters. The study will provide information on the development of training programs and improve demonstration activities of best practices for Federal and SLTT fire departments and firefighters.

Firefighter Cancer Study: USFA is continuing its partnership with the National Institute for Occupational Safety and Health on the Study of Cancer Among Firefighters with a focus on supporting the National Firefighter Registry to advance the understanding of cancer and risk factors among all firefighters, including under-represented groups.

WUI and Wildfire Research Outreach: USFA initiated a new partnership with the National Institute of Standards and Technology on WUI and Wildfire Research Outreach and Implementation, producing guidance and information to local governments, first responders and residential communities in the United States who are in areas of risk of wildfires. As a result of this work, USFA created content about this research with social media and other tools to help stakeholders work with their communities to improve wildfire safety.

Augmented Reality Wildfire Safety Application: Expanding upon the USFA’s past development of the Augmented Reality Wildfire Safety Application (“App”). USFA started work building on the initial App, used to identify components of the home (windows, roof, door, etc.), that can lend themselves to ignition in the event of a wildfire event. This App has been deployed and is available to be downloaded on Apple [App](#) and Android [Google Play](#) devices. Phase II development will enhance the current version of the App to provide more information that relates to the home (which is already developed) and the landscape surrounding the home (including attachments such as out buildings and fences) that can be used by mitigation specialists, inspectors, and homeowners to help them protect property before a wildfire occurs.

Wildfire Respirator: USFA worked with DHS S&T National Urban Security Technology Laboratory (NUSTL) in providing extensive subject matter expertise with their operational field assessment of the respirator prototype for wildland firefighters, created an informational document that included important information about NFPA and other standards and subsequently received a letter of commendation for work with NUSTL on this high-profile research effort.

National Fire Department Registry: USFA’s National Fire Department Registry is the only nationwide registry that provides a current directory of registered fire departments with basic information such as address, department type, website, and number of stations. The National Fire Department Registry is a voluntary program and does not include all fire departments in the United States and its territories. The USFA uses the registry to conduct special studies that guide program decision making and improve direct communication with individual fire departments. The registered departments represent approximately 92 percent of the NFPA-estimated 29,452 departments in the United States in 2020.¹⁷

Other Reports: In FY 2022, the USFA published seven topical reports: “Fire Department Overall Run Profile as Reported to the National Fire Incident Reporting System in 2020,” “Fire

¹⁷ NFPA report - U.S. fire department profile, September 2022 <https://www.nfpa.org/News-and-Research/Data-research-and-tools/Emergency-Responders/US-fire-department-profile>.

Risk in 2019,” “One- and Two-Family Residential Building Fires (2017-2019),” “Multifamily Residential Building Fires,” “Heating Fires in Residential Buildings (2017-2019),” “Portable Heater Fires in Residential Buildings (2017-2019),” and “Nonresidential Building Fires (2017-2019).” These reports, part of the USFA’s Topical Fire Report Series,¹⁸ 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, the USFA published three NFIRS Data Snapshots: “Halloween Fires (2017-2019),” “Thanksgiving Day Fires in Residential Buildings (2017-2019),” and “Recreational Vehicle Fires (2018-2020).”

The 2020 fire death rates and relative risk for the overall population, children, older adults, and states were published to the USFA website.¹⁹ Fire death rates measure the number of fire deaths per million people. Relative risk compares the per capita rate for a particular group (e.g., older adults) to the overall per capita rate (i.e., the general population). Trends in fire death rates were also computed to show how the rates have changed over time by smoothing fluctuations or variations in the data from year to year.

The USFA also published the “USFA Fire Estimate Summary Series (2011-2020)” for residential and nonresidential building fires and losses.²⁰ Each summary addresses the size of the specific fire or fire-related issue and highlights important trends in the data. In addition to these reports, the USFA created and disseminated the 2020 NFIRS fire and hazmat incident and the 2020 NFIRS all-incident Public Data Release files.²¹

Wildfire-Related Data Projects: During FY 2022, the USFA completed the third report in the Wildfire Report Series, “An Analysis of NFIRS Data for Selected Wildfires Including Impacts in the Wildland Urban Interface Areas.”²² This report compares the publicly reported loss metrics (e.g., deaths, injuries, dollar losses and acres burned) from media and government sources for six named wildfires between 2016 and 2018 with the data reported by local fire departments to the NFIRS. The report offered recommendations to determine practices that can improve NFIRS reporting for large named wildfires. Another project underway, the Wildfire Analyst’s Toolkit, will create a catalog that can be used by analysts to examine aspects of the wildfire problem. This web resource is a first step toward creating the first nationwide metadata warehouse for wildfire incident response information as reported by SLTT fire departments.

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

¹⁹ <https://www.usfa.fema.gov/statistics/deaths-injuries>.

²⁰ <https://www.usfa.fema.gov/statistics/residential-fires/> and <https://www.usfa.fema.gov/statistics/nonresidential-fires>.

²¹ <https://www.usfa.fema.gov/nfirs/order/>.

²² <https://www.usfa.fema.gov/wui/data/wildfire-report-series/nfirs-data-for-selected-wildfires.html>

Section 4.2 — The National Fire Academy

(15 U.S.C. § 2215(c))

The NFA is focused on supplementing, not duplicating, existing programs of training and education in areas such as leadership and program management technology and research, data collection and analysis, risk mitigation and prevention, and public education. The NFA provides courses, curriculum, 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.

The NFA is not a degree granting institution but does ensure courses are externally reviewed, validated, and recommended for college credit by the American Council on Education (ACE). Certificates of completion are issued to students who meet the requirements of the respective course, and these successfully completed credit recommendations are added to an official transcript. Students may then apply these credits to higher education degrees.

In FY 2022, resident training at the National Fire Academy returned to normal with COVID-19 safety protocols in place. Students and staff acclimated well to the return, and the safety protocols were followed and effective. In addition to in-person training, the NFA continued the synchronous offerings of courses that were developed during the COVID-19 pandemic.

On an annual basis, the NFA provides training to an average of 91,200 career and volunteer fire and EMS personnel, primarily through classes delivered in-person on its Emmitsburg, Maryland campus and through partnerships that enable two- and six-day classes to be offered around the nation with state and metropolitan fire training organizations.

During FY 2022, NFA staff continued to contract with subject matter experts to ensure that courses are current and relevant. The work of NFA staff is commendable as it strives to embrace technology to meet the needs of the fire service personnel who, for various reasons, cannot attend in-person training/education. While technology does provide additional opportunities, it cannot replicate the student-instructor, student-student, and student-staff interactions that take place on the NFA campus and during in-person regional classes. It is important to recognize that career and volunteer fire service personnel in many portions of our country do not have the ability to take advantage of NFA distance-learning opportunities — especially those in tribal and rural communities — because of a lack of digital infrastructure and connectivity.

The NFA continued its efforts to close out the FY 2022 state fire-training assistance grant program for the 24 states that participated in the FY 2022 program. A \$20K grant is provided to each state. These grants are in essence a cost-effective “force multiplier” for the NFA as it enables states to deliver NFA classes to local career and volunteer fire and EMS providers using state qualified instructors. Unfortunately, in FY 2022, fewer states participated in this NFA grant opportunity due to operational challenges created by the COVID-19 pandemic. States that were unable to participate indicated they would return when local COVID-19 guidelines allowed them to resume in-person training.

In FY 2022, the NFA provided 2,484 course offerings, reaching 74,498 students. This is an increase of 256 offerings and a decrease of 24,226 attendees from FY 2021 (NFA learning management system (LMS) showed a decrease from 69,674 to 39,979.) The increase of offerings

was accomplished through the strong and far-reaching delivery system of NFA-sponsored courses held off-campus 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 more than 100 colleges and universities. The decrease in LMS attendees was due to the National Wildfire Coordinating Group (NWCG) creating its own delivery platform for on-line wildland firefighter classes instead of using the NFA's. The NFA continues a solid relationship with NWCG, especially in the WUI arena, with much collaboration on virtual classes for SLTT firefighters.

The NFA-Approved State Courses are included in the NFA overall delivery system. This cooperative effort adds state-developed courses to the NFA curriculum and provides for greater reach into and collaboration with state partners and the national fire/EMS responder community. This adds curriculum content that is otherwise unavailable to other state and local training partners. In FY 2022, the NFA delivered 538 of these courses to 5,834 students.

The FY 2022 NFA training data for all modes of delivery by individual states is available at <https://www.usfa.fema.gov/training/nfa/about/profiles>.

Executive Fire Officer Program: The Executive Fire Officer (EFO) Program is the pinnacle of the USFA's commitment to support the needs of fire and EMS agencies in preparing executive officers to meet the ever-changing demands of the dynamic communities in which they serve. Through the EFO Program, the NFA seeks to inspire, educate, and empower current and future fire service leaders and create public service champions within communities. Due to overwhelming student and stakeholder feedback, the EFO Program paused briefly for an adjusted redesign and began again in January 2022. Current program structure of four resident courses and online work is detailed in [Section 5](#) and can be found on the EFO website [National Fire Academy Executive Fire Officer Program \(fema.gov\)](#).

Each year the NFA holds an EFO Program symposium. This two-day symposium provides cutting-edge topics for fire and emergency services leaders. The FY 2022 symposium received outstanding reviews from attendees and the FY 2023 symposium is currently being planned.

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. For FY 2022, the program continued to be offered and is under review and revision for FY 2023.

College- and University-based Course Deliveries: With a strong connection to the nation's colleges and universities, 513 NFA courses were offered to 3,220 students.

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 more than 100 colleges/universities from 34 states recognized through this program.

North American Fire Training Directors: In FY 2022, the USFA’s NFA hosted a training session for the North American Fire Training Directors (NAFTD) in-person at the NETC as it had in previous years. The three-day training session enabled USFA, NFA, and our on-campus partners at the Emergency Management Institute (EMI) to share information on programs and gather important feedback on our services. One day of the session was a leadership training class that focused on DEI. The partnership with NAFTD included representation from 32 states, as well as Canada.

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. 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:	2020	2021	2022
Students reporting that they were able to apply NFA training at home	93.9%	88.1%	93.8%
Students reporting that NFA training improved their job performance	96.4%	91.8%	97.4%
Students reporting that they shared NFA training with their peers	97.2%	91.7%	96.2%
Students reporting that they conducted formal courses with NFA material	24.2%	17%	22.9%
Students reporting that they established new policies and procedures based on NFA training	70.8%	63.2%	59.7%
Supervisors reporting improved performance from NFA training	92.3%	92.5%	93.6%
Supervisors reporting improved departmental performance	91.4%	91.7%	93.6%
Supervisors who say that they will recommend NFA training to others	96.9%	96.2%	97.6%
Supervisors reporting that NFA benefits outweigh costs	95.2%	93.9%	95.2%

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 NFA Online self-study training catalog currently includes 38 web-based courses and exams. This includes 30 NFA self-study courses as well as 8 courses and exams offered in conjunction with the NWCG. In FY 2022, the NFA released two new courses and one course revision. In FY 2022 there were 40,090 course completions. NFA Online Self-Study was used to administer course exams to 1,905 students who participated in virtual offerings of instructor-led courses.

In FY 2022, the NFA continued working to stand up the Blackboard Learn LMS to deliver online asynchronous instructor-led courses. Two courses were pilot tested successfully using Blackboard Learn with more offerings scheduled to be continually delivered.

American Council on Education: NFA courses are independently reviewed by the American Council on Education (ACE) to ensure academic rigor and integrity. The ACE review process provides an independent and objective third-party assessment of the NFA's academic quality, as well as a tangible benefit for students who can use the credits to pursue higher education through other academic institutions. [College Credit and Continuing Education Units \(CEU\) for National Fire Academy Courses](#) (fema.gov).

Continuing Education Units: The NFA awards CEUs. All NFA courses are recognized through the International Association of Continuing Education and Training.

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. For FY 2022, 17 NFA courses have been approved for continuing education units through the ICC and are listed in their catalog at <https://ppp.iccsafe.org>.

Significant Curriculum Enhancements: The NFA evaluates all surveys completed by students and continues to use recommendations from national level sources and subject matter experts to ensure its curriculum is both current and relevant for today and future needs. [Course Evaluation and General Feedback](#) (fema.gov).

Emergency Medical Services Curriculum: The important work of our career and volunteer fire and EMS personnel was visible in every community around the nation in FY 2022 as our dedicated first responders provided pre-hospital medical care during the COVID-19 global pandemic while continuing to respond to their communities' daily needs and natural and manmade larger emergencies. In FY 2022, NFA kicked off a full EMS curriculum review by subject matter experts from our nation's emergency medical services. This program's goal is to provide education and training to the nation's EMS responders and leaders for improved knowledge and skills of advanced EMS concepts. Continued course revisions and developments were refocused with virtual and online educational delivery model opportunities based on educational outcome requirements.

The NFA recognizes future challenges for EMS. These include pre-incident planning and incident management for EMS aspects of disasters of all scales and causes; evolving partnerships amongst emergency response and planning organizations; EMS management and response considerations as part of a national health care strategy; and the challenges of EMS service delivery with consideration to economic constraints, professional staff shortages, and situational restrictions on normal operations. These challenges have become part of existing course curriculum, included in course updates, and part of needed course development expansion.

Fire and Investigative Sciences Curriculum: With an emphasis on the convergence of science, law, and investigative responsibility, courses, instructors ensure learners receive exceptional education and training. Course deliveries are 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 curriculum features 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. Throughout FY 2022, numerous offerings in Fire and Investigative Sciences were delivered. This included extensive offerings of “Fire Investigation: Essentials” and “Fire Investigation: Electrical Systems,” which provide scientifically based, hands-on practical experiences related to aspects of fire investigations.

Additionally, Fire and Investigative Sciences restarted offerings of “Fire Investigation: Case Preparation and Testimony,” which had not been offered since early 2020 due to the COVID-19 pandemic and delays in computer system upgrades. This class provides students with high-level instruction and scenario-based practical exercises in case preparation and expert witness testimony.

Further, beginning in FY 2022 and continuing into FY 2023, delivery began of a new “Fire Investigation: Forensic Interviewing and Evidence” course which will highlight the identification, preservation, and collection of non-fire crime scene evidence. This will provide the fire investigator with an enhanced understanding of “traditional” crime scene evidence. This course builds off materials covered in the previously revised “Fire Investigation: Essentials” course.

Fire and Investigative Sciences also continued its emphasis on virtual and off-campus instruction for first responders. In FY 2022, the NFA presented offerings through virtual and off-campus settings, reaching more than 700 students throughout the country. Two additional courses are planned for development, “Fire Investigation: Fire as a Weapon” and “Fire Investigation: Courtroom Preparation and Testimony for First Responders” which further focus on first responders’ roles in the fire investigations process.

Fire Prevention — Management Curriculum: This curriculum area offers a wide array of courses intended for individuals new to fire prevention/community risk reduction and those who are ascending to leadership positions overseeing community risk reduction strategies. The curriculum area begins with online self-study courses that articulate the concept of “strategic” risk reduction and empower students with skills on how to perform a basic community risk assessment. Intermediate level students enjoy a robust course on program planning and evaluation. Senior level students are offered leadership courses for new fire marshals and how to use public policy to address community risk. The biggest enhancement in 2021 has been a significant update to the youth firesetting prevention and intervention curriculum. Improvement of the course now includes advanced training on how adverse childhood experiences and mental/behavioral health disorders can impact firesetting behaviors.

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. The “Fire and Life Safety Educator Fundamentals” course has been completed and piloted, and is expected to launch in FY23. The

course will empower learners with the knowledge, skills, and abilities to deliver programs that facilitate measurable learning outcomes resulting in behavioral change. It features 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 — Technical Curriculum: The NFA's Fire Prevention: Technical curriculum provides education, leadership, and vision for the fire safety providers to reduce the risk of injury, loss of life, and property in their communities through effective and comprehensive fire prevention and fire protection/risk management efforts. In today's built environment, there are ever changing technologies that result in new challenges for the fire service every day.

This curriculum teaches finely detailed and meticulously specific content concerning construction and maintenance codes, standards, guides, recommended practices, testing criteria, and manufacturers' specifications for the built environment. The classes are heavily application-based, with techniques and evaluative skills taught in the courses, which correlate directly with lessons learned. These professional experiences are incorporated into the development and implementation of the latest editions of building and fire codes and standards.

The NFA Fire Prevention: Technical curriculum consists of five primary core educational elements:

- Fire Prevention, Ignition, and Mitigation
- Fire Combustion Properties and Dynamics
- The Built Environment's Characteristics and its Impacts
- Passive and Active Fire Protection and Life Safety Systems
- Community Risk Reduction, Strengthening, and Sustainability

An update of the "Plans Review for Fire and Life Safety" course has started based upon the acquisition of new equipment. The NFA recognized that the COVID-19 pandemic shifted state and local governments' construction permitting processes to electronic formats in hopes of minimizing personal interactions and ultimately creating an eco-friendly positive impact. Two electronic screen drafting tables were acquired for the classroom to assist students by learning to review digitized construction blueprints.

This year, NFA staff completed the piloting step of a new course dealing with the technical reviews of fire alarm systems. The course is entitled "Plans Review of Fire Alarm System Installations." The goal of the course is to teach verification of codes and standards compliant design for a fire alarm system, prior to installation, thus resulting in lesser number of false alarms, increased efficiency of installation, correct operations, and more effective inspection, testing and maintenance processes.

Hazardous Materials Curriculum: Hazardous materials and weapons of mass destruction (WMD) continue to pose a threat to local, state, and national jurisdictions. This NFA curriculum area addresses full technical and command training for incidents encompassing hazardous materials and WMD incidents. The goal of this program is to foster national competency through training of all responders so that they can safely and efficiently perform their assigned roles in hazardous materials and WMD incidents while keeping communities safe through mitigation and code enforcement education.

Incident Management Curriculum: This curriculum addresses the full range of competencies necessary to command and control all hazards incidents. The goal of this curriculum is to foster a nationwide corps of fire and emergency services personnel, fully trained and prepared to the National Incident Management System (NIMS) standards, capable of commanding responses to incidents of all sizes and hazards. For all levels and complexities of incidents from routine responses to major emergencies, these courses address the use of the NIMS Incident Command System (ICS), strategic and tactical recognition primed decision-making, and the command skills and techniques needed by the mid- and senior-level officers of the nation’s emergency services.

Leadership and Executive Development Curriculum: The delivery methodology for 16 courses in the Leadership and Executive Development curriculum continue to be revised, moving from an instructor-led lecture format to a facilitator-led Socratic method. The courses have had a strong demand from students, especially after the COVID-19 restrictions. During the year, a new development of educational opportunities has been established with the Fire Department of New York for Leadership and Executive Development courses. Many two-day courses have been provided on-site for their sworn and civilian personnel to attend.

Planning and Information Management Curriculum: Data and data analysis for local risk assessment, response planning, budgeting, asset management, and emergency response reporting are important tools in the decision-making process. The goal of this curriculum area is to improve response and reduce loss from emergencies by improving data collection and analysis, as well as by using data in the priority-setting decision-making process, resulting in reduced community risk to all-hazards and enhanced all-hazards response planning and preparedness.

The keys to achieving these goals include training fire and emergency services officers, community leadership team members, and local policy makers to better understand and use data in risk assessment and response planning; preparing attendees to guide their departments and communities to expand their participation in cooperative participation, cross-discipline planning teams and systems; and ensuring the inclusion of proper standards for response services in the local priority setting, decision making, community preparedness, and all-hazards response planning efforts.

The country continues to recover from the impacts of COVID-19 on communities, rising inflation and labor costs, and decreased revenue at the local level. These factors have led communities to reevaluate service delivery models and examine response planning models to determine if current deployment and activity models meet community needs and expectations. The fire and emergency services continue to address imbalances between service demands and resource capabilities through the middle of the century, requiring a greater need for data analysis and altered service delivery models to meet community needs. The NFA is committed to ensuring this curriculum area addresses these current and relevant situations facing the nation’s emergency services. See Section 5 for more detail on the NFA Planning and Information Management curriculum.

Responder Health and Safety Curriculum: The USFA is committed to reducing death and injuries that occur while firefighters are serving their communities. More than 275 American volunteer and career firefighters died in the line of duty, and thousands more were injured, during FY 2020-2022.

The NFA Responder Health and Safety curriculum works to instill a culture of safety-oriented processes and personal wellness that is built around sound risk management practices. During these challenging times for our nation's emergency services there is a greater need to be effective, efficient, and outcome driven. The curriculum focuses on the risk associated with emergency operations and works to balance the whole person approach to safety and risk reduction. This approach focuses safety and wellness as both an individual and organizational challenge. Safety is everyone's job, and everyone needs to do their job well. The NFA courses demonstrate to emergency response managers and departmental safety officers that there is a clear process towards implementing a positive and proactive safety culture. The courses stress a leadership commitment to safety through actions, training, and education while empowering others to be safe.

Training Program Curriculum: The Training Management Program is designed to provide emergency services trainers, program managers, and leaders with the knowledge to enhance their skills, develop training programs, and manage training programs to improve operational efficiency, enhance responder safety, manage the training function, and describe and defend the training function.

The NFA is in an enviable position to provide national training leadership to state and local fire training officers and fire training organizations through high quality training courses. The NFA Training Program Management curriculum offers a comprehensive curriculum with courses offered on-campus, through field direct delivery, during state weekends, and the state sponsored delivery system.

Facilities and Support: The USFA 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 NFA and the NFP Division) and FEMA's EMI located on the 107-acre historic campus in Emmitsburg, Maryland.

In FY 2022, the USFA MOSS Division provided numerous facilities and support services for federal employees, federal contractors, students, and instructors 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. After the break in resident classes in FY 2021 due to the COVID-19 pandemic, classes resumed on the NETC campus although the number of students was limited to maintain social distancing in the classrooms, dining hall, and dormitory buildings. In FY 2022, NFA had 4,058 resident students and EMI had 2,380.

The MOSS Division oversees and maintains an installation master plan, a deferred maintenance and capital improvement plan as well as a process to achieve NETC's vision of a historic, state-of-the-art, multiuse, student-focused campus. The master plan lays out the existing state of and vision for NETC in a comprehensive and graphic manner that can be referenced when expansion or reconfiguration is necessary. The plan establishes a planning framework with specific recommended solutions for identified issues and it outlines planning standards to help create a sense of place and a destination that presents a professional image and fosters a supportive working environment. In addition, USFA MOSS maintains a listing of past, present, and future campus climate change initiatives.

Progress continued for crucial enhancements to heating, ventilation, and air conditioning (HVAC)/filtration systems; solar energy array; Americans with Disabilities Act compliance; and connectivity. Ongoing projects include establishing multiple dorm rooms for canine service animals as well as accelerant detection dogs attending NFA courses with their handlers, improvements to the Fire and Investigative Sciences Curriculum burn range including the addition of new restroom facilities, and efforts to map the Wi-Fi connectivity gaps throughout the campus. All work was completed in accordance with Maryland State Historic Preservation and FEMA Historic Preservation Programmatic Agreement. Additionally, staff roles have been requested for security, nursing, and IT support to enhance the health, safety, and security of all who work at and visit the NETC.

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 2022.

COVID-19 Response Support: USFA provided broad support to the national pandemic response. For example, NFP Division provided extensive fire, EMS, and data subject matter expertise for the Health and Human Services/FEMA COVID-19 Healthcare Resilience Task Force, Prehospital Working Group. Three NFP staff who are certified paramedics were deployed to the Task Force for 110 days and remain engaged with the working groups to assure fire and emergency medical service equities are represented. Contributions included development of guidance for first responders on Personal Protective Equipment, First Responder Testing, Crisis Standards of Care, Data, Stakeholder Engagement Cross-cutting, Telemedicine, and Response Best Practices. The NETC MOSS Division provided continuity of operations for the NETC campus and developed and implemented plans on infection control for operations and the resumption of in-person learning.

USFA Response to Assistance to Firefighters Grant (AFG) Monitoring and Oversight Requirement, § 6 of the Reauthorization Act: USFA and AFG Program Office staff continue to work collaboratively to address this requirement. There are two areas of focus for monitoring and oversight – programmatic and financial. USFA staff assist FEMA’s AFG Program Office when conducting targeted post-panel reviews. USFA staff have been conducting these reviews with the FEMA AFG Program Office since FY 2017 and continue to assist with this effort. USFA and FEMA AFG Program Office staff also coordinated to develop and administer an online grants management training program. Also, in FY 2022, USFA hosted members of the fire service from across the Nation to review eligible AFG, Fire Prevention and Safety, and Staffing for Adequate Fire and Emergency Response grant applications. While in 2020 and 2021, the review panels were held virtually, FY 2022 provided the opportunity to resume in-person panels on the NETC campus where USFA staff were on site to assist. Further, in FY 2022, the AFG criteria development panel was also held in-person and on the NETC campus with support from USFA staff. Both activities being held in-person on the NETC campus provided an additional level of collaboration and allowed further oversight by USFA in response to the § 6 of the *Reauthorization Act* requirement.

National Fire Academy Board of Visitors: The NFA Board of Visitors (BOV) plays an important role in supporting the academic stature of the NFA. BOV members are professionals selected from the fields of fire safety, fire prevention, education and training, fire control, research and development in fire protection, treatment and rehabilitation of fire victims, local government services management, and from other professional organizations to ensure a balanced representation of fire and emergency services interests. Authority for the BOV comes from Public Law 93-498, *the Federal Fire Prevention and Control Act of 1974*. The BOV is charged with the annual review of the NFA programs, and it also provides advice and recommendations to the USFA.

In FY 2022, the NFA BOV completed the following actions:

- Assessed the work of NFA programs and facilities, supported curriculum development and maintenance work underway, and received information on deferred maintenance projects at the NETC campus.
- Maintained sub-committees and conducted activities addressing the NFIRS, and the NFA's Professional Development Initiative.
- Supported NFA Online performing a timely launch migrating to Blackboard, as the platform for the LMS.
- Conducted three meetings which were efficiently supported by using online conferencing technology. The annual in-person meeting was held on the NETC campus with one member attending online.
- Developed their annual report.

The culmination of the year's activities included numerous recommendations for the enhancement of the NFA's educational program, upgrades, and expansion of the NETC physical facility, specific technology needs, 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 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. The FFWG meets on a quarterly basis and during FY 2022 provided updates to members on emergent fire-related topics including comparative assessment of prescribed versus wildfire, the Department of Energy Federal Integrated Project Teams, legislative and government services updates, training for workers in hazardous environments, wildfire hazard mitigation methodology, and various federal research on fire and life safety.

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*, 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 has worked with respected agency partners and non-government organizations to coordinate wildfire safety efforts and innovations to help firefighters, emergency managers and community leaders create neighbors and cities that are better prepared for a wildfire event and recover more quickly. This year, USFA assisted NWCG with developing protocols for wildfire response due to COVID-19 which made wildfire response more difficult.

USFA collaborated with FEMA NIMS typing team that worked to develop a NIMS position as a WUI Mitigation Specialist and Lead as a new job title with recognized qualifications for the position. USFA helped coordinate the development of the team that included members of NWCG's WUI Committee to ensure that both teams were recognizing the same qualifications and training needed for the position. The position and qualifications have completed a public comment period and is now a recognized NIMS position.

USFA participated in a FEMA Prescribed Fire Burn Sprint, a working group with FEMA's Grant Directorate, to understand how prescribed fire is used on landscapes to determine if FEMA grants could support wildfire mitigation and recovery to improve community resilience. USFA also participated with FEMA on a pre-Mitigation Assessment Team and Mitigation Assessment Team for the Marshal Fire (Colorado) to gather data about wildfire related loss and interview first responders on this incident to create information and tools that can be used by communities and first responders in the future to reduce loss during a wildfire, including property losses and health issues developed from wildfire smoke.

The USFA collaborated with the NFPA and various FEMA components to promote the Wildfire Community Preparedness Day. FY 2022 marked the eighth anniversary for this activity. Wildfire Community Preparedness Day is a national recognized event that encourages communities to take action to reduce their risk of loss from wildfire events. USFA has encouraged fire and emergency services leaders to support these kinds of grassroots actions.

Additionally, the USFA has served as the Interagency Coordinator to interface with various FEMA national and regional programs and with existing programs from the interagency representation at NIFC. Serving as host, the USFA supported various mitigation, planning, logistics, and grant meetings throughout the year.

The USFA maintained membership with the following FEMA efforts and interagency wildland fire groups: Wildland Fire Leadership Council (the U.S. Fire Administrator is a principal member); Mitigation Framework Leadership Group; FEMA Building Codes Strategy Development; FEMA Climate Change Assessment; Wildfire Resilience Interagency Working Group established under the National Climate Change Task Force; NWCG; Fire Executive Council; Fire Management Board; NWCG WUI Mitigation Committee; the NWCG Communication, Education, and Prevention Committee; the NWCG Risk Management Committee; NWCG Incident Position Standards Committee; NWCG Mental Health Subcommittee; NWCG Training Development Committee; and Fire-Adapted Communities Learning Network and Regional Cohesive Strategy groups. Through these groups, the USFA represented SLTT structural fire and emergency services and encouraged collaboration on how FEMA offices engage on fire service issues and how federal land management agencies and departments manage existing resources, research, technical development, training, qualifications, and mobilizations.

In collaboration with FEMA, DHS S&T, and other key stakeholders, the USFA worked to determine what new and emerging technologies could be applied to wildland fire response. Given the loss of life and property that occurs in wildfires annually, USFA continues to collaborate with DHS S&T to address specifically what technology could be applied to save lives in the wildfire response. This effort developed a Wildland Urban Interface Fire Operational

Requirements and Capability Analysis Report, dated May 31, 2019.²³ USFA collaborated with DHS S&T to post an additional WUI page on research projects identified in this report to improve fire response including technologies that are now available at no cost to first responders in WUI communities. FY 2022 marks the fifth year of this collaboration with the intent of sharing key findings with the broader fire and emergency response communities. USFA continues to collaborate with DHS S&T with this ongoing research.

Federal Operations and National Preparedness: During disaster activations, the USFA deployed staff filling the Emergency Services Group Supervisor position supporting FEMA’s NRCC. FY 2022 was another unprecedented year that continued to break records with all 50 states, the District of Columbia, and five U.S. territories still under a major disaster declaration for the COVID-19 response. The Atlantic Basin saw several named storms with the State of Florida being impacted multiple times to include Hurricane Ian, a strong category 4, and Hurricane Nicole being a late season storm. Puerto Rico and South Carolina both saw hurricane landfalls impacting businesses and individuals. USFA also provided subject matter experts in support of NRCC augmentation training and exercises preparing new FEMA staff for NRCC activations.

USFA staff are on multiple working groups providing subject matter expertise, coordination, and input to the FEMA Crises Management System, Emergency Support Function Leadership Group, FEMA NRCC positions and field response positions, and multiple other FEMA and DHS procedures, policies, and doctrine.

Type 3 All-Hazards Incident Management Teams: During 2022, the USFA continued to support All-Hazards Incident Management Teams (AHIMTs) by establishing competency standards for the teams to follow as they respond to national disasters. These standards will define what an AHIMT should be capable of in terms of administrative, operational, and logistical readiness. The USFA provided development assistance for 72 Type-3 AHIMT course deliveries that trained 1,577 students for the nation’s emergency services. In FY 2022, the USFA maintained contact with 81 AHIMTs throughout the country, representing SLTT incident management teams that establish a robust national capability for emergency services. Due to resource limitations at the USFA, the National Fire Programs Division discontinued AHIMT national program efforts at the end of FY 2022. The USFA/NFA continues to provide the Type 3 AHIMT courses through its curriculum development and delivery system.

Critical Infrastructure Protection: The USFA’s Critical Infrastructure Protection Program advances 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 critical infrastructure protection 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 2022, the weekly *InfoGram* was shared with over 185,000 emergency services sector personnel nationwide, an increase from 105,000 in FY 2021 largely due to a cooperative information sharing endeavor with the Federal Bureau of Investigation’s *InfraGard* program.

²³ https://www.dhs.gov/sites/default/files/publications/wui_fire_report_of_findings_july_24_2019v2_508.pdf

Additionally, the USFA-managed Emergency Services community of interest on the Homeland Security Information Network (HSIN) has vetted more than 27,000 emergency services sector leaders for access to current situation reports, emerging threat information, public health and safety bulletins, cyber and terrorism threats, and other critical “For Official Use Only” information. The USFA Critical Infrastructure Protection program also hosts monthly informational webinars on developing trends with SLTT fire service personnel that serve as liaisons with their state fusion centers.

Section 4.4 — Public Education

(15 U.S.C. § 2215(e))

In FY 2021, 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/fief/>.

Arson Awareness Week: “Arson in Homeless Communities Engagement - Education - Outreach!” was the 2022 theme for Arson Awareness Week. Activities provided first responders and the public at large with a host of considerations to be mindful of when engaging with a homeless population. This year's goal for Arson Awareness Week was to promote awareness of specific tactics when addressing situations that develop in homeless communities. First responders gained an understanding of common motives for arson related fires, learned about accidental and incendiary incidents, and discovered how to identify resources and develop programs within the homeless communities. USFA, along with the International Association of Arson Investigators (IAAI), presented a webinar that highlighted training opportunities to create outreach strategies, identify current successful mitigation concepts and learned of ways to develop standard operating procedures to document problems, create potential codes and ordinances, and cultivate partnerships for a long-term strategic solution.

Millions of dollars in losses are reported each year as result of fires in areas inhabited by the homeless population. Whether in vacant structures or homeless encampments, outreach is extremely difficult to establish without actual face to face encounters. As a result, safety is paramount for those initiating contact to promote safety and awareness education. Investigations within these communities requires unique tactics and additional personnel to ensure a thorough investigation of any fire related incidents as well. With these issues in mind, we marketed multiple courses offered through USFA/NFA programs for first responders.

National Emergency Training Center Library: The NETC Library provides print and electronic resources and reference services to NFA and EMI students and to USFA and other FEMA staff. Core services include building the NETC Library Catalog and Periodical Index, providing research assistance, and delivering student orientations and instruction.

A major initiative in FY 2022 was the redesign of the library website and the implementation of a new content management system for library research guides. Fourteen online library research guides were created. A selection includes:

- Disaster Preparedness
- Historic U.S. Fires, 1871-2003
- History of the United States Fire Administration
- Post-Traumatic Stress Disorder
- Sprinkler systems
- Executive Five Officer Program
- Managing Officer Program

From December 2021 to May 2022, the library building was closed for HVAC upgrades. Online services to students and staff continued during this time. Staff also maintained a temporary location on the NETC campus for in-person questions.

The NETC Library Catalog and Periodical Index is a public discovery tool for research on the fire service, EMS, and emergency management. It contains records for over 232,000 books, reports, and articles. In FY 2022, 3,400 documents were added to the index, including 2,208 scholarly journal and trade magazine articles.

The library responds to reference questions from USFA affiliates and the first responder community around the world. In FY 2022, library staff answered 871 reference questions and responded to 3,519 email inquiries. A total of 21 classroom orientations and individual instruction sessions were presented, reaching 578 students. These were presented both virtually and in-person.

The library currently offers students in the EFO and MO programs access to six online subscription databases providing full text articles and e-books. The databases had a total of 4,231 sessions and 15,208 combined searches in FY 2022. In March 2022, the EFO Program provided funding for one additional database and two additional e-journals. Eighty-six e-books were added to the collection during the year, bringing the total to 671. Access to e-books was expanded and they are now available to any NFA or EMI student.

Home Fire Fatalities: The NFP Prevention and Information Branch undertakes a daily media monitoring effort to capture and analyze, in real time, news reports of home fire fatalities from around the country. The intent of this effort is to provide an estimate of deaths due to fire as well as demographic trends and fire causes in the United States. Guided by this data and analysis, the Prevention and Information Branch designs educational and informational prevention resources for distribution to the fire service and the public. These resources are also made available on the USFA website.

Working through a tribally-owned small business contract, the USFA began work to more accurately and efficiently collect and subsequently analyze preventable home fire fatalities. This work is expected to be completed in early calendar year 2023.

Home Fire Fatalities and Social Vulnerability Explorer: The USFA is developing a web application tool that will allow public stakeholders to assess or identify community fire risk based on home fire fatality incidence and social vulnerability. The tool will support targeted community risk reduction campaigns and public outreach initiatives.

Wildland Urban Interface Fire Hazard Awareness Tool: In FY 2022, the USFA began developing a web application tool that will allow public stakeholders to visualize where wildland urban interface communities are located relative to wildfire fuels to improve public awareness of wildfire hazards and direct users to resources for community risk reduction, outreach, and mitigation.

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. During FY 2022, USFA started the Fire and Life Safety Communicators Initiative bringing together stakeholders from national

fire and life safety organizations to speak in one voice around a monthly fire safety theme as well as sharing recent research and opportunities to collaborate and promote one another's research and activities. The USFA also began the USFA Podcast to promote new research and provide emergent topics to the fire and life safety community. During the first year, USFA highlighted programs available at USFA as well as episodes on COVID-19; firefighter suicide; diversity, equity, and inclusion in the fire service; and other research-based topics. USFA continues to be part of the NFPA Emergency Messaging Advisory Committee.

The Fire Marshal Interchange: The Fire Marshal Interchange (FMI) was established to provide a platform for fire marshals across the nation to safely communicate within the secure HSIN. Using this site allows for sharing knowledge outside jurisdictions to bring awareness of problems and trends that may threaten the lives of those they have sworn to protect from fire and life safety issues. The world of the fire marshal is always changing. This site is designed to advocate for positive reinforcement of the basic and often complex situations that arise. The FMI is specifically designed for the fire marshal mindset. The USFA fully supports the collaboration of fire marshals throughout the nation and internationally to help better serve their communities.

Since its release in March 2019, the FMI has garnered 905 active members from federal, state, territorial, tribal, county, and local municipalities, as well as the Departments of Defense for Canada and New Zealand. We are using various marketing tools to advertise the network to the fire marshal community including the USFA website, Gov Delivery, National Association of State Fire Marshals, HSIN, Certified Fire Investigator Trainer Network (CFITrainer.net), International Association of Arson Investigators, Community Risk Reduction (CRRNet), and LinkedIn.com.

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*. Properties that provide lodging to the public and meet the minimum fire safety requirements are approved for official travel by 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 and all conference rooms. If the building is four or more stories tall, fire sprinklers must be in each guest room. The property receives a FEMA identification number that can also be used for the Emergency Lodging Assistance Program funded by FEMA.

The Office of Management & Budget Collection 1660-0068, Federal Hotel & Motel Fire Safety Declaration Form is used for the information collection. This renewal process keeps the information collection active on the Office of Management and Budget inventory for three years. The current expiration date is March 31, 2025.

In FY 2022, the USFA added 1,076 new lodging properties to the list, bringing the number of properties on the National Master List to 55,502. The USFA partners with the U.S. General Services Administration to assist in maintaining accurate property information as part of our ongoing commitment to ensure fire safety for travel lodging.

Digital Communications and Social Media: Followers on the USFA's Twitter account (@usfire) totaled 51,500 people. This year we posted over 550 tweets and posted 230 Facebook posts, with the USFA Facebook page receiving over 31,370 likes. The USFA LinkedIn channel currently has 22,811 followers and have posted over 130 times. The USFA YouTube channel has

1,147 followers and 105 video posts. In addition to supporting FEMA and Ready.gov digital platforms by sharing/retweeting posts, we participated in several major campaigns on our platforms such as National Preparedness Month, wildfire prevention and safety information, Human Trafficking Awareness Month, EMS Week, Suicide Prevention Month, Community Risk Reduction Week, Arson Awareness Week, and hurricane/severe storm safety to name a few.

USFA staff sent 168 bulletins to GovDelivery subscribers on community risk reduction, fire prevention and life safety, notices of firefighter fatality, and other available USFA resources such as NFA training. The number of subscribers to one or more USFA email lists is 128,000.

U.S. Fire Administration’s Website: The USFA’s website received 3.2 million visits from 2.4 million unique visitors during the reporting period. A variety of fire prevention outreach materials were added to the USFA’s website including animated WUI social media cards in both English and Spanish, customizable home fire-safety handouts for local fire prevention campaigns, a video on the role of the fire service in creating healthy community landscapes, and resources for Arson Awareness Week and Fire Prevention Week. Also added to the site was content to inform recreational vehicle owners about fire and life safety practices, a digital presentation on the dangers of smoke, wildfire evacuation outreach guidance for the fire service, and tips for electric vehicle (EV) owners on how to lower their risk of fire and electric shock injury when charging EVs.

The USFA published 59 articles to its blog on current events, emergent issues, training, and protection of critical infrastructure relevant to the fire service to increase national awareness. Included were articles on how to obtain grant funding; protecting structures from wildfire embers; fire service diversity, equity and inclusion as it pertains to the LGBTQ+ community and African Americans; per- and polyfluoroalkyl substances (PFAS) in turnout gear; protecting people who live or work in high-rises from fire; using multimedia to inform and inspire people to embrace fire safety; NFA live online training; guidance on responding to lithium-ion battery fires in EVs and mobility devices; and the use of lights and sirens in EMS responses.

Tools and resources were developed to help first responders with prevention efforts including a downloadable Community Wildfire Protection Plan, information on the National Cohesive Wildland Fire Management Strategy, evacuation safety information, tools for assisting vulnerable populations during a wildfire disaster, a healthy landscape YouTube video (had over 1,000 views in 5 months), grant information, information about the Wildfire Commission and Fire Adapted Community resources.

Other content added for fire and EMS included a digital story to support release of the report “Wildland Urban Interface: A Look at Issues and Resolutions,” a reorganized NFA section to better support on-campus students, state fire profiles and statistical reports, and a new section to support release of, and transcripts for, The USFA Podcast.

Fire is Everyone’s Fight®: The USFA’s branded prevention initiative, Fire is Everyone’s Fight®, works to unite the fire service, life safety organizations, and professionals to reduce home fire injuries, deaths, and property loss by changing how people think about fire and fire prevention. All USFA prevention activities and resources bear this brand. At the end of FY 2022, 3,628 fire departments and other organization supporters had registered to use the brand. Supporters include all 50 state fire marshal offices, the District of Columbia, Guam, seven

Native American Tribes, and government and non-government organizations from Australia, Canada, Brazil, Denmark, Egypt, England, Guam, Kenya, Mexico, New Zealand, Peru, South Africa, and the United Kingdom.

Publications Center: The center processed nearly 3,400 publication orders, accounting for the distribution of approximately 518,000 fire prevention and life safety items. The outreach products include booklets, manuals, technical reports, handouts, thumb drives – most are 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.

In addition to providing in-person customer service to both schoolhouses located at the NETC (National Fire Academy and EMI on-campus students), the Publications Center staff provide customer service to approximately 750 email and phone inquiries per year.

The Media Production Center: The center creates a wide variety of communication graphics including animated videos, 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. Of particular note is the design staff’s production work on a 9-minute animated video, *The Role of the Fire Service in Creating Healthy Community Landscapes*. This video has been viewed more than 1,100 times and shows our audience how the fire service can help communities create healthy landscapes that will keep people safer and create communities that are more resilient.

The USFA Media Production Center also supports FEMA’s 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* during Human Trafficking Awareness Month by distributing resources to enhance first-responder awareness of human trafficking. Through dissemination at the NETC campus and across the nation at various meetings and/or where the USFA has a presence, we are sharing resources to educate and train the nation’s first responders to recognize and report a victim of human trafficking. In addition, our social media platforms regularly amplify human trafficking awareness for first responders as well as supporting the DHS Blue Campaign channels through shares and retweets.

Home Fire Fatalities and Social Vulnerability Explorer: The USFA developed a web application tool that will allow public stakeholders to assess or identify community fire risk based on home fire fatality incidence and social vulnerability. The tool uses data collected on fire fatalities reported in the news along with U.S. Department of Health and Human Services Centers for Disease Control and Prevention (CDC) data relative to social vulnerability to provide an indication of possible at-risk populations. The tool will support targeted community risk reduction campaigns and public outreach initiatives.

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 SLTT levels and is outside the federal purview. The code development, implementation, 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 current codes and compliance through training at the NFA, staff involvement in the national consensus codes and standards process, and at the FEMA Building Code and Standards initiative.

Section 4.6 — Outstanding Initiatives

(15 U.S.C. § 2215(g))

National Fire Incident Reporting System: An extreme gap exists between the current and desired data system with data readily available to inform community emergency response capacity and capability daily and during disasters.

NFIRS is the only national reporting system that SLTT fire departments use to report emergency response activities, including response to fire, hazardous materials, and the range of responses during severe weather and manmade and natural disasters. Fire department reporting is voluntary, with incentives built into the FEMA AFG grant application requirements.

After responding to an incident, each participating fire department has a mechanism for data entry either into a vendor-solution records management system or directly into the National Fire Data Center based on a prescribed data standard (NFIRS 5.0) that is unwieldy and extremely outdated (1995).

Currently, NFIRS software releases and system updates serve only to keep the system stable and secure. The existing system has numerous security vulnerabilities and continuous patching is expensive and inefficient. This manner of only “keeping the lights on” must be sustained until a new cloud-based system can be developed, pilot tested, and moved to production. The current system has ~80 percent participation. Significant improvement is possible by reducing the burden for data entry and improving data quality, quantity, and usability.

The quantity, quality, and timeliness of NFIRS data submitted by states and local fire departments is inadequate. The current antiquated system uses ancient code and regular fixes are costly. The system is not cloud-based and does not have desired level of security nor capability for direct data capture, geolocation, analytics, dashboard reporting, or data exchange via application program interface (API). Gaps in the data standard limit wildland fire data, community risk reduction factors, and timeliness of data reporting. In addition to the gap in emergency resource capability assessment noted above, the lack of accurate, complete, and timely all-hazards incident data means the federal government is ill-prepared to identify the nation’s fire problem, or the risks involving other hazards. If the NFIRS system and the data standard is not modernized, accuracy of threat and hazard identification is severely hampered. Relevant performance metrics and useful customized intelligence from SLTT agencies in risk reduction and disaster planning will be unavailable to USFA and FEMA. Finally, the current NFIRS cannot share data with FEMA equities via an API. This situation must change to facilitate resource assessment, better preparedness, and response efficacy.

The USFA is prepared to comply with FEMA Directive 262-5, Cloud Smart Computing, by moving all data operations to the cloud. A new data system must be developed. It will be a high-value cloud-based data system for use by the FEMA/USFA, SLTT community, and users at the national level including researchers and academia. This effort will be accomplished through the implementation of a modern cloud-based data capture system with secure API data exchange capability and a streamlined data standard for interoperability and maximum efficiency. The system will allow for modernized workflow and scalability, leveraging modern data tools to process data and analyze at scale. The system will have enhanced computing power and minimize the burden to data contributors while providing incentives through user-friendly

interactive dashboard analytics. The data system must have capability for aggregating data from multiple sources, now and in the future, including automatic vehicle location, geographic information system, biometrics, and field sensors.

Using secure multifactor authentication login to designated accounts, fire departments, using the *new* NFIRS data capture, aggregation, analytics, and reporting system, can assess the impact of their response availability, capability, and operational effectiveness on the outcome of a fire or other emergencies. Key performance metrics will include measures of the ability to provide intelligent insights sufficient to inform decisions that minimize the occurrence of firefighter injury and death, civilian injury and death, and property loss.

Users will have access to data contribution and aggregation opportunities that reduce the burden of data entry and allow them to evaluate risk, deploy resources, and respond to emergencies with greater situational awareness and understanding. User fire departments will be able to monitor their call processing, alarm handling, turnout time in near real time while better understanding their overall response capability. Through data aggregation from varied existing data sources, users will have insights for more effective preventative measures to reduce the incidence of fire in their community.

As noted, USFA/NFIRS is the only system that documents fire, EMS, and all-hazard incident response details for the nation. These data are the foundation on which other data systems rely. For example, the National Firefighter [Cancer] Registry must have incident-level exposures for firefighters in the registry to connect their toxic exposure on scene to longitudinal occurrence of cancer. This option is not currently available. Additionally, FEMA components in Resilience need live data feeds from the field to supplement and complete risk and preparedness data projects.

The proposed system initiated in 2023 and resulting dataset will empower FEMA, our federal partners, and Congress with intelligence for decision making and opportunities for predictive analytics in WUI events, Community Risk Reduction, and future pandemic emergency response resource preparedness. The new system will be flexible and adaptable to the changing needs of the fire service and first responders to ensure equity of service availability at a local level and to enable local fire departments to access and use their own data for informed decisions. The proposed system was initiated in FY2023 through a phased research and development approach in collaboration with DHS S&T. With the passage of the President's Budget in 2024, it is anticipated that the new USFA analytics platform will be operational, and the decommissioning of the existing system is anticipated to be completed by end of budget year 2025.

Once the new cloud-based system is operational, and fire departments are transitioned to the new system, the legacy data will be securely archived for use as needed. Transition will involve development of educational messaging and training modules orienting users to the new system, and helpdesk consultation for live interaction with experts.

State Fire Training Grants: National statistics indicate that approximately 70 percent of the nation's firefighters are volunteers serving their local community and 85 percent of the nation's fire departments are all or mostly volunteer. The Nation's fire departments are struggling to respond to calls for assistance and to recruit and retain firefighters while trying to provide lifesaving and important training and education to these dedicated men and women. The USFA

has provided small grant funds to state fire training agencies. The \$20,000 per state has been critical in providing training to the Nation's emergency responders. These funds have proven to be an effective "force multiplier" for the NFA and continue to reach thousands of fire and EMS personnel on an annual basis but unfortunately additional funds are needed to make a more significant impact to address the needs of our SLTT partners around the country.

Wildfire: The Bipartisan Infrastructure Law, passed in December 2021, established the Wildfire Mitigation and Management Commission to be led by the Department of Interior, the Department of Agriculture (USDA), and FEMA including USFA. The Commission is tasked to study and make recommendations to improve Federal policies relating to (1) the prevention, mitigation, suppression, and management of wildland fires in the United States; and (2) the rehabilitation of land in the United States devastated by wildland fires. USFA is currently working to support the legislative mandates; FEMA and USFA are partnering closely with USDA and Department of Interior to build and execute the Wildland Fire Mitigation and Management Commission. The Commission kicked off on July 20, 2022, with an information session for members representing federal agencies, state, local, and Tribal governments, and the private sector. The first in-person meeting took place September 14-15, 2022 and began the year-long collaboration to determine recommendations for the nation. The Commission recommendations will be submitted as a report to Congress proposing federal legislation, policies, and strategies to prevent, mitigate, suppress, and manage wildfires more effectively.

USFA also engages in the wildfire Interagency Working Group and the Wildland Fire Leadership Council. USFA is leading an initiative to explore methods and technology that integrates and analyzes data collected by each participating agency to include USFA, USDA, and Department of Interior. These efforts will provide for a more comprehensive and accurate accounting of the WUI challenges facing the Nation. Our goal is to enhance USFA's data collection capability for WUI fires, providing more accurate analysis and reporting of all fire data in support of its legislative mandate, while identifying areas USFA could address to reduce the incidence of these fires.

The Fire Problem in America: In 2021, the USFA recorded 2,265 civilian fire deaths across the nation, including 268 children under the age of 14 and 560 elderlies over the age of 65. In 2022, the USFA did not have investigation authorities to supplement other federal investigators and fill the gaps of knowledge in the investigations of major or remarkable fires.

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

None for the period of this report.

Section 4.8 — Suggested Improvements to Fire Prevention and Building Codes (15 U.S.C. § 2215(i))

The USFA continues to monitor and participate with code development/change activities of the NFPA and the ICC. Through ongoing efforts, USFA supports various initiatives with technical expertise as appropriate. The USFA regularly coordinates these efforts with our partners within FEMA and in the fire service and the fire prevention community. The USFA recommends that local jurisdictions adopt and adhere to the latest edition of at least 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, fire safe building construction including fire resistant building materials, and fire safety in the WUI using the whole community approach.

V. National Fire Academy Triennial Report (15 U.S.C. § 2206(n))

**The Curriculum of the
United States Fire Administration,
National Fire Academy
Triennial Report**

*Lessons Learned and
Changes Made During the Period
Fiscal Years 2020-2022*

Section 5.1 — Introduction and Legislative Requirement

(15 U.S.C. § 2206(n))

In the United States Fire Administration Reauthorization Act of 2008, Congress tasked the NFA to report every three years on modifications made to NFA’s training and education curriculum. This report is to address “...information about changes made to the National Fire Academy curriculum, including:

- the basis for such changes, including a review of the incorporation of lessons learned by emergency response personnel after significant emergency events and emergency preparedness exercises performed under the National Exercise Program; and
- the desired training outcome of all such changes.”

USFA NFA is a directorate within FEMA, a component of DHS. The USFA’s mission is to “provide national leadership to foster a solid foundation for our fire and emergency services stakeholders in prevention, preparedness and response.”

This report is submitted in compliance with that directive on changes that have been made to the NFA curriculum in fiscal years 2020, 2021, and 2022. Excluding this introduction, this report contains the following sections:

FY 2020-2022 National Needs and NFA Delivery System Changes

This section provides a brief discussion of emergent needs and new training challenges that surfaced nationally in the period FY 2020-2022 and impacted NFA’s training curricula, and provides NFA training delivery system changes made during this period.

FY 2020-2022 Changes to NFA Courses by Curriculum Area

This section provides a detailed report of all changes to the NFA curriculum during FY 2020-2022, including all new courses developed and existing courses revised. For the changes in each of the 12 curriculum areas presented, an explanation is provided of the emergent needs in the nation’s emergency services prompting the curriculum changes, the focus and scope of the new and revised courses, the expected training outcomes, and training procedures at the local level. In many cases, the lessons learned are carried over to changes in emergency response.

Samples of How FY 2020-2022 Incident Lessons Learned Have Been Included in the NFA Curriculum

Lessons learned from all hazard incidents, responses, and events in the emergency services are a substantial resource for NFA’s curriculum. New protocols, procedures, understandings of risk, and emergency management techniques are incorporated into courses on a routine basis. This keeps courses fresh and relevant to the students. These inputs are collected from current national and international events, students, contract instructors, and staff as part of staff’s responsibility to keep their curricula current. Incidents are vetted to identify those that provide opportunities for student job performance improvement. Pursuant to the spirit of the information request by Congress, this section presents a sampling of how the lessons learned from significant incidents during the FY 2020-2022 period have been incorporated into the NFA curriculum.

Section 5.2 FY 2020-2022 National Need and NFA Delivery System Changes

Emergent Issues and Training Challenges

During FY 2020 through 2022 several issues surfaced affecting the nation's fire and emergency services and had broad impact on fire service education, training, and performance improvement. These issues also influenced the NFA curriculum and programs.

Hazardous materials, WUI and forest fires continue to be important challenges to fire and emergency services across the United States. The nation's fire service has been imbedded in the increase of active shooter incidents and use of fire as a weapon. WUI fires continue to grow both in size and numbers. There have been major WUI fires in California, Texas, Tennessee, and Oklahoma in recent years. The USFA is working with the U.S. Forest Service, National Park Service, National Institute of Standards and Technology, and the National Wildfire Coordinating Group to coordinate training and classes to address this very important issue. The increase in active shooter incidents and use of fire as a weapon has caused a need for the nation's emergency responders to be better trained to respond and perform in these highly stressful events. All these issues are being built into curriculum, particularly command and control courses.

In FY 2020 – 2022, the nation's fire and emergency services continued to face evolving challenges beyond the traditional fire response every day. The NFA's training mission requires that the NFA curriculum keep pace with these dynamic changes in threats to the public. New and emerging hazards, response challenges, and lessons learned from responses to these emergent risks/hazards were the principal driving forces for the on-going curriculum changes and updates commencing in FY 2017-2019 that are described in this report.

According to current National Fire Protection Association (NFPA) statistics (*NFPA U.S. Fire Department Profile*, September 2022), approximately 65 percent of America's firefighters are volunteers, and approximately 18 percent were all career or mostly career departments protecting 70% of the US population. Both career and volunteer fire departments are struggling to recruit and retain firefighters. The NFA moved to strengthen its development of mediated and synchronous courses. This delivery platform will help to accommodate the limited time fire and emergency services personnel must attend training. This dramatically helps volunteers attend training. The NFA will continue its expansion of mediated course development and implementation.

Finally, local fire and emergency services' growing missions have brought about an integration with and support of national response priorities for major disasters, terrorist threats, and other incidents of national significance. These increases have been responsible for additional changes to NFA's curriculum in FY 2020-2022 including lessons learned from:

- COVID-19
- Mayfair Mall Shooting (Wauwatosa, Wisconsin), Robb Elementary School Shooting (Uvalde, Texas)

- Oregon Wildfires, Australian bushfires, The Caldor Fire (California), Marshall Fire (Colorado), Dixie Fire (California), Sevier County Fire (Tennessee), Bay Area Fire (SCU Lighting Complex Fire - California), widespread arson and using fire as a weapon.
- Tornado outbreaks, Hurricane Ida, Nashville flooding, Hurricane Ian

Plus, many other newsworthy events, as well as large-scale terrorist and disaster exercises at the federal and state level, and the growing requirements for all responders to more effectively use National Incident Management System/ICS in routine and large incident response have been addressed in the changes to NFA's curriculum.

FY 2020-2022 Curriculum Format and Delivery System Changes

As mandated by Congress, this report documents the changes to NFA's courses and curriculum made in FY 2020-2022. Sections three and four, below, focus on course and curriculum changes designed to improve the quality and impact of the NFA training. However, the courses and curriculum are not the only areas of change that NFA undertook during that period to improve the quality and impact of its training.

The 2017 Budget proposed expanding distance learning, and FEMA developed an internal report that analyzed the advantages of distance learning and how FEMA would ensure the investments achieve intended results. The report's conclusion highlighted the diversity of the NFA student population and challenges of reaching many potential students, and the NFA's current strategy of moving incrementally toward distance learning while keeping grounded in classroom instruction provides a well-researched, academically sound, student-focused foundation to deliver education and training to advance the professional development of the fire and emergency services.

The NFA continues to move forward with distance learning opportunities where they can be implemented without negatively impacting the student experience. Many of the classes offered by the NFA involve hands-on or group activities which are not currently conducive to the virtual format. Additionally, we have encountered several obstacles related to information technology acquisitions that have slowed our progress for implementing a learning management system (LMS). Regardless, we have worked through each of these challenges and are now actively using our new LMS for classes suitable for the distance learning environment.

Delivery systems that carry courses to the students play an equal part in the overall impact of NFA training, especially given the endemic challenges in reaching many of the nation's fire and emergency services students with critical training. NFA continues to add more mediated and blended learning opportunities to its curriculum in the form of online pre-course instruction and post-course applications of the material taught in the courses. As we move more classes to on-line options, we are aware that many of our stakeholders do not have reliable internet access.

Mediated instruction allows students to engage in a course as their schedule permits while providing instructor interaction in an asynchronous manner. In FY 2020, the NFA increased the number of licenses for its mediated delivery system and continues to convert appropriate

classroom-based courses to a mediated format and has selected the platform to host the revised EFO Program. These changes will better serve the training needs of the nation's fire and emergency services and broaden the national impact and reach of NFA training.

The NFA continues to use Bring-Your-Own-Device (BYOD) to provide electronic, downloadable course materials such as student manuals and pre-course readings and assignments for the NFA's residential and off-campus classes to help reduce printing costs and the environmental impact of paper and ink. BYOD is also being explored for off-campus NFA deliveries.

The emphasis on blended learning solutions continues to enhance the richness and diversity of online training offered through NFA Online. As a direct result of COVID-19 and the cancellation of in-person training, NFA Online saw a dramatic increase in all aspects of online training activity. While we have returned to in-person training, we also continue with courses being delivered virtually. At the conclusion of the virtual delivery, students complete the course exam via NFA Online.

The Executive Fire Officer (EFO) Program is the pinnacle of the U.S. Fire Administration's commitment to support the needs of fire and EMS agencies in preparing executive officers to meet the ever-changing demands of the dynamic communities in which they serve. Through the EFO Program, the NFA seeks to inspire, educate, and empower current and future fire service leaders and create public service champions within communities. Due to overwhelming student and stakeholder feedback, the EFO Program paused briefly for an adjusted redesign and began again in January 2022. Current program structure of four resident courses and online work is detailed below and can be found on the EFO website (<https://www.usfa.fema.gov/nfa/programs/executive-fire-officer/index.html>).

SELF: The first component is a 10-day resident course that focuses on self. This component provides learning and practice opportunities that foster the exploration of personal leadership philosophy, life-work balance, theoretical aspects of leadership, and the value of ethics and integrity. This course introduces research practices and communication skills amidst leadership challenges.

ORGANIZATION: The second component of the EFO Program is a 6-day course that focuses on the organization. It is comprised of substantial self-paced, online pre-course work to provide students with theoretical, academic, and foundational elements that are applied during a resident course focused on building organizational strength. This course will apply analysis and adaptive leadership components that result in building an internal culture that promotes a safer, healthier, more prepared, and resilient organization. Students collect, evaluate, and demonstrate the use of organizational data and research in their pursuit to achieve a diverse, resilient, and safe organization.

COMMUNITY: The third resident course of the EFO Program is 6 days long and transitions the foundational elements previously addressed for the organization to focus on the community. This component is comprised of substantial self-paced, online pre-course work to provide students with theoretical, academic, and foundational elements that are then applied during a resident course. The resident experience underscores the exercise of executive-level leadership in the context of the whole community, and the strategic role of

the executive officer within both emergent and prospective events is considered. The central focus is relational interoperability between the many facets required to determine, evaluate, and meet the needs of the community.

CAPSTONE: The culminating portion of the EFO Program is comprised of an online course and a final resident offering. The capstone contains three pillars to demonstrate bold and imaginative solutions to critical issues, cultivated by the executive throughout the program. Students integrate, synthesize, and apply the knowledge, skills, and perspectives acquired throughout the EFO Program and demonstrate mastery of all program elements during an online, instructor-led course and a resident course. All components of the capstone project are graded assignments. The capstone pillars are:

- A portfolio of artifacts is compiled throughout the program and serves as a valuable reference that students can access and build upon far into the future. The portfolio demonstrates the affective as well as cognitive learning domains by integrating program deliverables with a reflection paper that discusses how students receive, respond, apply, and value the lessons learned throughout the EFO Program.
- A capstone research paper is the culmination of theory and application where the executive displays both the vision and competencies highlighted throughout the EFO Program. The paper incorporates complex problem identification and exploration, research, data, and the ability to author solutions to multifaceted problems while presenting the information in a convincing, logical, and academically sound format. Details can be found in the Capstone Research Guide.
- A presentation in the final resident course mirrors a real-life event, such as a town hall, council meeting, or catastrophic event. This essential experience is designed to provide a complex and dynamic environment with both peer and expert feedback that uniquely informs each student's professional and personal insight.

Social media is an important tool and an additional means of engaging students with the NFA programs. During FY 2020-2022, the NFA Coffee Break bulletins continued to provide short reading with high interest topics available online to fire and emergency services personnel. This provides the reader the opportunity to obtain needed information at any time convenient to their schedules. The NFA Coffee Break bulletins are designed to reach large portions of the target audience with current material and information, without presenting any training time footprint or requirement that would disrupt work. The program has drawn a national and international audience. Bulletin content includes EMS, codes and standards, community risk reduction, fire sprinklers, health and safety, leadership, planning, training, and wildland topics. Bulletins are available through NFA's web page as well as through a noncredit, no fee subscription service. They can also be viewed directly from the USFA's web page [Online learning opportunities for fire and building code officials \(fema.gov\)](https://www.usfa.fema.gov/online-learning-opportunities-for-fire-and-building-code-officials).

In FY 2020-2022 the NFA saw continued enhancements and improvements to the system used to manage the national instructor cadre (instructors who deliver the NFA instructor-led curriculum, both on- and off-campus), and the system used to manage the delivery of courses at the state and local levels. The NFA enhanced its automated course call process to provide state fire training agencies with a more manageable window to forecast their training needs and provide more

course options. This system automates scheduling and provides the NFA staff with the tools to manage course load demand. NFA continues to add courses to the materials download feature, giving state fire training agencies and contract instructors direct access to Academy 2-day and 6-day course materials. This provides users with real-time access to up-to-date Academy course material. The NFA has improved the admissions process by utilizing an online admissions process for on-campus and off-campus students.

Section 5.3 FY 2020-2022 Changes to NFA Courses by Curriculum Area

Below is an accounting of all changes made to the NFA curriculum during FY 2020-2022. This includes all new courses developed and existing courses revised. These changes are explained for each of the following 12 curriculum areas:

- Incident Management
- Leadership and Executive Development
- Hazardous Materials/Weapons of Mass Destruction
- Emergency Medical Services
- Fire Prevention: Technical
- Fire and Investigative Sciences (arson and explosives)
- Fire Prevention: Management
- Responder Health and Safety
- Planning and Information Management
- Fire Prevention: Public Education
- Training Program Management
- Wildland Urban Interface

For each curriculum area, an explanation is provided of the emergent national needs by the nation's emergency services, prompting the curriculum changes. The explanation also lists courses changed, the focus and scope of the new and revised courses, and the expected training outcomes and national impacts to be achieved.

Incident Management

This curriculum addresses the full range of competencies necessary to command and control all hazards incidents. The goal of this program is to foster a nationwide corps of fire and emergency services personnel fully trained and prepared to the NIMS standards capable of commanding responses to incidents of all sizes and hazards. For all levels and complexities of incidents from routine responses to major emergencies, this curriculum addresses the use of the NIMS ICS, strategic and tactical recognition primed decision-making, and the command skills and techniques needed by the mid- and senior-level officers of the nation's emergency services.

The training is heavily scenario-based. The techniques and command skills taught directly reflect lessons learned in response and command of major incidents, and the material is kept current using new issues stemming from current events. Graphical scenario training is an effective means to transfer important performance skills to those who have less opportunity to experience live fire events.

There were various incidents that caused the Incident Management curriculum to be updated. These incidents involve WUI fires, mass shootings, large fires and lessons learned from line of duty deaths.

The Simulation Lab and simulation-based learning project has grown rapidly and gained significant credibility, both nationally and internationally, as a viable training tool utilizing computerized simulations. NFA simulations are designed to immerse the student in a highly realistic and interactive learning environment, allowing the adult learner to practice the complex and sometimes high-risk real-world activities associated with the Fire and Emergency Services profession in a safe environment. Classroom training reinforced and enhanced by simulations utilizing the principles of recognition primed decision making, enhances the knowledge transfer and teaches emergency response personnel to manage all-risk, all-hazard incidents using the NIMS and to react prudently under pressure by assessing the emergency situation and determining the appropriate course of action and support required. The U.S. Army Research Institute (USARI) Technical Report 796 - Rapid Decision Making on the Fire Ground, identified and defined the “recognition primed decision-making model” for decision making in time compressed, high stressed emergency situations which is fostered throughout the curriculum.

For the cue-based decision-making component to be effective, NFA provides the students with realistic visual cues which drive that process. Extensive studies have been carried out by the USARI, with whom the NFA partnered under a memorandum of understanding, to determine what occurs during the cue-based decision-making process. Because fireground command and combat command decision making share many elements, USARI included in-depth studies of on-the-job fire service command personnel in researching cue-based decision-making processes. By presenting students with accurate and specific visual and situational cues in a controlled simulated environment, the student’s ability to successfully manage “the real thing” when confronted with an incident, is greatly enhanced. Through simulation-based training, students can learn to successfully manage, not only incidents which occur daily, but incidents and situations with which they have never been confronted, i.e., that “once-in-a-lifetime” occurrence.

During this reporting period NFA upgraded the current system for the simulations. These simulations are now being used in the Incident Management curriculum area and aid SLTT training agencies with the ability to conduct dynamic, immersive, flexible, and more complex simulation demonstrations to better prepare incident commanders and to meet the many challenges of fire emergency. The system is currently being integrated into other curriculum areas. The upgrade will also allow for a user configurable environment that supports all hazards, comprehensive training. Upon implementing the upgrade, the NFA will massively enhance its ability to incorporate numerous activities such as structure collapse, “mayday” incidents, floods, mass casualty, complex coordinated attack, and active shooter.

The Incident Management Curriculum is an important component of the NFA training program and is one of the most successful and popular of the NFA curricula offered. One of the many reasons for the success of this curriculum is the currency of the materials and the applicability to the day-to-day duties of the students. As part of this training program, the USFA offers several Command-and-Control courses at the NFA in its Incident Management curriculum.

The courses build skills in command and coordination leadership roles, processes, and developing recommended organizational structures for incident management at the complex, operational and incident support levels. The courses within the curriculum support the National Preparedness Goal and work within NIMS. Students serve in various positions and unique scenarios to reinforce learning points and develop practical experience and decision-making

skills to successfully resolve incidents in a challenging, realistic environment. The system supports the learning technique to replace and amplify real experiences with guided ones, often “immersive” in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion. For example, displays in each Side room are a video wall. NFA operates our own radio system to simulate dispatch, communications, and information exchange as well as a portable phone system.

Another critical component of this curriculum area for National Preparedness is the All-Hazards Incident Management Team (AHIMT) training. The AHIMT program, often referred to as the Type-3 Incident Management Team (IMT) program, was initiated in 2003 by the United States Fire Administration.

The IMTs were originally designed for development and use within their own jurisdictions. However, the considerable commitment of time and costs associated with training and maintaining an AHIMT, balanced against the frequency of use, caused many local governments not to develop their own team, but to rely on other jurisdictions. The continued success of the program, and growing awareness of how IMTs can support jurisdictions needing assistance, are resulting in a significant nationwide increase in requests for Type-3 IMTs. Based on lessons learned from major disasters and the increasing use of AHIMTs, NFA developed several items to bridge the gaps including:

- Updating the 10 USFA Generic Simulations;
- Developing a 2-Day Skills Sustainment Training;
- Developing the AHIMT National-Tier Assessment Exercise; and
- Developing an assessment tool to help AHIMTs identify their 3-Tier metrics preparedness level

The overall goal of the AHIMT course is to develop SLTT AHIMTs to function under the NIMS during a large and/or complex incident or a major event. The USFA was the first organization to initiate, develop, and support AHIMTs, and continues to provide professional development to the Type-3 IMTs across the nation. These efforts are essential in a team obtaining the knowledge and skills required to perform effectively during a disaster or event.

Leadership and Executive Development

The courses in the Leadership and Executive Development curriculum are presented in a variety of formats that include live campus resident courses, live mediated and pre-packaged self-study on-line programs, and live off-campus field deliveries at training sites provided by our state and local partners. The variety of outreach options makes this curriculum available to the largest target population in the emergency services community, which ranges from first responders to elected officials.

Some of the curriculum’s courses are specifically targeted to benefit the volunteer fire and emergency services professionals as part of a Volunteer Incentive Program. Additionally, selected courses are key components of the EFO program, while others support the Managing Officer (MO) program.

Courses within the Leadership and Executive Development curriculum include:

Resident or Field Delivery Courses

- “Administration of Public Assistance for Community Recovery”
- “Executive Skills Series: Exercising Leadership within Communities”
- “Executive Skills Series: Exercising Leadership to Facilitate Adaptive Change”
- “Executive Skills Series: Exercising Leadership Through Difficult Conversations”
- “Executive Skills Series: Exercising Leadership Ethically”
- “New Executive Chief Officer”
- “New Fire Chief: Challenging Issues”
- “New Fire Chief: Administrative Issues”
- “New Fire Chief: Contemporary Issues”
- “Shaping the Future”
- “Leadership in Supervision”
- “Leadership in Supervision: Creating Environments for Professional Growth”
- “Leadership in Supervision: Perspectives in Thinking”
- “Leadership in Supervision: Frameworks to Success”

Instructor-led Online Courses

- “Executive Skills Series: Exercising Leadership within Communities”
- “Executive Skills Series: Exercising Leadership to Facilitate Adaptive Change”
- “Executive Skills Series: Exercising Leadership Through Difficult Conversations”
- “Executive Skills Series: Exercising Leadership Ethically”

Self-Study Online Courses

- “Introduction to Fire and EMS Supervision and Management”
- “Applied Research Design for Fire and Emergency Medical Services”

Hybrid Course (Mediated Online Pre-Course + Resident)

- “Effective Communication for Fire and EMS Success”

The above courses are updated regularly with references to new and emergent issues, managing officer and executive level challenges, senior command lessons learned from major incidents, as well as contemporary thoughts on leadership, organizational dynamics, and professional development.

Hazardous Materials / Weapons of Mass Destruction

Hazardous materials and weapons of mass destruction (WMD) continue to pose a threat to local, state and national jurisdictions. This NFA curriculum area addresses full technical and command training for incidents encompassing hazardous materials and WMD incidents. The goal of this program is to foster national competency through training of all responders so that they can

safely and efficiently perform their assigned roles in hazardous materials and WMD incidents while keeping communities safe through mitigation and code enforcement education.

The NFA has and continues to collaborate with the International Association of Fire Chiefs (IAFC), International Association of Fire Fighters (IAFF), U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA), Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and other stakeholders on multiple training and outreach projects.

The NFA continues to collaborate with DHS S&T Chemical Security Analysis Center, Department of Defense's Defense Threat Reduction Agency, DOT PHMSA and others in the challenges presented by catastrophic, large-scale, dense gas-release in urban areas as part of the Jack Rabbit project. The current Jack Rabbit project (Jack Rabbit III) is a multi-year series of exercises that study the release of a toxic industrial chemical in the urban environment, culminating with a series of large-scale releases. The information gained from these opportunities have been incorporated into the curriculum, as well as shared with responders nationally. The collaborative effort with development of the Utah Valley University Jack Rabbit website has aided greatly in the distribution of information.

The NFA continues its involvement in the development and revision of the standards and guidance which has provided insight into changes to the professional qualifications for emergency responders which aid in maintaining currency within our curriculum.

In response to the impacts mentioned above and the technological advances in personal protective equipment, air monitoring equipment and ongoing research into the science of catastrophic releases, the Hazardous Materials/Weapons of Mass Destruction curriculum has been revised and new courses have been developed by the NFA:

- Special Operations Program Management (update in progress)
- Hazardous Materials Code Enforcement (updated)
- Advanced Science for Hazardous Materials Response
- Advanced Life Support Response for Hazardous Materials Incidents
- Management and Safety in Response to Hazardous Materials/WMD Incidents (new)
- Chemistry for Emergency Response (update in progress)
- Hazardous Materials Incident Management (update in progress)
- Emergency Response to Terrorism: Strategic Considerations
- Hazardous Materials for Inspectors (updated)
- Hot Topics in Hazardous Materials and Weapons of Mass Destruction (new series of courses)
- Emergency Response to Terrorism: Basic Concepts (update in progress)

Emergency Medical Services

Fire service-based EMS continues to be a growing sector of local emergency services planning, development, and delivery. The USFA Topical Fire Report, *Fire Department Overall Run*

Profile (2020),²⁴ reflects that 64 percent of reported calls to fire departments required EMS and rescue services.

Acknowledging this national mission, Congress requires the NFA to play a leadership role in advanced EMS training and program development.²⁵ The goal of this program is to promulgate more effective EMS program management by the nation’s emergency response community while not competing with state medical authorities and local training organizations that are very successful at delivering hands-on emergency medical field skills.

During FY 2020-2022, the NFA continued revision of its EMS curriculum and programs pursuant to Congressional directives. This work included continued development of the new course “Management and Planning of Specialized Operations for Emergency Medical Services” to include a pandemic response planning scenario. Development of the following courses continues to progress:

- “Hazard and Disaster Planning for EMS”
- “Supervising EMS”
- “Managing EMS”

The process of a full curriculum review of the EMS curriculum was begun to identify current and future needs of the NFA EMS curriculum for our nation’s EMS agencies and responders. During 2020 through 2022, the deliveries for these courses was significantly impacted by COVID-19 and the transition of an online learning management system to a new platform.

Fire Prevention: Technical

The NFA’s Fire Prevention: Technical curriculum provides education, leadership, and vision for fire safety providers to reduce the risk of injury, loss of life and property in their communities through effective and comprehensive fire prevention and fire protection/risk management efforts. In today’s-built environment, there are ever changing technologies that result in new challenges for the fire service.

The NFA Fire Prevention Technical Curriculum consists of five primary core educational elements:

- Building Construction for Fire Protection
- Fire Behavior and Combustion
- Fire Prevention and Mitigation
- Fire Protection and Life Safety Systems
- Community Risk Reduction

The education is heavily application-based; the techniques and evaluative skills taught within the courses directly reflect lessons learned. These lessons learned are incorporated into the development and implementation of the latest editions of building and fire codes and standards.

²⁴<https://www.usfa.fema.gov/statistics/reports/firefighters-departments/fire-department-run-profile-v22i1.html>.

²⁵ *United States Fire Administration Reauthorization Act of 2008* | House Committee on Science, Space and Technology, Section 8: Coordination on Fire Service-Based Emergency Medical Services Amends Section 21(e) of the Federal Fire Prevention and Control Act of 1974 by directing the Administrator to include fire service-based emergency medical services in liaison and coordination activities across the Federal government.

Currently, there is a growing interest in tall buildings constructed from mass timber materials and alternate fuels and energies. These practices and uses bring into question the structural integrity of the material and structure during a fire situation. The model building code has changed to allow this new construction practice and the curriculum is attempting to modify its teaching courses to educate the responders with the benefits and potential issues of concerns.

The curriculum addresses all levels and complexities of building design, use and occupancy, and the many complex fire protection features and systems that are found in today's built environment. The goal of this program is to develop a national corps of fire and building code officials highly trained and prepared to make informed decisions about life safety and fire protection issues that directly impact community safety.

In keeping with the ever-changing landscape, the curriculum has revamped the "Water-based Fire Protection Systems Plans Review" course into a more robust and updated "Commercial Fire Sprinkler Plans Review" course. The change to the course reflects the updated requirements of sprinkler system design and installation practices. These changes are made through a nationally recognized consensus standard process every three years, thus requiring the courses to be modified on a regular basis.

With the successful outcomes of the sprinkler plans review course, a new course dedicated to the design verification of fire alarm systems is currently being developed. Fire alarm plan review has never been taught before within the curriculum. This course has been highly requested by the student cadre.

Fire and Investigative Sciences (arson and explosives)

The use of fire as a weapon of terror continues to plague some sectors of the United States ([see DHS Action Guide, Fire as a Weapon](#)). NFA Fire and Investigative Sciences curriculum addresses training in fire and arson investigation, fire science, fire modeling, forensic evidence documentation and preservation, and courtroom testimony. The purpose of this program is to reduce arson loss nationally by improving the investigative science, and investigator training in incendiary fire investigations through increased knowledge, arrests, prosecutions, and convictions.

This curriculum is developed and delivered in partnership with the Department of Justice - Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), and includes private partners such as the International Association of Arson Investigators (IAAI), and Underwriter Laboratories (UL). The resident curriculum follows best practices of adult learning by scaffolding content and relying heavily on classroom instruction, collaborative group exercises, small group student activities, simulation, live burn building scene investigation scenarios, and extensive mock courtroom testimony and cross-examination exercises.

In FY 2022, the NFA and IAAI updated an existing Memorandum of Understanding (MOU) to ensure that completion of certain NFA courses receive credit toward IAAI designations and certifications.

Throughout FYs 2020 – 2022, the curriculum was routinely updated and revised to ensure that materials remained compliant with industry standards, such as NFPA 1033, and industry guidelines, such as NFPA 921.²⁶ Additionally, a new “Forensic Interviewing and Evidence” class was developed in FY 2022. The “Forensic Interviewing and Evidence” class was designed to meet all requirements of the IAAI Evidence Collection Technician, further expanding on existing partnerships.

During the COVID-19 pandemic, residential offerings of classes at the NFA were suspended to meet federal and state health and safety guidelines. In response, during March of 2020, the Fire and Investigative Sciences program shifted to virtual offerings of the “First Responder” course. During the height of the pandemic, instructors provided virtual instruction for hundreds of students from across the country and around the world. Virtual classes of the “First Responder” course continue to be offered a few times a month along with in-person classes.

Newly Developed Resident Course

- “Fire Investigation: Forensic Interviewing and Evidence”

Currently Offered Resident Courses

- “Fire Investigation: Essentials”
- “Fire Investigation: Electrical Systems”
- “Fire Investigation: Case Development and Testimony”

Currently Offered Resident, Field, and Virtual Course

- “Fire Investigation: First Responders”

Residential and Virtual Classes Under Development

- “Fire Investigation: Report Writing”
- “Fire Investigation: Technical Aspects”
- “Fire Investigation: Program Capstone”

The NFA partnership with DHS S&T continued through FY 2022 with the division using the NFA facilities for Operational Field Testing.

In FYs 2020 and 2021, plans were developed for continued capital improvements to the Burn Range and Burn Lab facilities to continue plans for a safer, cleaner, and functional environment for student activities. Unfortunately, the COVID-19 pandemic delayed this effort, but we have restarted these capital improvement projects in FY2022 to include additional classrooms, office space and restrooms, and decontamination facilities.

The current Burn Range capabilities include individual burn cells, burn building with multiple burn cell configurations, flashover demonstrator, ventilation pattern demonstrator, vehicle fire burn pad, and an environmentally friendly runoff water recovery system.

²⁶ NFPA 1033 is an industry consensus standard which facilitates safe, accurate investigations by specifying the job performance requirements necessary to perform as a fire investigator in both the private and public sectors; and NFPA 921, also an industry consensus standard, sets the bar for scientific-based investigation and analysis of fire and explosion incidents. Referenced in the field, in training, and in court, it is the foremost guide for rendering accurate opinions as to incident origin, cause, responsibility, and prevention. It is intended for use by both public sector employees who are responsible for fire investigation and private sector professionals who conduct investigations for insurance companies or litigation purposes.

The Fire and Investigative Sciences remains one of the most in-demand curriculum offered at the NFA. For example, “Fire Investigation: Essentials” course (the basic fire investigation course for new investigators) experiences, on average, 1,200 student applicants per year, for approximately 350 openings to attend the course. The staff of the Fire and Investigative Sciences curriculum continues to explore methods of expanding and improving course offerings both residentially and remotely.

Fire Prevention: Management

This NFA curriculum area addresses training of mid- and senior-level fire officers and community leaders in managing local community risk-reduction programs. The purpose of this program is to prevent the occurrence of fires, preventable injuries, hazardous materials incidents, and all other preventable incidents in the local community; to mitigate or limit the damage done by fires, natural disasters, and other incidents when they do occur; and to reduce the number of civilian and firefighter deaths and injuries.

It is recognized that the greatest potential for saving lives and property from disasters and hazards (of all type) lies in prevention and risk reduction. Accomplishing effective fire prevention and risk reduction in local communities is a challenging endeavor. Prevention and risk reduction programs are historically under-funded and under-resourced. Since the economic downturn, local government budget cuts have curtailed inspections, code enforcement, public education, and other safety measures.

Prevention and risk reduction are key functions that the local government can perform to effectively protect the public. Today, more than ever, local governments recognize that relying only on rapid emergency response is no longer enough. Local governments and communities understand that to truly mitigate risk requires being proactive, collaborating with community organizations, and working with other service areas. Since their inception, the USFA and the NFA have had the responsibility to lead the nation to embrace the prevention mission, and the NFA is committed to the principle that the key to this mission is the proper training of the nation’s fire and emergency services leadership in managing local prevention and risk management programs.

A curriculum review identified the need to build two online introductory-level, self-study courses on community risk reduction to better prepare incoming students for the rigors of advanced NFA in-person instruction.

Introduction to Strategic Community Risk Reduction and Introduction to Community Risk Assessments are completed by all incoming students new to the risk reduction curriculum area. These courses are also available to state and local jurisdictions for use in training academies and fire stations to educate students on the fundamentals of strategic risk reduction.

Acting on both the curriculum review and national demands, the NFA continues to update its popular Youth Firesetting Prevention and Intervention suite of courses. A 6-day course empowers students with the knowledge and skills to prevent youth firesetting and design strategies to mitigate firesetting behaviors that occur. In addition, a series of three 2-day courses taken in tandem, equal the 6-day delivery. A 10-week online instructor-led experience provides a third way to receive this robust training.

Responder Health and Safety

Firefighting consistently ranks near the top of America’s most dangerous professions, and the USFA is committed to reducing death and injuries that occur while firefighters are serving their communities. More than 275 American volunteer and career firefighters died in the line of duty, and thousands more were injured, during FY 2020-2022²⁷.

The NFA Responder Health and Safety curriculum works to instill a culture of safety-oriented processes and personal wellness that is built around sound risk management practices. During these challenging times for our nation’s emergency services there is a greater need to be effective, efficient, and outcome driven. The curriculum focuses on the risk associated with emergency operations and works to balance the whole person approach to safety and risk reduction. This approach focuses safety and wellness as both an individual and organizational challenge. Safety is everyone’s job, and everyone needs to do their job well. The NFA courses demonstrate to emergency response managers and departmental safety officers that there is a clear process towards implementing a positive and proactive safety culture. The courses stress a leadership commitment to safety through actions, training, and education while empowering others to be safe.

The development of the “Application of Leadership and the Safety Culture” course is aimed at the first-line supervisor who is considered the most important link in the safety culture. This course is part of the Managing Officer program. Significant changes have been made to the following courses considering current and emerging trends and lessons learned:

- “Safety Program Operations”
- “Department Wellness Program”
- “Empowering Responder Wellness” (online)
- “Incident Safety Officer”
- “Health and Safety Program Manager”

With travel restrictions and social distancing in play due to the COVID-19 pandemic, and budget and staffing limitations with our SLTT fire and EMS partners around the nation, virtual training is the most sought-after solution today for first responder learning. The NFA is always positioned to assist the emergency service workforce and now offers virtual instructor-led and self-paced online courses that deliver the same high-quality training experience that we are known for in the classroom. These virtual offerings started in March of 2020, with the two-day “Fire Investigation: First Responders” course, and subsequently expanded to include: “Incident Safety Officer”, “Health and Safety Program Manager,” and “Preparation for Initial Company Operations” courses. Today there are six more virtual offerings:

- “Fire Service Safety Culture: Who Protects Firefighters from Firefighters?”
- “Shaping the Future”
- “Executive Skills Series: Exercising Leadership Within Communities”

²⁷ [Firefighter Fatalities in the United States \(https://apps.usfa.fema.gov/firefighter-fatalities/\)](https://apps.usfa.fema.gov/firefighter-fatalities/)

- “Executive Skills Series: Exercising Leadership to Facilitate Adaptive Change”
- “Executive Skills Series: Exercising Leadership Through Difficult Conversations”
- “Executive Skills Series: Exercising Leadership Ethically”

Since its inception in April of 2021, Zoom deliveries have had a total of 2,300 student completions:

- “Incident Safety Officer” (4/12/21 to present) 43 classes – 1,197 completions
- “Fire Investigation: First Responders” (3/2020 to present) 19 classes – 373 completions
- “Health and Safety Program Manager” (4/12/21 to present) 31 classes – 529 completions
- “Fire Service Safety Culture: Who Protects Firefighters from Firefighters?” (4/11/22 to present) – 1 class - 15 completions
- “Preparation for Initial Company Operations” (4/28/21 to 7/8/21) – 8 classes - 151 completions
- “Executive Skills Series: Exercising Leadership Within Communities” (4/7/22 to present) – 1 class – 17 completions
- “Executive Skills Series: Exercising Leadership to Facilitate Adaptive Change” (4/21/22 to present) 1 class – 18 completions

Planning and Information Management

Data and data analysis for local risk assessment, response planning, budgeting, asset management, and emergency response reporting are important tools in the decision-making process. The goal of this curriculum area is to improve response and reduce loss from emergencies by improving data collection and analysis, as well as by using data in the priority-setting decision-making process, resulting in reduced community risk to all-hazards, and enhanced all-hazards response planning and preparedness.

The keys to achieving these goals include training fire and emergency services officers, community leadership team members, and local policy makers to better understand and use data in risk assessment and response planning; preparing attendees to guide their departments and communities to expand their participation in cooperative participation; cross-discipline planning teams and systems; and ensuring the inclusion of proper standards for response services in the local priority setting, decision making, community preparedness, and all-hazards response planning efforts.

The country continues to recover from the impacts of COVID-19 on communities, rising inflation and labor costs, and decreased revenue at the local level. These factors have led communities to reevaluate service delivery models and examine response planning models to determine if current deployment and activity models meet community needs and expectations. The fire and emergency services continue to address imbalances between service demands and resource capabilities through the middle of the century, requiring a greater need for data analysis and altered service delivery models to meet community needs, and thus, making it essential for the NFA’s curriculum in this area to stay current and relevant.

Future plans to expand the reach of this curriculum include expanding online training to build planning and data management skills that support strategic efforts for Whole Community Planning and resilience. The NFA continues to work closely with the National Fire Programs Division to derive appropriate training and educational opportunities from its congressionally mandated major overhaul of the NFIRS program.

During FY 2020 - 2022, within the curriculum area of Planning and Information Management, the following courses were developed or updated:

- “Analytical Tools for Decision Making” (updated)
- “Management Tools for Emergency Services Leaders” (developed)
- “Introduction and Advanced Data for Fire and Emergency Medical Services” (developed)
- “Planning for Unusual Events and Catastrophic Incidents” (developed)
- “National Fire Incident Reporting System: Program Manager” (updated)
- “Decision Making and Financial Management” (developed)

Fire Prevention: Public Education

This NFA curriculum area trains fire service and EMS personnel and officers to effectively identify local community risks; to determine the appropriate interventions; and to effectively evaluate services, programs, and activities to reduce these risks. The goal of this curriculum is reduction of risk, life, and economic losses at the local level through fostering improved public education and risk reduction. This comprehensive curriculum deals with a variety of contemporary issues in community risk reduction with the emphasis on public education.

The NFA curriculum features courses with a variety of themes, including, but not limited to, prevention presentation strategies, methods for reaching today’s changing American families, community education leadership strategies, risk reduction for multi-cultural groups, leadership strategies in community education, and station-based risk-reduction opportunities.

A curriculum review identified the need for a course to support public educators new to the field of fire and life safety education. Fundamentals of Fire and Life Safety Education is now an 8-week online instructor-led course focusing on best practices in program delivery. Like all NFA courses, it is free of charge and is being utilized by educators throughout the nation as they work to enhance their program delivery skills.

Training Program Management

The Training Program Management curriculum is designed to provide emergency services trainers, program managers, and leaders with the knowledge to enhance their skills, develop training programs, and manage training programs to improve operational efficiency, enhance responder safety, manage the training function, and describe and defend the training function.

The NFA is in an enviable position to provide national training leadership to state and local fire training officers and fire training organizations through high quality training courses. The NFA Training Program Management curriculum offers a comprehensive curriculum with courses offered on-campus, through field direct delivery, during state weekends, and the state sponsored delivery system.

The NFA continues to update its popular courses in this curriculum to enable local fire and EMS training officials to build their own effective programs. These courses include:

- “Training Program Management”
- “Training Operations for Small Departments”
- “Challenges for Local Training Officers”
- “21st Century Training for Fire and EMS”
- “Contemporary Training Concepts for Fire and EMS”

During 2021 and 2022 the deliveries for these courses was significantly impacted by COVID-19 as well as the reassignment of the training specialist assigned to this area to a different curriculum area. The backfill hiring process was also complicated by COVID but is underway and the position is expected to be filled in 2023.

Wildland Urban Interface

The NFA worked with our wildland fire partners to develop several courses for WUI fire adapted communities.

A 6-day course, “Wildland Urban Interface: Fire-Adapted Communities,” can be delivered both on and off-campus. The course is modular so it can also be presented in a series of three 2-day offerings to include:

- “Wildland Urban Interface: Fire-Adapted Communities — Introduction and Leadership” (Course I).
- “Wildland Urban Interface: Fire-Adapted Communities — Strategies for Developing a Fire-Adapted Community” (Course II).
- “Wildland Urban Interface: Fire-Adapted Communities — Developing a Community Wildfire Protection Plan” (Course III).

In response to requests from SLTT stakeholders, the NFA is in the process of constructing two additional 2-day courses that will support the WUI suite of offerings -

- “Fire Adapted Communities: Evacuation Planning” teaches students best practices in evacuation planning and execution in the WUI environment.
- “Fire Adapted Communities: Land Use and Codes” empowers students with understanding of how to leverage these strategies to support a fire adapted community.

The addition of an NFA training specialist dedicated to WUI, coupled with a 2022 curriculum review, will posture this program for significant enhancements.

Section 5.4 FY 2020-2022 Samples: Incident Lessons Learned Added to the NFA Curriculum

Lessons learned from incidents, responses, and events in the emergency services are resources for much of the NFA’s curriculum. New protocols, procedures, understandings of risk, and emergency management techniques are being incorporated into the courses on a routine basis. NFA has used the case study method throughout its history with great success.

There are many incidents that are reviewed by NFA course managers and incorporated into the different course curriculum each year; the volume of reporting on all such changes far exceeds the scope of this report. These inputs are collected from current national and international events, students, contract instructors and staff as part of their responsibility to keep the curricula current.

Wildfire and Wildland Urban Interface

INCIDENTS: 2019/2020 Australian Bush Fires, 2020 Bay Area Fires (SCU Lighting Complex Fires), 2021 Dixie Fire, plus many more similar incidents displaced numerous communities and destroyed towns and homes. In 2021 the USDA determined that 90 percent of wildfires are human caused.²⁸

LESSONS LEARNED: There are needs for the whole community across the nation to understand community risk reduction to lower the amount of intentional and unintentional spread of fires and wildfires. In FY 2022, NFA implemented a plan to hire a staff member that is *solely* dedicated to WUI to address training needs in this area. The WUI training specialist will be placed in FY 2023.

NFA COURSE CREATED: “Introduction to Community Risk Assessment”

DESIRED TRAINING OUTCOME: “Introduction to Community Risk Assessment” is a new, online, self-study course that empowers the learner with a foundational understanding of the components, benefits, and processes of conducting risk assessments. This course uses realistic scenarios to expose students to real-life situations. Students can expect to receive a foundation in vocabulary, work with demographic and community data, and interact with stakeholders. This course is an excellent foundational course for those new to community risk reduction. It is appropriate for audiences such as law enforcement, educators, allied health professionals, juvenile justice officials, and wildland urban interface partners. It is especially appropriate for station-based officers, line staff, and emergency medical services providers.

COVID-19

INCIDENT: In 2020, the COVID-19 pandemic spread across the nation and the world. The firefighting and emergency medical service personnel were at a higher risk of contracting COVID-19 due to the nature of their profession.

²⁸ Statistics | National Interagency Fire Center (nifc.gov) and Fire | US Forest Service (usda.gov).

LESSON LEARNED: The NFA and the fire service were not immune to the impact that this disease had on the population. To adjust to the new normal, many discussions were had. These focused discussions centered on the impact of the pandemic on the ability of the USFA/NFA to deliver training and education to the Nation’s emergency responders, the equipment and tools needed to provide college level education and robust training, and the necessary changes to curriculum in our available online classes. To pivot to meet the need of the fire service, the NFA transitioned our operations to a more appropriate medium of instruction in the interim and into the future.

NFA COURSES CHANGED: “Executive Skills Series: Exercising Leadership to Facilitate Adaptive Change,” “Executive Skills Series: Exercising Leadership Within Communities,” Fire Investigation: “First Responders,” “Health and Safety Program Manager,” “Incident Safety Officer,” “Preparation for Initial Company Operations,” and “Shaping the Future.”

DESIRED TRAINING OUTCOME: Students are invited to share ideas, resources, and collective experiences to create a more resilient community during the pandemic.

Firefighter Arson

INCIDENT: A study by the National Volunteer Fire Council (NVFC) in coordination with the U.S. Fire Administration²⁹ highlighted the problem of firefighter arson. In 2021, 5 volunteer firefighters from West Lanham Hills Volunteer Fire Department were indicted on arson-related crimes. Firefighter arson is not an isolated incident. It is estimated by the NVFC that there are 100 arrests per year related to firefighter arson.

LESSON LEARNED: Firefighter arson is a problem that needed to be addressed in NFA’s current curriculum. As a result, a unit was developed labeled Uncomfortable Topics. In this unit, there is a discussion regarding firefighter arson and ways to combat it at an individual and department level.

NFA COURSES CHANGED: “Fire Investigation: First Responder”

DESIRED LEARNING OUTCOME: Develop an understanding of potential issues and hazards affecting the first responder that relate to fatal fires, trauma, behavioral health, arson, and social media.

²⁹ Firefighter Arson - National Volunteer Fire Council (nvfc.org).

VI. Acronyms

ACE	American Council on Education
AFG	Assistance to Firefighter Grants
AHIMT	All-Hazards Incident Management Team
API	Application Program Interface
BOV	Board of Visitors
CDC	U.S. Department of Health and Human Services Centers for Disease Control and Prevention
COVID-19	Coronavirus Disease 2019
CVVFA ERSI	Cumberland Valley Volunteer Firemen’s Association’s Emergency Responder Safety Institute
CY	Calendar Year
DEI	Diversity, Equity, and Inclusion
DHS	U.S. Department of Homeland Security
DOT	U.S. Department of Transportation
EFO	Executive Fire Officer
EMI	FEMA’s Emergency Management Institute
EMR-ISAC	Emergency Management and Response-Information Sharing and Analysis Center
EMS	Emergency Medical Services
EV	Electric Vehicle
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
FMI	Fire Marshal Interchange
FY	Fiscal Year
HSIN	Homeland Security Information Network
HVAC	Heating, Ventilation and Air Conditioning
IAAI	International Association of Arson Investigators
IAFC	International Association of Fire Chiefs
IAFF	International Association of Firefighters

ICC	International Code Council
ICS	Incident Command System
IMT	Incident Management Team
IT	Information Technology
LMS	Learning Management System
MO	Managing [Fire] Officer
MOSS	Management, Operations, and Support Services
NAFTD	North American Fire Training Directors
NETC	National Emergency Training Center
NFA	National Fire Academy
NFDC	National Fire Data Center
NFIRS	National Fire Incident Reporting System
NFP	National Fire Programs Division
NFPA	National Fire Protection Association
NIFC	National Interagency Fire Center
NIMS	National Incident Management System
NRCC	National Response Coordination Center
NUSTL	National Urban Security Technology Laboratory
NWCG	National Wildfire Coordinating Group
PFAS	Per- and Polyfluoroalkyl Substances
PHMSA	Pipeline and Hazardous Materials Safety Administration
S&T	Science and Technology Directorate
SLTT	State, Local, Tribal, and Territorial
USARI	U.S. Army Research Institute
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFA	United States Fire Administration
WMD	Weapons of Mass Destruction
WUI	Wildland Urban Interface