2019 National Preparedness Report

EXECUTIVE SUMMARY

The *National Preparedness Report* summarizes the progress made and challenges that remain in building and sustaining the capabilities needed to prevent, protect against, mitigate, respond to, and recover from the threats, hazards and incidents that pose the greatest risk to the Nation. As a requirement of the *Post-Katrina Emergency Management Reform Act of 2006* and a key element of the National Preparedness System, this annual report offers all levels of government, the private and nonprofit sectors, and the public practical insights into preparedness that support decisions about program priorities, resource allocation, and community actions.

The *2019 National Preparedness Report (2019 Report)* presents an overview of the five preparedness mission areas—Prevention, Protection, Mitigation, Response, and Recovery—and describes major findings identified through community-wide research and engagement. The report covers calendar year 2018 and contains:

- An **Introduction** and **Timeline of Incidents**;
- A snapshot of **preparedness grant allocations**;
- **Cross-cutting preparedness trends identified** through community Threat and Hazard Identification and Risk Assessment (THIRA)/ Stakeholder Preparedness Review (SPR) submissions;
- **Report Findings** that assess mission area successes and challenges;
- **Preparedness in Practice** callouts that highlight real-world examples of whole community efforts;
- Actionable information to help individuals increase **personal- and community-level preparedness**; and
- A **Conclusion** that contains a discussion on the evolution of measuring preparedness and future assessment efforts.

FINDINGS

The *2019 Report* presents 15 findings that highlight successes and challenges across the five mission areas. These findings include:

Prevention

- Improved Federal support to state, local, tribal, territorial governments and private sector partners strengthened prevention efforts to counter terrorist threats—including weapons of mass destruction (WMDs)—and criminal activity nationwide.

- The National Domestic Preparedness Consortium (NDPC) helped increase the preparedness of state, local, tribal, and territorial first responders by providing training opportunities nationwide, but specific gaps remain.

- Fusion centers are increasingly playing an integral part in major events or incidents at the state and local levels while meeting or exceeding performance standards.

Protection

- All levels of government are implementing new, cybersecurity-focused governance structures and engaging in collaborative partnerships to help protect critical infrastructure against malicious cyber activity.

- To improve private sector and individual security and resilience to malicious cyber activity, all levels of government are developing new tools and resources promoting good cyber hygiene.

Mitigation

- The recently passed *Disaster Recovery Reform Act of 2018* (DRRA) emphasizes the importance of mitigation through transformational shifts in mitigation policy and funding priorities.

- Many states and territories still have outdated building codes despite evidence that updating and enforcing codes lead to mitigation-related savings.

- Some individual citizens and businesses do not adequately align their insurance coverage to their insurance needs and local threats and hazards.

- Changes to the National Flood Insurance Program (NFIP) are helping to shift risk from the Federal Government and improve the financial stability of the program, while also improving program accessibility.

Response

- Locally executed, state, territory, or tribe managed, and federally supported capabilities improved response operations by filling in key communication and knowledge gaps.

- Updates to national response doctrine and coordination processes reflect and promote the importance of public-private partnerships and cross-sector collaboration in response operations.

- The newly implemented Community Lifelines construct enhances scalable response across all levels of government, nongovernmental organizations, and the private sector by facilitating response coordination efforts.

Recovery

- As disaster-related damages and insurance claims increase, the insurance industry is developing innovative ways to better support community recovery.

- Federal agencies are coordinating with state, local, tribal, and territorial governments to make recovery resources more accessible to individuals, businesses, and communities.

- Efforts are underway to develop a national, end user-driven recovery approach to help communities achieve specific goals.

TABLE OF CONTENTS

INTRODUCTION

Every year, stakeholders across the Nation—including individuals, families, communities, private and nonprofit organizations, faith-based organizations, and all levels of government—act to improve preparedness. These preparedness actions can involve simple steps, like setting money aside in an emergency fund or reporting suspicious activity to law enforcement. Other times, preparedness actions involve coordinated efforts across multiple stakeholders and geographic locations, like responding to and recovering from the impacts of a major hurricane, flood, or wildfire, and development and maintenance of continuity capabilities that help build and sustain essential functions and Community Lifelines. The *National Preparedness Report*[1] assesses preparedness at the national level to better understand, "As a Nation, how prepared are we to face the threats, hazards and incidents of greatest concern?" This annual analysis can inform decisions about program priorities, resource allocation, and community action. While the scope of this analysis is domestic, national preparedness is strengthened through engagement and cooperation with international partners and organizations, and the sharing of expertise, experiences, and best practices.

The 2019 National Preparedness Report (2019 Report) begins with a timeline of incidents from 2018, highlighting the diverse range of preparedness challenges the Nation faces—from terrorism and active shooter incidents, to cyberattacks, and natural disasters. The *2019 Report* continues by highlighting how stakeholders across the Nation are using preparedness grant funding to invest in preparedness improvements. The *2019 Report* also presents cross-cutting trends from the Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) processes, which provide insights into preparedness progress and gaps.

The *2019 Report* presents an overview of the five preparedness mission areas—Prevention, Protection, Mitigation, Response, and Recovery—and describes major findings identified through community-wide research and engagement, including lessons learned from the 2018 hurricane and wildfire seasons. Specifically, the *2019 Report* presents information regarding: national-level preparedness policy gaps; the impact of complex Federal disaster programs on state, local, tribal, and territorial governments; efforts to prepare for catastrophic incidents; and examples—highlighted as "Preparedness in Practice"—that demonstrate real-world progress. Additionally, the *2019 Report* includes analysis using the Community Lifelines construct. A Community Lifeline is an indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, and economic security. Looking at preparedness data through the lens of this construct provides a clearer picture for prioritization of the capabilities that the Nation must maintain to prepare for and respond to threats and hazards of concern.

Preparedness is a shared effort in which everyone—community-wide—plays a key role. Ensuring community members understand how they can contribute to building a culture of preparedness increases the Nation's readiness and resilience. As such, the *2019 Report* also provides actionable information to help individuals and families identify and learn ways they can be better prepared before, during, and after an incident.

---

[1] The *National Preparedness Report* satisfies the reporting requirements of section 652 of the *Post-Katrina Emergency Management Reform Act of 2006 (PKEMRA)*, including the *Federal Preparedness Report*, *State Preparedness Report,* and *Catastrophic Resource Report*.

RESEARCH APPROACH

The Federal Emergency Management Agency (FEMA) collects, reviews, analyzes, and presents information from numerous sources to develop the *National Preparedness Report*. The research approach for the *2019 Report* involved the following activities:

- Analyzing data on risks and capabilities collected from states, territories, select urban areas[2] and tribal nations (communities) through the Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) process;

- Collecting national preparedness data from other Federal departments and agencies through a Federal interagency data call and formal engagement meetings;

- Examining after-action reviews of exercises and real-world events that occurred or were reported in 2018 to identify trends in performance and lessons learned;

- Completing a literature review of open-source material from all levels of government, academia, professional associations, and the private sector to identify other noteworthy preparedness findings; and

- Engaging a variety of preparedness stakeholders to review and supplement the *2019 Report* content with examples and anecdotal evidence to help present a comprehensive picture.

In total, the *2019 Report* reflects input from more than 440 data sources. **Figure 1** depicts the elements of the research approach.

RESEARCH APPROACH

440 Unique Qualitative and Quantitative Sources Informed the 2019 National Preparedness Report Analysis.

FEDERAL	COMMUNITY AND REGIONAL	NON-GOVERNMENTAL
34 Data Call Submissions	**111** THIRA & SPR Submissions	**271** Open Source Materials, Including Reports, Guidance, and News Articles
14 Additional Offices Engaged	**10** Regional Data Call Submissions	

Figure 1: FEMA consulted a wide variety of sources in order to develop a rigorous 2019 National Preparedness Report.

---

2. FEMA does not require all tribal nations and urban areas to complete the THIRA and SPR; only tribal nations that receive Tribal Homeland Security Grant Program (THSGP) funding and urban areas that receive Urban Area Security Initiative (UASI) grant funding must complete the assessments as a condition to receive that funding.

2018 TIMELINE OF INCIDENTS

The following timeline provides a snapshot of notable real-world incidents that tested the Nation's response capabilities in 2018. A review of these incidents provides context for the range of threats, hazards and incidents facing the Nation and may reveal where strengths and shortfalls exist in building, delivering, and sustaining the core capabilities.
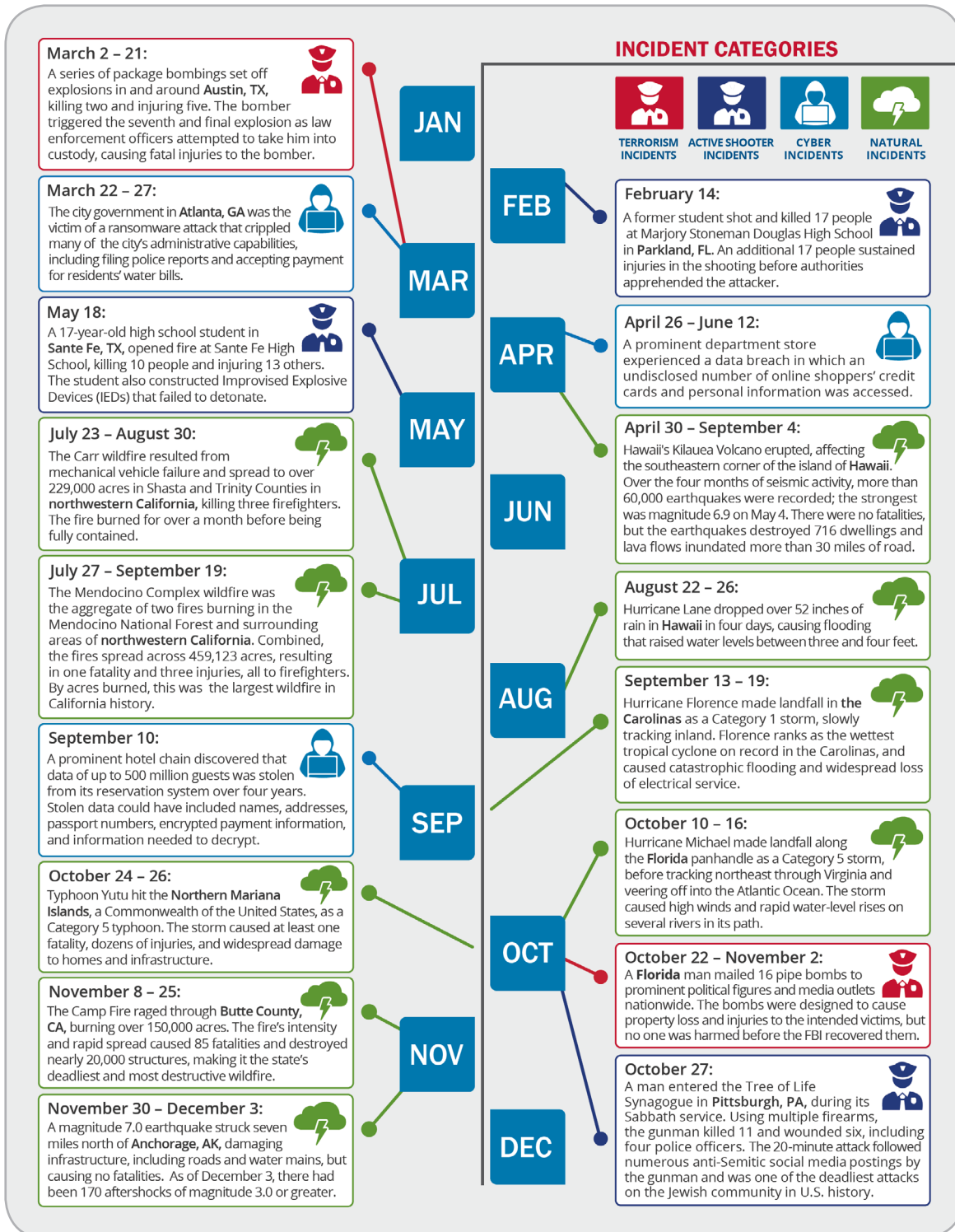
INCIDENT CATEGORIES

TERRORISM INCIDENTS — **ACTIVE SHOOTER INCIDENTS** — **CYBER INCIDENTS** — **NATURAL INCIDENTS**

March 2 – 21:
A series of package bombings set off explosions in and around **Austin, TX,** killing two and injuring five. The bomber triggered the seventh and final explosion as law enforcement officers attempted to take him into custody, causing fatal injuries to the bomber.

March 22 – 27:
The city government in **Atlanta, GA** was the victim of a ransomware attack that crippled many of the city's administrative capabilities, including filing police reports and accepting payment for residents' water bills.

May 18:
A 17-year-old high school student in **Sante Fe, TX,** opened fire at Sante Fe High School, killing 10 people and injuring 13 others. The student also constructed Improvised Explosive Devices (IEDs) that failed to detonate.

July 23 – August 30:
The Carr wildfire resulted from mechanical vehicle failure and spread to over 229,000 acres in Shasta and Trinity Counties in **northwestern California,** killing three firefighters. The fire burned for over a month before being fully contained.

July 27 – September 19:
The Mendocino Complex wildfire was the aggregate of two fires burning in the Mendocino National Forest and surrounding areas of **northwestern California.** Combined, the fires spread across 459,123 acres, resulting in one fatality and three injuries, all to firefighters. By acres burned, this was the largest wildfire in California history.

September 10:
A prominent hotel chain discovered that data of up to 500 million guests was stolen from its reservation system over four years. Stolen data could have included names, addresses, passport numbers, encrypted payment information, and information needed to decrypt.

October 24 – 26:
Typhoon Yutu hit the **Northern Mariana Islands,** a Commonwealth of the United States, as a Category 5 typhoon. The storm caused at least one fatality, dozens of injuries, and widespread damage to homes and infrastructure.

November 8 – 25:
The Camp Fire raged through **Butte County, CA,** burning over 150,000 acres. The fire's intensity and rapid spread caused 85 fatalities and destroyed nearly 20,000 structures, making it the state's deadliest and most destructive wildfire.

November 30 – December 3:
A magnitude 7.0 earthquake struck seven miles north of **Anchorage, AK,** damaging infrastructure, including roads and water mains, but causing no fatalities. As of December 3, there had been 170 aftershocks of magnitude 3.0 or greater.

February 14:
A former student shot and killed 17 people at Marjory Stoneman Douglas High School in **Parkland, FL.** An additional 17 people sustained injuries in the shooting before authorities apprehended the attacker.

April 26 – June 12:
A prominent department store experienced a data breach in which an undisclosed number of online shoppers' credit cards and personal information was accessed.

April 30 – September 4:
Hawaii's Kilauea Volcano erupted, affecting the southeastern corner of the island of **Hawaii.** Over the four months of seismic activity, more than 60,000 earthquakes were recorded; the strongest was magnitude 6.9 on May 4. There were no fatalities, but the earthquakes destroyed 716 dwellings and lava flows inundated more than 30 miles of road.

August 22 – 26:
Hurricane Lane dropped over 52 inches of rain in **Hawaii** in four days, causing flooding that raised water levels between three and four feet.

September 13 – 19:
Hurricane Florence made landfall in **the Carolinas** as a Category 1 storm, slowly tracking inland. Florence ranks as the wettest tropical cyclone on record in the Carolinas, and caused catastrophic flooding and widespread loss of electrical service.

October 10 – 16:
Hurricane Michael made landfall along the **Florida** panhandle as a Category 5 storm, before tracking northeast through Virginia and veering off into the Atlantic Ocean. The storm caused high winds and rapid water-level rises on several rivers in its path.

October 22 – November 2:
A **Florida** man mailed 16 pipe bombs to prominent political figures and media outlets nationwide. The bombs were designed to cause property loss and injuries to the intended victims, but no one was harmed before the FBI recovered them.

October 27:
A man entered the Tree of Life Synagogue in **Pittsburgh, PA,** during its Sabbath service. Using multiple firearms, the gunman killed 11 and wounded six, including four police officers. The 20-minute attack followed numerous anti-Semitic social media postings by the gunman and was one of the deadliest attacks on the Jewish community in U.S. history.

JAN — FEB — MAR — APR — MAY — JUN — JUL — AUG — SEP — OCT — NOV — DEC

Figure 2: In 2018, several incidents tested the Nation's response capabilities.

PREPAREDNESS GRANTS IN CONTEXT

State, local, tribal, and territorial governments, businesses, and organizations have access to a wide variety of Federal grants focused on building and sustaining capabilities. Through these grants, grant recipients can invest in activities such as risk assessments, disaster mitigation actions, plan development, equipment purchases, training, and exercises. FEMA is the largest provider of preparedness grant funding—in Fiscal Year (FY) 2018, FEMA provided more than $2 billion in preparedness grants. Other Federal agencies, including the Department of Education (ED), the Department of Health and Human Services' (HHS) Centers for Disease Control and Prevention (CDC), the HHS Assistant Secretary for Preparedness and Response (ASPR), and the Department of Housing and Urban Development (HUD) provided additional grant funding for disaster response and recovery efforts. ED awarded more than $6.3 million to state education agencies to assist local education agencies develop and implement school emergency operations plans and to conduct school safety and emergency preparedness activities. HHS ASPR provided $265 million to states, territories, and eligible municipalities through the Hospital Preparedness Program, which aims to improve the capacity of the health care system to plan for and respond to large-scale emergencies and disasters. In 2018, HUD awarded $28 billion to support long-term disaster recovery in areas seriously impacted by major disasters in 2017 and 2018. Of these funds, $16 billion were made available for mitigation activities intended to reduce the impact of future incidents. In addition to these grants, U.S. Small Business (SBA) disaster loans provide applicants with additional eligibility for mitigation and protective measures up to 20 percent of the total physical losses, as verified by the SBA.

Federal Grant Programs

Each year, FEMA provides funding for several preparedness grant programs. Two FY 2018 examples are included below:

- The Emergency Management Performance Grant (EMPG) program provided $350 million in Federal investment in FY 2018
- The Tribal Homeland Security Grant Program (THSGP) provided $10 million in Federal investment in FY 2018

Learn more at:

- https://www.fema.gov/media-library-data/1526578379064-1a52c022786d147e1509a186a2764889/FY_2018_EMPG_REGULAR_NOFO_5_11_2018_FINAL_508.pdf

- https://www.fema.gov/media-library-data/1526581605569-bb605a756d0be9f37d95a9bf47fd487b/FY_2018_THSGP_NOFO_FINAL_508.pdf

FY 2018 FEMA FUNDING

$1.6+ Billion	Non-Disaster Preparedness Grants
$235+ Million	Pre-Disaster Mitigation Grants
$160+ Million	Flood Mitigation Assistance
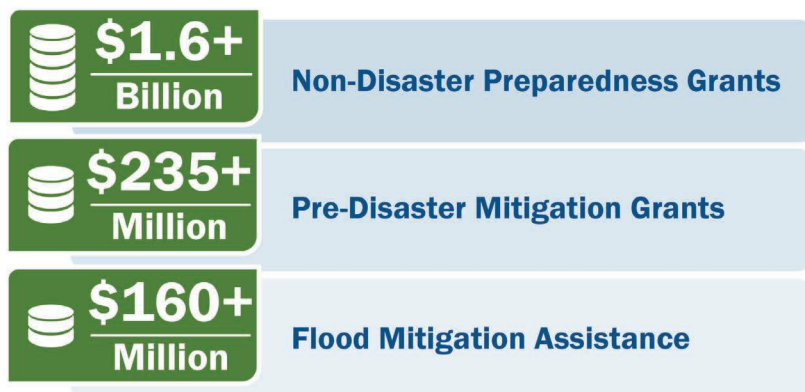
Figure 3: FEMA FY 2018 preparedness grant funding.

DISTRIBUTION OF FEMA PREPAREDNESS (NON-DISASTER) GRANTS BY CORE CAPABILITY, FY 2018

Mission Areas	Core Capabilities	Millions

CROSS-CUTTING
Core Capability	Millions
Planning	$356.48
Operational Coordination	$286.05
Public Information & Warning	$13.55

PREVENTION
Core Capability	Millions
Intelligence & Information Sharing	$125.62
Interdiction & Disruption	$103.30
Screening, Search, & Detection	$37.51
Access Control & Identity Verification	$5.61
Forensics & Attribution	$3.21

PROTECTION
Core Capability	Millions
Physical Protective Measures	$76.38
Cybersecurity	$36.33
Risk Management for Protection Programs & Activities	$7.71
Supply Chain Integrity & Security	$0.12

MITIGATION
Core Capability	Millions
Community Resilience	$71.56
Long-term Vulnerability Reduction	$13.53
Threats & Hazards Indentification	$5.37
Risk & Disaster Resilience Assessment	$1.76

RESPONSE
Core Capability	Millions
Operational Communications	$140.89
Environmental Response/Health & Safety	$47.86
Public Health, Healthcare, & Emergency Medical Services	$43.37
Mass Search & Rescue Operations	$31.81
On-scene Security, Protection & Law Enforcement	$28.99
Fire Management & Suppression	$13.50
Mass Care Services	$11.18
Situational Assessment	$6.70
Logistics & Supply Chain Management	$2.74
Critical Transportation	$3.39
Fatality Management Services	$1.46

RECOVERY
Core Capability	Millions
Infrastructure Systems	$5.50
Economic Recovery	$1.42
Health & Social Services	$0.52
Housing	$0.01
Natural & Cultural Resources	$0.00

$0 $100M $200M $300M $400M
Grant Dollars (In Millions)

Figure 4: In FY 2018, grant recipients reported the greatest amount of obligated funding to projects supporting Planning, Operational Coordination, and Operational Communications core capabilities. Grant recipients use the Biannual Strategy Implementation Report (BSIR) to track actual and planned grant expenditures. The BSIR is a snapshot of obligated funding for the given reporting period.

FEMA updated the preparedness grant funding Notice of Funding Opportunities for FY 2017 to clarify the specific activities involved in implementing the National Incident Management System (NIMS), which is required for Federal preparedness grant funding. In the 2018 SPR, 90 percent of states and territories reported that 80 to 100 percent of their sub-jurisdictions have formally adopted and maintained NIMS as their all-hazards incident management program.

CROSS-CUTTING THIRA/SPR TRENDS

In the 2018 community THIRA/SPR, states, territories, tribal nations, and urban areas set preparedness goals (capability targets) in 25 different capability areas across the Response and Recovery mission areas (e.g., information delivery, evacuation, long-term housing). These communities also evaluated how close they are to achieving their capability goals. The discussion below reflects cross-cutting trends that emerged from these THIRA/SPR data.

THIRA/SPR Overview

FEMA uses the THIRA/SPR to work with communities to understand their progress and gaps in preparedness. Through the THIRA, communities assess their risks and set targets for the capabilities needed to address those risks. Through the SPR, communities evaluate how close they are to meeting their targets, identify their gaps, and develop approaches for closing those gaps.

In 2018, FEMA worked with communities—including all states and territories as well as certain tribal nations and urban areas—to revise the THIRA/SPR methodology. Under this revised methodology, communities performed the following activities:

- Assessed their capability levels for the core capabilities in the Response and Recovery mission areas (including the three Cross-Cutting core capabilities);

- Identified the level of capability they plan to achieve over time and assessed how close they currently are to meeting those targets; and

- Rated their confidence in the accuracy of their capability assessments.

In 2019, communities will complete this process for core capabilities in all five mission areas, further improving insight into national preparedness. State, local, tribal, and territorial governments that receive FEMA preparedness grants are required to complete the THIRA/SPR process.
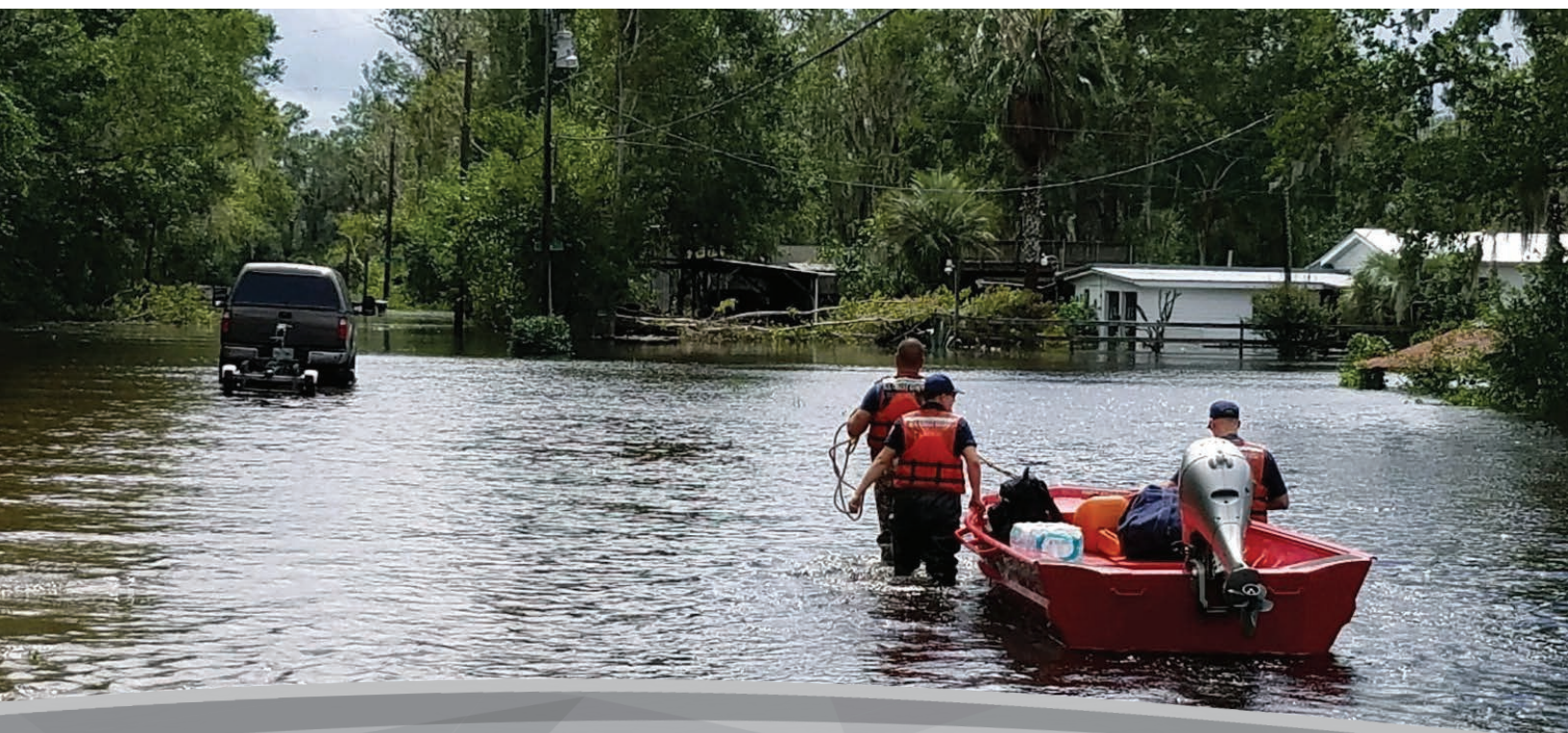
THIRA/SPR data highlight that different types of communities face distinct challenges when building and sustaining their capabilities.

Through the 2018 THIRA/SPR process, states, territories, tribal nations, and urban areas identified where they are furthest from achieving their capability goals. States and territories frequently reported being furthest from their goals for establishing long-term housing, relocating individuals affected by disasters, and mobilizing and delivering life-sustaining goods (see **Figure 5**). Compared to states and territories, urban areas reported larger capability gaps in both Response and Recovery capabilities. For example, more than half of urban areas reported that they are far from their goals to relocate affected individuals and establish long-term housing. In addition to providing community sheltering and relocating individuals affected by disasters, tribal nations reported large gaps in restoring communications systems and power—areas in which states, territories, and urban areas generally reported smaller gaps.

CAPABILITY SNAPSHOT
By Community Type

	CAPABILITY CLOSEST TO GOAL	CAPABILITY FURTHEST FROM GOAL
STATES & TERRITORIES	EOP Updates Situation Briefings Unified Operations	Long-term Housing Relocation Assistance Life-Sustaining Goods Delivery
URBAN AREAS	Unified Operations EOP Updates Situation Briefings	Long-term Housing Resource Restoration Life-Sustaining Goods Delivery
TRIBES	Unified Operations EOP Updates Interoperable Communications	Community Sheltering Communication Systems Relocation Assistance

Figure 5: Communities vary in their progress toward Cross-Cutting capability goals.

States, territories, urban areas, and tribal nations also used the THIRA/SPR to report gaps in planning, organization, equipment, training, and exercises (POETE) for each core capability. As seen in **Figure 6**, the most frequently reported POETE gaps vary by community type. For example, tribal nations most frequently selected capability gaps in exercises—an area in which states and territories reported the fewest gaps. Together, these differences in capability targets and POETE gaps indicate the distinct challenges that different types of communities face in building and sustaining preparedness capabilities—investments and actions needed to close preparedness gaps for states and territories are fundamentally different than the investments and actions needed for urban areas and tribal nations.

COMMON POETE GAPS

P = Planning O = Organization E = Equipment T = Training E = Exercises

	MOST FREQUENTLY REPORTED GAPS (In Red)	AREAS WITH MOST POETE GAPS
STATES & TERRITORIES	P O E T **E**	Community Sheltering Information Delivery Unified Operations
URBAN AREAS	**P** O **E** T E	Information Delivery Interoperable Communications Community Protection
TRIBES	P O E **T** **E**	Community Sheltering Search and Rescue Updating EOPs

Figure 6: Communities are most often challenged by these POETE areas.

THIRA/SPR data indicate that communities place higher priority on achieving their targets for Response and Cross-Cutting capabilities than Recovery capabilities.

In addition to assessing current capabilities in the 2018 THIRA/SPR process, communities also identified the priority they place on reaching or maintaining capability targets. Communities generally identified their targets for Response and Cross-Cutting capabilities as high or medium priorities. Conversely, they identified Recovery capability targets as a low priority more frequently than those in the other areas (see **Figure 7**). This data suggests that communities may plan to focus their investments and resources primarily on building and sustaining their Response and Cross-Cutting capabilities, rather than their Recovery capabilities, and may increase the likelihood that Recovery-related capabilities require additional Federal support. Previous *National Preparedness Reports* have identified persistent challenges and preparedness gaps across the Recovery mission area. These THIRA/SPR trends suggest that FEMA and other Federal agencies need to continue to work with state, territorial, urban area, and tribal partners to place greater emphasis and priority on achieving Recovery-related capability targets.

PRIORITY PLACED ON ACHIEVING GOAL BY COMMUNITIES

= Low Priority   = Medium Priority   = High Priority

% of All Communities

COMMUNICATIONS

Goal	Low	Medium	High
Interoperable Communications	2%	22%	76%
Information Delivery	2%	25%	73%
Communication Systems	13%	42%	45%

ENERGY (POWER & FUEL)

| Community Power | 17% | 32% | 51% |

FOOD, WATER, SHELTERING

Community Sheltering	4%	40%	56%
Evacuation	8%	44%	48%
Life-Sustaining Goods Delivery	2%	52%	46%
Relocation Assistance	12%	45%	43%
Water Service	13%	45%	42%

HAZARDOUS MATERIAL

Decontamination	11%	43%	46%
HAZMAT Cleanup	9%	47%	44%
Sanitation	17%	45%	38%

HEALTH AND MEDICAL

| Medical Care | 4% | 34% | 62% |
| Body Recovery/Storage | 18% | 47% | 35% |

SAFETY AND SECURITY

EOP Updates	4%	29%	67%
Community Protection	5%	29%	66%
Unified Operations	2%	38%	60%
Situation Briefings	6%	37%	57%
Structural Firefighting	10%	35%	55%
Search and Rescue	6%	39%	55%

TRANSPORTATION

| Clear Critical Roads | 15% | 42% | 43% |

RECOVERY

Reestablish Services	8%	50%	42%
Long-term Housing	33%	37%	30%
Reopen Businesses	29%	44%	27%
Natural/Cultural Resource Restoration	54%	35%	11%

0%   25%   50%   75%   100%

Figure 7: Communities place especially high priority on achieving their goals within the Communications and Safety and Security Community Lifelines.

PREVENTION

MITIGATION

RECOVERY

PROTECTION

RESPONSE

Findings

The *2019 Report* organizes findings and data across the five preparedness mission areas: Prevention, Protection, Mitigation, Response, and Recovery.[3] The Response and Recovery sections contain additional data gathered from communities through the THIRA/SPR process.[4]

[3.] The *National Preparedness Goal* (the Goal) describes 32 activities, called "core capabilities", that address the greatest risks to the Nation. The Goal then organizes these core capabilities into five categories, called "mission areas." Three core capabilities—Planning, Operational Coordination, and Public Information and Warning—apply to all five mission areas. FEMA refers to these three core capabilities as "Cross-Cutting capabilities." For additional information on the Goal, please visit: https://www.fema.gov/national-preparedness-goal.

[4.] The *National Preparedness Report* will include THIRA/SPR data for all five mission area sections beginning in 2020.

PREVENTION MISSION AREA

MISSION AREA OVERVIEW

The Prevention mission area focuses on ensuring the Nation is prepared to prevent a terrorist attack from occurring within the United States. The National Prevention Framework describes the seven Prevention core capabilities and how they interact during an imminent threat.

A key element of prevention is using intelligence and information sharing to develop situational awareness of the threat. Federal, state, local, tribal, and territorial governments each develop a specific course of action after identifying a terrorist threat. Law enforcement officials conduct operations to neutralize developing threats, while integrating stakeholders through operational coordination. Forensics and attribution activities help identify perpetrators of terrorist acts and prevent follow-on attacks. Amid an imminent threat, officials continually and promptly share information, warnings, and other actionable information with the public and stakeholders, as appropriate.

Prevention Core Capabilities

- Forensics and Attribution
- Intelligence and Information Sharing
- Interdiction and Disruption
- Operational Coordination
- Planning
- Public Information and Warning
- Screening, Search, and Detection

MISSION AREA FINDINGS

Preventing terrorism is a responsibility shared by individuals, communities, and state, local, tribal, and territorial governments in coordination with the Federal Government. At all levels of government, training for first responders is an important aspect of preventing terrorist threats and incidents. The Federal Government implemented organizational changes and revised program operations to strengthen terrorism prevention efforts. Also, in 2018 fusion centers improved state and local partnerships with Federal agencies, which resulted in increased information sharing and improved awareness of potential threats.

Preparedness in Practice:
Securing the Cities Program

The Countering Weapons of Mass Destruction Securing the Cities (STC) program seeks to prevent the successful movement and deployment of radiological or nuclear weapons within the United States. The STC program assists Federal, state, local, tribal, and territorial agencies in detecting, analyzing, reporting, and disrupting the use of radiological or nuclear materials outside of regulatory control and in defending large geographic areas. The STC program trains and equips state, local, tribal, and territorial personnel to maximize deployment of screening equipment in support of Federal nuclear detection priorities. In FY 2018, STC achieved a new milestone of 46 million people, or approximately 14 percent of the U.S. population, covered by preventative radiological and nuclear detection capabilities. This represents an additional 9 million people covered compared to 2017.

Improved Federal support to state, local, tribal, territorial governments and private-sector partners strengthened prevention efforts to counter terrorist threats—including weapons of mass destruction (WMDs)—and criminal activity nationwide.

The Department of Homeland Security (DHS) initially created the Countering Weapons of Mass Destruction (CWMD) Office in 2017 through its reorganization authority in the Homeland Security Act. In 2018, Congress subsequently authorized the CWMD Office through the Countering Weapons of Mass Destruction Act of 2018. CWMD leads the Department of Homeland Security's efforts to counter attempts by terrorists to carry out an attack against the United States or its interests using a weapon of mass destruction. The office supports frontline operators, such as law enforcement, first responders, and public safety officials by providing information, tools, and other capabilities required to detect, deter, and disrupt chemical, biological, radiological, and nuclear threats.

Preparedness in Practice:
Private Industry Partnerships with U.S. Customs and Border Protections

In 2018, small and mid-sized businesses[5] worked with the U.S. Customs and Border Protection (CBP) to expand their partnership to enhance border security and facilitate safe travel and trade. The use of biometrics and facial recognition software decreased interview times with officers at airports. For example, interview times for foreign travelers entering the U.S. reduced from several minutes down to approximately 30 seconds. These advances also led to the apprehension of three imposter travelers near Washington, DC. Using innovative technology developed by small and medium-sized businesses, CBP can improve trade lane security and law enforcement for efficient and safe transport of nearly $4 trillion in goods that cross U.S. borders every year. These partnerships with private industry support safety and enforce policy in a constantly changing trade and security environment.

CWMD modified the Mobile Detection Deployment Program (MDDP) in 2018 to provide radiological and nuclear detection surge support for state and local government partners during their routine daily public safety operations to improve detection capabilities and serve as a threat deterrent. Prior to 2018, the MDDP primarily provided training and detection equipment to state and local government partners for special events. CWMD recognized the need to modify their deployment strategy to help prevent acts of terrorism and other criminal activity along pathways used to enter and

travel through the United States. As a result, DHS revised its deployment process to emphasize surge operations intended to stop, detect, and deter terrorist activity along these pathways before they reach major urban areas. During the fourth quarter of 2018 under the new policy, 80 percent of MDDP deployments were for surge support to state and local law enforcement personnel patrolling threat pathways. The less predictable, more flexible surge operations improved early detection and response capabilities to mitigate the illicit use of radiological or nuclear materials.

Intersecting and interrelating national security frameworks and strategies published in 2018, such as the National Biodefense Strategy and Health Security National Action Plan, promote resilient communities. These lay out a clear pathway and set of objectives to effectively counter threats from naturally occurring, accidental, and deliberate biological events. They are a call to action for state, local, territorial, and tribal entities, other governments, practitioners, physicians, scientists, educators, and industry.

The National Domestic Preparedness Consortium (NDPC) helped increase the preparedness of state, local, tribal, and territorial first responders by providing training opportunities nationwide, but specific gaps remain.

Training first responders is critical to building and sustaining terrorism-prevention capabilities at the state, local, tribal, and territorial levels. The NDPC is a partnership of nationally recognized organizations that provide training to first responders to meet identified needs at all levels of government.

NDPC members have trained more than 2.9 million state, local, tribal, and territorial first responders, including law enforcement, firefighters, emergency medical services (EMS) providers, and emergency management officials since the Federal Government established the Consortium in 1998 (see **Figure 8**).

---

5. The U.S. Small Business Administration defines a small business as making between $750 thousand and $38.5 million in annual revenue and employing up to a maximum of 100 to 1,500 employees, depending on the industry.
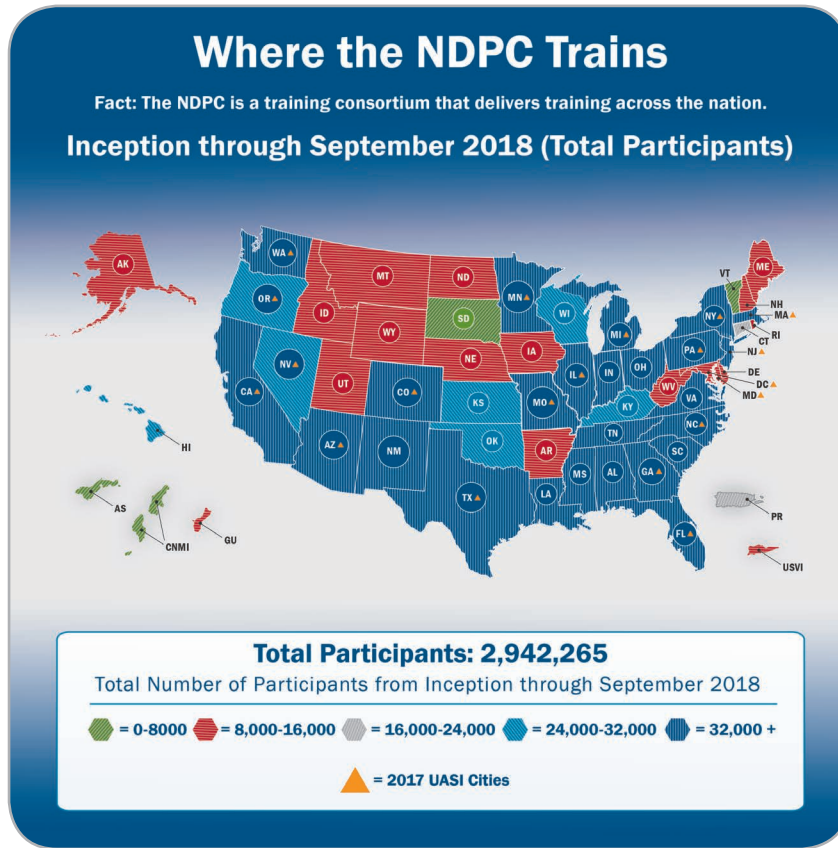
Figure 8: As of September 2018, NDPC partners have trained more than 2.9 million first responders nationwide.
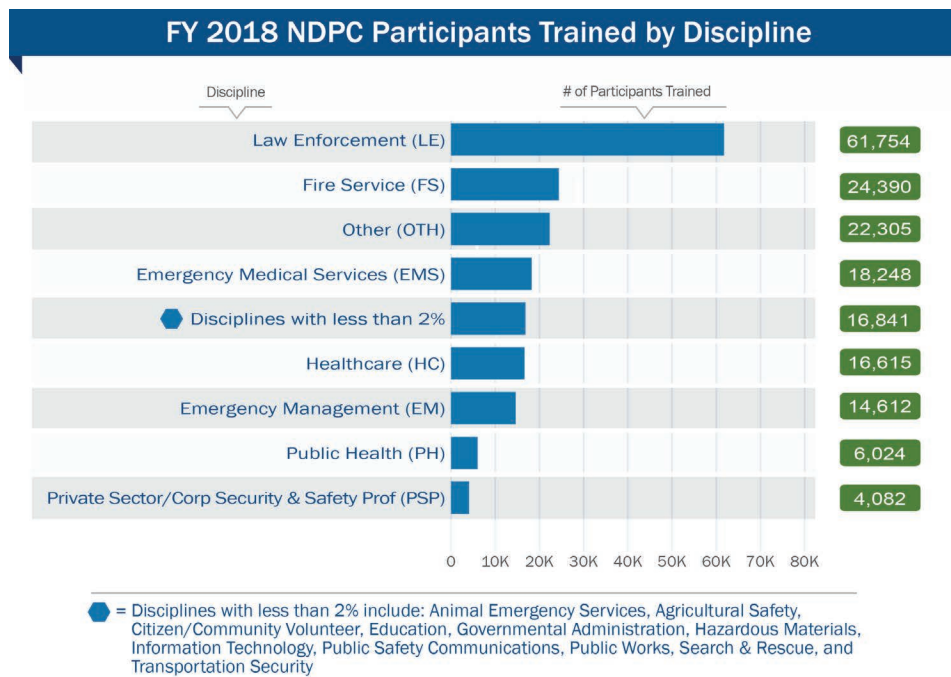

Figure 9: NDPC trained more than 186,000 participants in FY 2018, including over 61,000 law enforcement participants and more than 24,000 fire service personnel.

From FY 2009 through FY 2018, NDPC members trained more than 1.8 million participants, including more than 770,000 law enforcement officers. NDPC's mission is to enhance preparedness at all levels of the community to reduce the Nation's vulnerability to incidents involving WMDs, terrorism, and all-hazard events. In FY 2018, NDPC members trained more than 186,000 first responders from state, local, tribal, and territorial government agencies including more than 61,000 members of law enforcement, and more than 24,000 fire service personnel (see **Figure 9**). While the focus and scope vary depending on course, these trainings help first responders improve the capabilities necessary to address the threats they may face.

For example, on August 26, 2018 an active shooter incident at the Jacksonville Landing in Jacksonville, Florida, resulted in three fatalities and injured 11 people. The Jacksonville Sheriff's Office (JSO) credited the Active Shooter Incident Management with Complex Incidents (ASIM-CI) course with helping them improve incident management capabilities, integrate law enforcement, fire, and EMS providers during response, and ultimately save more lives. These lessons learned, coupled with the pre-incident training from the ASIM-CI course encouraged the JSO to continue to integrate incident management training with strong tactical response training.

Individual Preparedness: How Can I Help Keep Schools in My Community Safe?

School personnel, parents, first responders, and other community partners share the responsibility of school safety. Community partners who have school safety responsibilities (e.g., first responders, emergency managers, physical, mental and public health agency representatives, elected officials) conduct effective planning in collaboration with the school community, including students, staff and families (i.e., parents and guardians). Schools can work with community partners, families, and local officials to create, maintain, and nurture safe and supportive school environments—while preventing violence—by:

- Developing a school violence annex as part of their school emergency operations plan
- Conducting school climate and site assessments as well as maintaining a threat assessment team
- Creating policies and programs that address violence prevention, prosocial skill development, bullying, and cyberbullying
- Training staff to understand, identify, and reduce school-based risk behaviors
- With leadership support from local officials, providing communications and reporting tools to students, the school community and families for use in-person, and in cyber-settings, including tip lines and reporting tools such as *See Something, Say Something*
- Training the school community on their roles and responsibilities during an active shooter event, including providing age-appropriate, trauma-sensitive training to students, and conducting exercises with community partners
- Ensuring families and the community know that school safety partners are actively engaged in protecting the whole school community before, during, and after a possible incident

Learn more at:
- https://safesupportivelearning.ed.gov
- https://rems.ed.gov
- https://www.dhs.gov/publication/enhancing-school-safety-using-threat-assessment-model

Although the NDPC trained a significant number of first responders, some gaps persist in more specific prevention-related capabilities, such as hazardous materials (HAZMAT) cleanup and decontamination. While more frequently associated with the Response mission area, activities related to the Interdiction and Disruption and Forensics and Attribution core capabilities may require responders to engage in activities that require HAZMAT and decontamination knowledge, skills, and abilities. In 2018, through the THIRA/SPR reporting process, states and territories identified a gap in training specific to decontamination and HAZMAT cleanup, in compliance with Federal regulations.[6] The NDPC made progress toward closing this gap by providing training on HAZMAT cleanup and decontamination techniques to 36,508 participants in 2018. NDPC partners also trained an additional 121 participants in decontamination techniques for HAZMAT/WMD incidents and provided HAZMAT and WMD incident decontamination training to an additional 5,681 first responders. Training participants achieved a 32 point increase—approximately six percentage points above the minimum desired threshold—in their knowledge, skills, and abilities that is directly attributed to course completion. Ongoing training for first responders and emergency management officials at all levels of

government remains critical to maintaining national preparedness capabilities, especially to address specific training gaps identified by state, local, tribal, and territorial government partners.

Fusion centers are increasingly playing an integral part in major events or incidents at the state and local levels while meeting or exceeding performance standards.

In 2018, fusion centers strengthened state and local terrorism-prevention capabilities by providing increased support to nationally significant localized events, analyzing suspicious activity reports (SARs), and developing situational awareness products.

According to the *2017 National Network of Fusion Centers Report* (published October 2018), fusion centers increased direct support to special events and national special security events by 35 percent in 2017 compared to 2016. In 2017, fusion centers provided direct support services to localized special events 87 percent of the time. In addition, fusion centers submitted nearly twice as many SARs that initiated or enhanced a Federal Bureau of Investigation (FBI) investigation from 2016 to 2017. State and local law enforcement and other first

FUSION CENTERS STRENGTHEN TERRORISM PREVENTION

35% More — Special Security Events Supported

95% More — SARS Submitted to the FBI

130% More — Awareness Products Developed
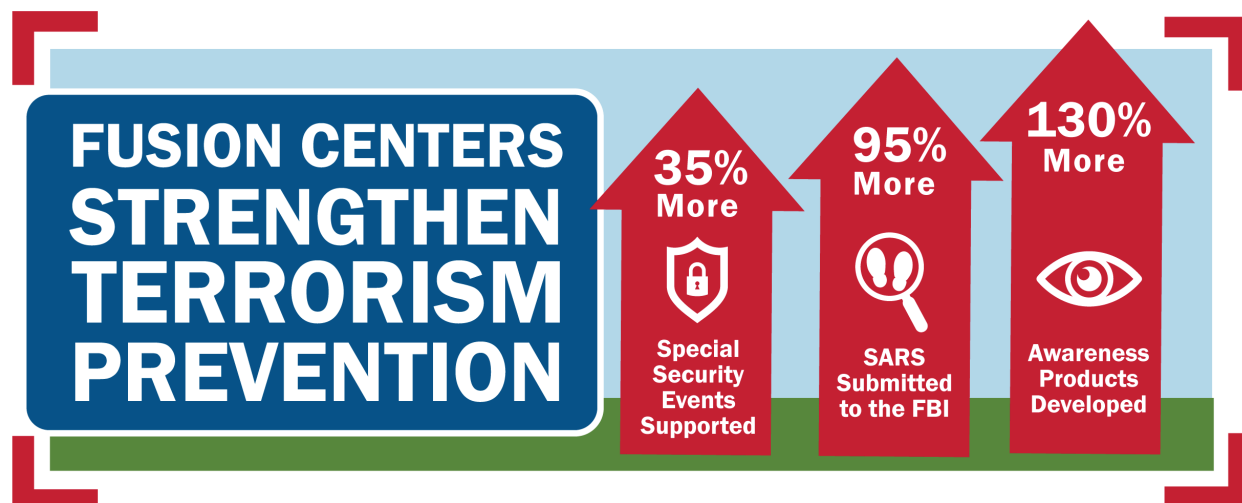
Figure 10: Fusion centers across the Nation noted increased public engagement with their products.

---

6. Specific models include the National Fire Protection Association (NFPA) 1072, Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120, and Environmental Protection Agency (EPA) 40 CFR Part 311.

responders use SARs to improve coordination with Federal partners, investigate suspicious activity, and to educate community members on recognizing potential criminal behavior. Fusion centers also more than doubled the number of situational awareness products developed and disseminated from 2016 to 2017 (see **Figure 10**).

What are Fusion Centers?

A fusion center is a collaborative effort of two or more agencies to gather, analyze, and share information with first responders to improve decision-making and to maximize the agencies' ability to detect, prevent, investigate, and respond to criminal and terrorist activity. The National Network of Fusion Centers is an integrated system of these state and local fusion centers.

Learn more at: https://www.dhs.gov/national-network-fusion-centers-fact-sheet

Fusion centers and Federal partners distribute these and other unclassified products using a unified information-sharing platform called the Homeland Security Information Network–Intelligence (HSIN–Intel). HSIN–Intel product views increased from 16,000 in 2017 to 68,000 in 2018, representing a 325 percent increase in one year. The increase in information sharing resulted in improved investigative cooperation and analytic collaboration across the fusion center network. For example, HSIN–Intel helped identify a threat against Federal agents made using social media that ultimately led to an investigation and arrest in Massachusetts.

Amid these trends, fusion centers continued to meet or exceed their performance measures. DHS evaluated fusion centers against 23 designated performance measures developed by DHS and a working group of fusion center directors. Fusion center performance in most of these measures demonstrated positive trends, indicating that fusion center operations continue to improve homeland security outcomes.

PREVENTION CORE CAPABILITIES AND THE THIRA/SPR

In 2018, FEMA worked with preparedness stakeholders to develop standardized target language for core capabilities that support the Prevention mission area (see **Figure 11**).[7] For the 2019 THIRA/SPR, communities will use the standardized capability target language to assess existing capabilities and report their goals for sustaining and building those capabilities.

PREVENTION CORE CAPABILITES & TARGETS

Core Capability | Target Language

Intelligence & Information Sharing

During steady state, and in conjunction with the fusion center and/or Joint Terrorism Task Force (JTTF), every (#) (time), review ability to effectively execute the intelligence cycle, including the planning, direction, collection, exploitation, processing, analysis, production, dissemination, evaluation, and feedback of available information, and identify the (#) personnel assigned to support execution of the intelligence cycle.

Then, within (#) (time) of the identification or notification of a credible threat, identify/analyze local context of the threat for the respective area of responsibility, and facilitate the sharing of threat information with (#) priority intelligence stakeholder agencies/entities in accordance with the intelligence cycle, and all dissemination protocols.

Interdiction & Disruption

Within (#) (time) of the identification or notification of a credible threat, conduct outreach to the fusion center and Joint Terrorism Task Force (JTTF) in the jurisdiction and identify (#) personnel assigned to support follow up interdiction and disruption activities that may be undertaken against identified suspects and/or contraband.

Screening, Search, & Detection

Within (#) (time) of notice of a credible threat, conduct screening, search, and detection operations for (#) people requiring screening, including (#) people with access and functional needs (requiring screening).

Figure 11: Communities will use this standardized language to assess their Prevention capabilities and set capability goals starting in 2019.

[7.] To create a capability target, communities fill in the blanks within the standardized target language—indicated as (#)—to show the level of capability they want to achieve and the timeframe in which they would like to be able to perform the capability. Communities use the same structure to provide estimates of their current capability.

PROTECTION MISSION AREA

MISSION AREA OVERVIEW

The Protection mission area encompasses the capabilities necessary to secure the homeland against acts of terrorism and manmade or natural disasters. This mission area centers on 11 core capabilities that operate together to safeguard the Nation against all hazards.

Critical infrastructure includes both public and private sector systems that are vital to national security and support essential services such as power and fuel, medical care, communications, drinking and wastewater, and banking. Today, most of the Nation's critical infrastructure requires information technology systems to operate. These information technology systems are increasingly at risk of being targeted by hackers, who continually develop new, more sophisticated techniques. Protecting these systems and the sensitive data they contain is vital to ensuring national security, resiliency, and well-being.

Protection Core Capabilities

- Access Control and Identity Verification
- Cybersecurity
- Intelligence and Information Sharing
- Interdiction and Disruption
- Operational Coordination
- Physical Protective Measures
- Planning
- Public Information and Warning
- Risk Management for Protection Programs and Activities
- Screening, Search, and Detection
- Supply Chain Integrity and Security

MISSION AREA FINDINGS

In its September 2018 report, *Urgent Actions Are Needed to Address Cybersecurity Challenges Facing the Nation*, the U.S. Government Accountability Office (GAO) highlighted information security as a persistent, government-wide, high-risk area, particularly for critical infrastructure. In FY 2017, the Federal Government experienced 35,277 information security incidents, including web-based attacks, phishing, and the loss or theft of computing equipment. These incidents are part of a broader, global trend[8] of increased malicious cyber activity targeting government agencies, high-tech companies, and commercial enterprises for proprietary information, financial gain, and to advance foreign adversaries' national security interests (see **Figure 12**). As a result of the growing threat posed by malicious cyber activity, the Federal Government led a coordinated effort against cybercrimes with a focus on building and sustaining national resilience to this threat.

SIGNIFICANT CYBER INCIDENTS IN THE UNITED STATES AND ABROAD
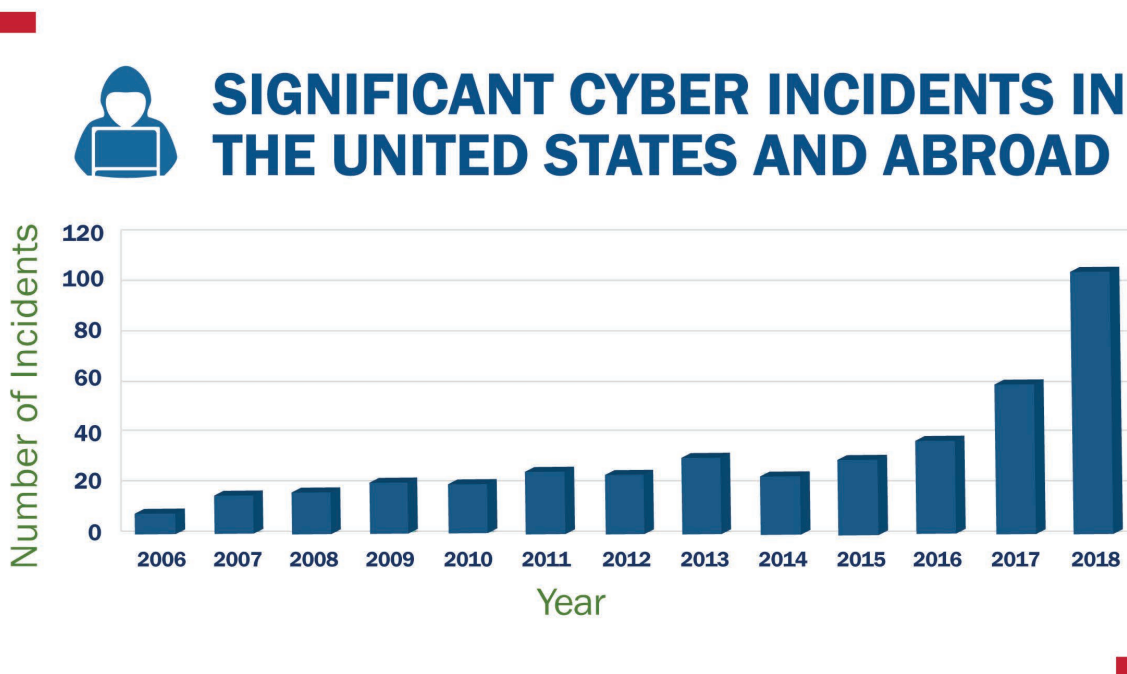
Figure 12: The number of significant cyber incidents reported in the U.S. and around the world has significantly increased in recent years. Source: Center for Strategic and International Studies

---

8. The Washington, DC-based think tank Center for Strategic and International Studies (CSIS) maintains a list of the most significant international cyber incidents that have occurred from 2006 to the present. "Significant cyber incidents" are defined by CSIS as cyberattacks on government agencies, defense and high-tech companies, or economic crimes with losses of more than $1 million.

All levels of government are implementing new, cybersecurity-focused governance structures and engaging in collaborative partnerships to help protect critical infrastructure against malicious cyber activity.

In March 2018, a cyberattack in Atlanta, Georgia, caused local service outages that impacted many city services and programs, including utilities and court services. This incident, among others, underscored the need for greater state, local, tribal, and territorial preparedness and public–private sector coordination on cybersecurity. Throughout 2018, multiple state legislatures created new governance structures or updated existing laws to address pressing cybersecurity challenges. For example, in March 2018 the Governor of Arizona signed an executive order to create the Arizona Cybersecurity Team. The executive order aims to make Arizona a nationwide leader on cybersecurity by enhancing Federal, state, local, and private sector collaboration; promoting public awareness of online threats; and advising state and local government stakeholders and the private sector

on Federal resources available to combat malicious cyber activity. Similarly, in May 2018 the state legislature of Kansas enacted a state Cybersecurity Act, establishing a State Information Security Office and Executive Branch Chief Information Security Officer position. The bill aims to secure citizens' personally identifiable information (PII), to improve coordination between state agencies and Federal partners, and to assist the state executive branch in developing, implementing, and monitoring information security programs. Finally, the Maryland General Assembly enacted a bill in May 2018 expanding the Cyber Warrior Diversity Program for higher education institutions in the state. The program provides funding to students pursuing professional certifications in information technology systems and requires certain institutions of higher education to jointly hold a National Cyber Warrior Diversity Conference.

The Federal Government also introduced new governance structures. In April 2018, as the Sector Specific Agency for energy and cybersecurity in the energy sector, the Department of Energy (DOE) created the Office of Cybersecurity, Energy Security, and Emergency Response (CESER). CESER leads the Department of Energy's emergency preparedness, coordinates response to disruptions to the energy sector, including physical and cyberattacks, natural disasters, and man-made events, and accelerates research, design, and development of resilient energy systems. CESER works with the electricity and oil and natural gas subsectors and with state, local, tribal, and territorial governments to facilitate threat information sharing and situational awareness, and hosts training and exercises. In 2018, CESER invested in cybersecurity research, development, and demonstration projects with industry partners and National Labs, developing more than 47 new products, tools, and technologies that are now used by public power utilities to advance the resilience of the Nation's energy delivery systems.

Preparedness in Practice: Deploying Albert Sensors for Election Infrastructure Security

In 2018, states deployed Albert sensors, a unique network monitoring solution to provide automated alerts on traditional and advanced network threats. The sensors allow organizations to respond quickly when their data may be at risk. As of July 2019, all 50 states now use Albert sensors on their election infrastructure, covering virtually all registered voters in the United States. During election cycles in 2018, states collected data from Albert sensors and shared this information with DHS and the broader election community. Through this collaborative process, states managed risks to their infrastructure and built resilience to cyber threats.

In November 2018 Congress passed the *Cybersecurity and Infrastructure Security Agency Act*. This legislation created the Cybersecurity and Infrastructure Security Agency (CISA) under DHS.[9] CISA works on the front lines of defense against heightened aggression from cyber adversaries. As the lead coordinating entity across all 16 critical infrastructure sectors, CISA is responsible for protecting the Nation's critical infrastructure from physical and cyber threats. CISA is also the lead Federal agency responsible for securing the Nation's election infrastructure, which is a national security priority. Additionally, CISA is the DHS lead agency for soft target defense and crowded places security, and the lead DHS agency supporting the Federal Commission on School Safety. A wide range of government and private sector organizations rely on CISA's programmatic capabilities and extensive network of trusted partners to coordinate security and resilience efforts. CISA supports the private sector and state, local, tribal, and territorial governments by serving as the main civilian-to-government interface for the sharing of threat information between the public and private sectors. CISA also engages with Federal stakeholders and critical infrastructure owners and operators nationwide by delivering training and providing all-hazards risk analysis, technical assistance, and assessments to help safeguard the Nation's critical infrastructure against current and future cyber threats.

Critical infrastructure includes election infrastructure. Election infrastructure encompasses the voter registration databases, voting systems, polling places, and storage facilities used to manage elections nationwide. Prior to the November 2018 elections, CISA established the National Cyber Situational Awareness Room. This online portal for state and local election officials and vendors facilitated rapid information sharing across multiple states and gave election officials virtual access to the 24/7 operational watch of the National Cybersecurity and Communications Integration Center (NCCIC). CISA's NCCIC also pre-staged Hunt and Incident Response Teams (HIRTs) in various locations around the country

prior to the elections. Deployed HIRT teams could rapidly respond to any requests for assistance from state and local officials, including quickly traveling onsite to help increase security and safety during the elections.

Besides introducing new legislation, states, local communities, and the private sector collaborated extensively with Federal partners on cybersecurity-specific exercises. In April 2018, CISA executed the sixth and most expansive iteration of the national-level cyber exercise, CyberStorm. CyberStorm VI incorporated more than 2,000 stakeholders, including 20 states, eight Information Sharing and Analysis Centers, 22 Federal agencies, 13 nations, and 44 industry partners across the information technology, communications, finance, transportation systems, and critical manufacturing sectors. CyberStorm VI integrated new stakeholders, enabled collaboration with the intelligence community during a simultaneous classified exercise, and raised awareness of the expanding cyberattack landscape. Participants successfully exercised DHS' roles, capabilities, and internal coordination mechanisms—including the National Cyber Incident Response Plan—and assessed external information-sharing capabilities across the incident response community to address a cyberattack on microprocessors commonly used in information technology devices. In August 2018, DHS hosted the "Table Top the Vote" exercise, a first-of-its-kind event that included partners from 44 states, the District of Columbia, and six Federal departments and agencies. DHS designed the event to help partners identify best practices and improve cybersecurity incident planning, preparedness, identification, response, and recovery in preparation for the November 2018 election. DHS hosted the second iteration of the event June 2019 and saw increased state participation. In November 2018, DOE executed the Liberty Eclipse exercise series, which focused on assisting infrastructure owners and operators and their partners in collectively responding to a significant cyberattack on the energy system. During the seven-day exercise,

---

9. Prior to the creation of CISA, a former DHS component—the National Protection and Programs Directorate (NPPD)—managed cybersecurity-focused offices and programs, including the National Cybersecurity and Communications Integration Center (NCCIC) and National Cyber Exercise and Planning Program (NCEPP).

DOE worked with the Defense Advanced Research Projects Agency to test and evaluate technologies that could enable the reboot of the power grid during a cyberattack. Over the course of 2018, DOE's CESER office participated in more than 30 exercises with the Department of Defense (DoD), DHS, and industry partners from the electricity and oil and gas sectors. These exercises included cybersecurity-specific scenarios and objectives, which focused on internal cyber response and coordination to improve cyber preparedness.

To improve private sector and individual security and resilience to malicious cyber activity, all levels of government are developing new tools and resources promoting good cyber hygiene.

As noted by the President's National Infrastructure Advisory Council, all businesses face the threat of malicious cyber activity against their business networks, customer accounts, communication systems, Websites, and proprietary data. In November 2018, an international hotel chain disclosed that hackers obtained access to the personal information of more than 500 million hotel guests. In another major incident involving a U.S. retailer, an unauthorized party accessed the personal information and credit card details of an unspecified number of customers. Throughout 2018, malicious actors also targeted multiple hospitals and healthcare organizations across the Nation, gaining access to thousands of confidential patient records. The 2016 National Preparedness Report highlighted the growing trend of malicious cyber activity against healthcare organizations designed to steal PII for fraudulent activities. Data breaches like these erode public confidence in the ability of organizations to protect sensitive information.

Individual Preparedness: Cyber Hygiene

Cyber hygiene is about practicing good habits when connected to the web on a mobile phone, personal computer, tablet, or other electronic devices. When using these devices, be sure to:

- Enable log-in settings that require multiple steps to verify your identity (e.g., entering a password followed by a PIN sent via text message)

- Use secure Internet browsers and anti-virus software for safe web usage

- Avoid oversharing personal information on social media, including sharing your location in tagged photos, videos, or posts

- Only download apps from trusted sources

Learn more at: https://www.dhs.gov/be-cyber-smart/campaign
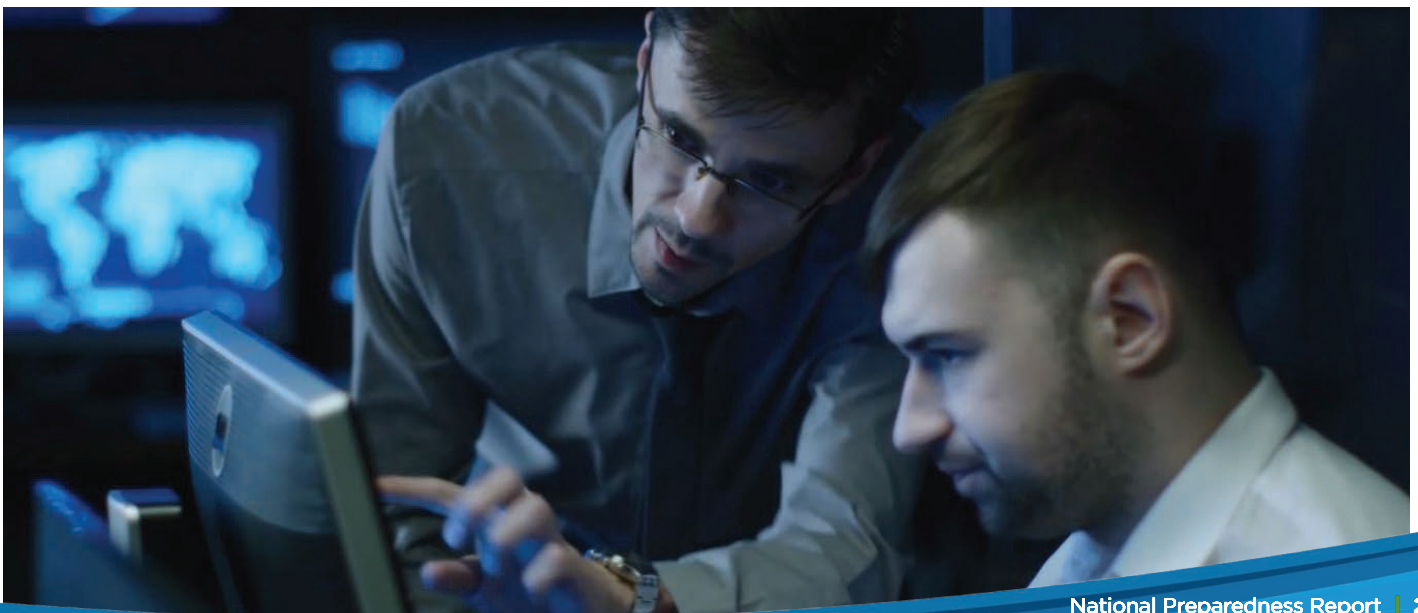
To protect private sector critical infrastructure and PII against further malicious cyber activity, the Federal Government collaborated with state, local, tribal, and territorial government partners to develop tools and resources that promote good cyber hygiene. Cyber hygiene relates to the practices and precautions that computer users can take to improve the security of their personal information and protect themselves online from outside attacks. In July 2018, the Office of the Assistant Secretary for Preparedness and Response, in the Department of Health and Human Services (HHS), released the Risk Identification Site Criticality (RISC) Toolkit. The Toolkit is a data-driven risk assessment tool designed for use by healthcare and public health sector critical infrastructure owners and operators to identify site-specific physical and cyber threats and hazards, to assess vulnerabilities, and to determine potential consequences of threats. The RISC Toolkit also promotes greater coordination between healthcare organizations and their internal and external emergency management, information technology security, financial management, and community partners. Healthcare organizations and their partners can leverage the Toolkit to determine preparedness activities and resource allocations for healthcare facilities, as well as to compare multiple facilities across systems, coalitions, and regions to identify dependencies and interdependencies to help create a more resilient healthcare system. Since its release, over 1,000 stakeholders[10] across the Nation have leveraged the RISC Toolkit.

In April 2018, the National Institute of Standards and Technology (NIST) released the Cybersecurity Framework version 1.1. The voluntary Framework helps states, localities, and the private sector identify, assess, manage, and communicate cybersecurity risks within and across their infrastructures and services. Stakeholders downloaded the framework over one-quarter of a million times in the ten months after its release, indicating widespread interest in the framework's practical application. In November 2018,

NIST hosted the Cybersecurity Risk Management Conference. The conference provided an opportunity for attendees to learn about the current state of cybersecurity risk management and innovative approaches being deployed. More than 800 attendees from diverse industry sectors, government agencies, academia, and international entities participated in the event. In 2018, NIST held three webinars that drew several thousand state, local, tribal, and territorial participants interested in leveraging the framework to manage election security processes.

Preparedness in Practice: Using the NIST Cybersecurity Framework to Improve Information Security

In 2018, the University of Kansas Medical Center (KUMC)—with 7,000 students and staff spread over three campuses—implemented the NIST Cybersecurity Framework 1.1. Through this process, KUMC identified ways to improve its information security practices, such as having the right security systems in place. After implementing the framework, KUMC's Information Security team was better equipped to engage the entire university community on aligning policies, processes, and resources to support its mission. The Information Security team now manages multiple risk efforts in a streamlined, centralized way and has successfully updated its cybersecurity plans.

---

10. The RISC Toolkit has a total of 1,036 unique downloads (219 downloads in 2018, and 817 downloads in 2019). This figure represents the approximate number of times the RISC Toolkit has been fully implemented by stakeholders since its release. This number is approximate because downloads do not necessarily amount to full implementation, and many users who have downloaded and implemented the Toolkit distribute their individual downloads to a broader group of stakeholders (not captured by download data).

To promote good cyber hygiene at the individual level, DHS developed and promoted two national public awareness campaigns. DHS designed both campaigns to increase understanding of and preparedness for malicious cyber activity while empowering the general public to be more secure online. The first campaign, "STOP.THINK.CONNECT.™," offers resources on cybersecurity best practices, including informational handouts, videos, and links to additional resources from other Federal departments and agencies. The second campaign, "#BeCyberSmart," raises public awareness of how to recognize cyber vulnerabilities and take protective measures against malicious cyber activity. This campaign offers a series of short instructional videos on social media and mobile phone security topics, including public Wi-Fi, mobile phone applications, and mobile phone settings.

PROTECTION CORE CAPABILITIES AND THE THIRA/SPR

In 2018, FEMA worked with preparedness stakeholders to develop standardized language for THIRA/SPR capability targets for core capabilities that support the Protection mission area (see **Figure 13**). Communities will use the standardized capability target language in 2019 to assess existing capabilities and analyze how much capability they should sustain or build in these areas.

PROTECTION CORE CAPABILITES & TARGETS

Core Capability	Target Language
Cybersecurity	Every (#) (time), appropriate authorities review and update cyber incident plans/annexes based on evolving threats covering (#) publicly managed and/or regulated critical infrastructure facilities.
Intelligence & Information Sharing	During steady state, and in conjunction with the fusion center and/or Joint Terrorism Task Force (JTTF), every (#) (time), review ability to effectively execute the intelligence cycle, including the planning, direction, collection, exploitation, processing, analysis, production, dissemination, evaluation, and feedback of available information, and identify the (#) personnel assigned to support execution of the intelligence cycle. Then, within (#) (time) of the identification or notification of a credible threat, identify/analyze local context of the threat for the respective area of responsibility, and facilitate the sharing of threat information with (#) priority intelligence stakeholder agencies/entities in accordance with the intelligence cycle, and all dissemination protocols.
Interdiction & Disruption	Within (#) (time) of the identification or notification of a credible threat, conduct outreach to the fusion center and Joint Terrorism Task Force (JTTF) in the jurisdiction and identify (#) personnel assigned to support follow up interdiction and disruption activities that may be undertaken against identified suspects and/or contraband.
Screening, Search, & Detection	Within (#) (time) of notice of a credible threat, conduct screening, search, and detection operations for (#) people requiring screening, including (#) people with access and functional needs (requiring screening).

Figure 13: Communities will use this standardized language to assess their Protection capabilities and set capability goals starting in 2019.

MITIGATION MISSION AREA

MISSION AREA OVERVIEW

The Mitigation mission area centers on mitigating the impacts of disasters. Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters.[11] Although investment in mitigation may not produce immediate results, it may decrease disruptions and losses in the future by reducing the impact of disasters on communities.

Mitigation Core Capabilities

- Community Resilience
- Long-Term Vulnerability Reduction
- Operational Coordination
- Planning
- Public Information and Warning
- Risk and Disaster Resilience Assessment
- Threats and Hazards Identification

MISSION AREA FINDINGS

As in previous years, the Nation faced severe weather incidents in 2018 that challenged national preparedness, emphasizing the need for added preparedness measures. Over the past 10 years, the Federal Government spent more than $320 billion on Federal infrastructure repairs and other extreme weather-related expenses. FEMA data indicates that while the number of disasters each year is increasing, only 50 percent of incidents activate Federal funding assistance. As a result, state, local, tribal, and territorial government partners likely face increased financial burdens from natural disasters. Likewise, according

11. The full explanation of this definition can be found on the FEMA website at https://www.fema.gov/what-mitigation.

to the Congressional Budget Office, the Nation can expect to suffer around $54 billion in annual economic losses that result from damage inflicted by hurricane wind and storm-related flooding. To address these challenges, the Nation is directing additional attention towards mitigation-funding efforts, which includes making fundamental changes to how it approaches building and sustaining mitigation-related capabilities to help reduce the impacts of disasters. For example, SBA disaster loans can also provide applicants with additional eligibility for mitigation and protective measures of up to 20 percent of their total physical losses. However, the Nation still faces challenges with implementation despite efforts to build capacity around nature-based mitigation measures and expand overall mitigation efforts.

The recently passed *Disaster Recovery Reform Act of 2018* emphasizes the importance of mitigation through transformational shifts in mitigation policy and funding priorities.

The Nation experienced rising disaster response and recovery costs throughout the 2017 hurricane season and California wildfires. These experiences informed efforts to pass the DRRA in October 2018. This new legislation includes more than 50 provisions that reduce complexities in mitigation and recovery processes, making it easier for communities to invest in mitigation-related activities moving forward. The DRRA promotes mitigation through two different grant programs: the National Public Infrastructure Pre-Disaster Hazard Mitigation Grant Program and the Fire Management Assistance Grant Program, both of which emphasize building community-level resilience. The DRRA gives communities flexibility in incorporating mitigation techniques and enables communities to build a culture of preparedness by allowing all levels of government to invest in and manage long-term mitigation programs.

The DRRA significantly restructured Federal grant funding to place greater emphasis on mitigation.

The FEMA Disaster Relief Fund (DRF) is the primary source of disaster response and recovery funding provided to state, local, tribal, and territorial governments for emergencies and major disasters. Each year, FEMA estimates the funding amount that will be required for major disasters.[12] FEMA estimated that the FY 2019 funding requirements for major disasters would total more than $4.9 billion. Under the National Public Infrastructure Pre-Disaster Hazard Mitigation Grant Program, six percent of disaster expenses funded through the DRF will be set aside annually for mitigation activities. The DRF provides the largest recurring investment in pre-disaster mitigation in the Nation, and this program change is designed to encourage pre-disaster mitigation investment across the Nation.

Preparedness in Practice: Texas School District All-In on Mitigation

La Porte Independent School District in La Porte, Texas—near flood-prone Galveston Bay—recognized the importance of investing in mitigation following Hurricane Ike (2008) and Hurricane Rita (2005). The district invested more than $3 million for a stormwater drainage system to help reduce flooding at its schools and across the community. Additionally, one elementary school integrated wind-resistant glass capable of sustaining gale-force winds. The school district also invested in communications by purchasing satellite telephones so schools can communicate in the event of a power outage. The schools received minimal damage from Hurricane Harvey in 2017 and re-opened in just seven days compared to several weeks after Hurricane Ike.

Learn more at: https://www.fema.gov/media-library/assets/documents/162674

---

12. "Major disasters," in this case, refer to the combination of previously declared catastrophic incidents and projections of non-catastrophic major disaster activities.

While the DRRA opened new channels of pre- and post-disaster grant funding for state, local, tribal, and territorial governments, Federal departments and agencies previously identified gaps in shared grant information among agencies. Information gaps regarding grant eligibility criteria, eligible uses of grant funds, and pathways to apply for grant funding create challenges for state, local, tribal, and territorial governments navigating the disaster grant landscape. Federal agencies identified the need to ensure internal procedures reflect policy and authority changes that take shape because of the DRRA. In addition, state, local, tribal, and territorial government partners will require trainings and resources on the impacts and changes that DRRA places on existing and new funding mechanisms.

In order to prevent and/or reduce the effects of wildfires, the DRRA also expands the President's ability to provide hazard mitigation assistance to any area where Fire Management Assistance Grant assistance supported wildfire response, whether or not a major disaster is declared. This provision (Section 1204 Wildfire Prevention) of the DRRA made this type of post-fire assistance a permanent program of the Stafford Act,[13] and certified that FEMA will free up funding for this program through the Hazard Mitigation Grant Program by amending Section 404 of the Stafford Act. In 2018, the National Institute of Building Sciences (NIBS) published the *Natural Hazard Mitigation Saves: 2018 Interim Report*, which provided a benefit-cost analysis of mitigation and highlighted the financial benefits of investing in preparedness before disasters happen.

Many states and territories still have outdated building codes despite evidence that updating and enforcing codes lead to mitigation-related savings.

Implementing stricter building code standards at the state and territory level is a mitigation strategy that is proven to reduce the impacts of disasters. The International Code Council (ICC), an international codes community with over 64,000 members, states that "the primary objective of a building code is to provide minimum safety, guard public health, and provide energy efficiency in new construction." Many U.S. state and local agencies choose to meet the standards of some of the ICC's most recent codes requirements; up-to-date building codes incorporate the latest scientific advancements in keeping buildings safe and minimizing damage during disasters. According to the *National Hazard Mitigation Saves: 2018 Interim Report* published by NIBS, investments exceeding select provisions of the ICC's *2015 International Building Code* (IBC)[14] and *International Residential Code* (IRC)[15] have a benefit-cost ratio of 4:1, meaning every $1 invested in exceeding IRC and IBC codes translates into $4 of post-disaster savings. NIBS also estimated that adopting the most up-to-date building codes—*2018 IBC* and *2018 IRC*—resulted in a benefit-cost ratio of 11:1. These figures demonstrate that upfront investments in stronger buildings can help communities save money and recover more quickly when disasters strike.

---

13. The Robert T. Stafford Disaster Relief and Emergency Assistance Act constitutes the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA. Learn more at: https://www.fema.gov/media-library/assets/documents/15271.

14. The International Building Code is a model code that provides minimum requirements to safeguard the public health, safety, and general welfare of the occupants of new and existing buildings and structures. The IBC applies to all occupancies, including one- and two-family dwellings and townhouses that are not within the scope of the International Residential Code. For more information, visit: https://codes.iccsafe.org/content/IBC2018/effective-use-of-the-international-building-code.

15. The International Residential Code is an internationally recognized and standalone residential code designed to meet design and construction needs for one- and two-family dwellings and townhouses not more than three stories above grade. It is designed to meet these needs through model code regulations that safeguard the public health and safety in all communities. For more information, visit: https://www.iccsafe.org/codes-tech-support/codes/2018-i-codes/irc/.

Despite these benefits, state-level adoption of up-to-date building codes varies. State, local, tribal, and territorial agencies enforce code requirements at their own discretion, and recent data from the ICC indicate that approximately half of all states and territories have adopted neither the 2018 nor the 2015 building code standards for residential and commercial buildings (see **Figure 14**). More than 20 percent of states and territories have residential building codes inconsistent with ICC requirements. Additionally, a handful of states and territories enforce IBC and IRC standards that are 10 or more years old; five enforce old IBC standards, whereas six enforce old IRC standards. These older building codes do not reflect the latest advancements in building safety and security, thereby increasing the chances that disasters like earthquakes, hurricanes, and wind storms will result in significant structural damage.

U.S. Adoption of the International Building Code

= MEETS 2018 IBC STANDARDS

= MEETS 2015 IBC STANDARDS

= OUTDATED IBC
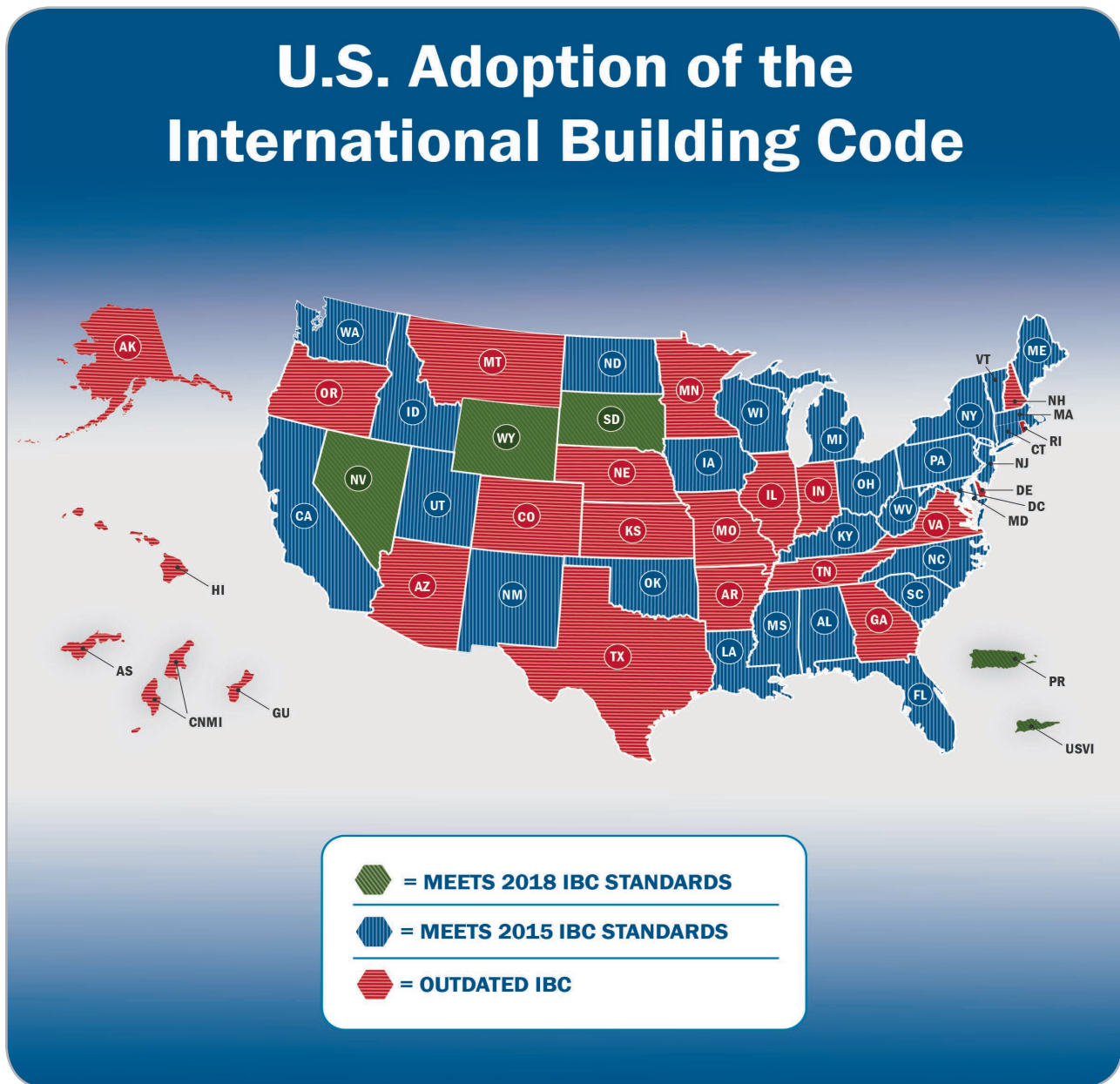
Figure 14: Only four states/territories enforce building codes which align with the most recent version of the International Building Code (IBC 2018), while 24 do not align with the 2018 or 2015 standards.

The issue of building codes came to the forefront following the 2017 hurricane season and its devastating impact on Puerto Rico. Entering the 2017 hurricane season, Puerto Rico was enforcing a building code based on 2009 standards, which were insufficient to withstand the extreme force (Category 4 with 155 mph winds) of Hurricane Maria. In December 2017, following Hurricane Irma and Hurricane Maria, FEMA's Building Science Branch deployed a Mitigation Assessment Team (MAT) to Puerto Rico to assess the effects of the storms on the built environment, develop findings and recommendations, and provide design and construction guidance to improve resilience.[16] After evaluating the flood and wind damage Puerto Rico suffered, the Puerto Rican Government and the FEMA team concluded that the territory's building codes should be updated to the most recent edition of the International Code series. Additionally, they decided that the codes should include FEMA guidance (such as safe room guidance[17]), as well as requirements for the proper staffing and training of code enforcement officials, and the development of standards, guidance, and trainings that reflect island-specific construction practices. In November 2018, Puerto Rico adopted the 2018 Puerto Rico Building Code (PRBC), an updated set of building codes based on the 2018 International Codes series, the most up-to-date building code series available. State-of-the-art building codes, like the PRBC, will increase community resilience to future disasters by increasing requirements for protection measures against threats such as wind or corrosion.

Preparedness in Practice: Building to Codes during Residential Construction

In Collier County, Florida, Habitat for Humanity invested in mitigation strategies to reduce flood risk and optimize structural integrity. The organization often purchases land in areas most at risk of flooding, meaning the building codes have higher requirements to meet. As a standard practice to reduce the risk of damage caused by flooding, the organization constructs a stormwater management system in each of their housing communities to increase the capacity to handle floodwaters and deliver them to stormwater systems. Many of these homes now exceed National Flood Insurance Program (NFIP) requirements and adhere to Florida's strict building codes and will continue to do so through the organization's commitment to construct its homes to be resistant to severe weather incidents.

Learn more at: https://www.fema.gov/pt-br/media-library/assets/documents/162593

---

16. These efforts are documented in a comprehensive Mitigation Assessment Team Report published in 2018 and available at: https://www.fema.gov/media-library/assets/documents/173789.

17. P-361 is a publication titled "Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Rooms." To learn more, visit: https://www.fema.gov/media-library/assets/documents/3140.

In addition to state, local, tribal, and territorial building code reforms, changes to the Stafford Act in 2018 also support building code adoption. The DRRA amended two sections of the Stafford Act. The amendments authorize FEMA to provide assistance to state, local, tribal, and territorial governments for building code and floodplain management ordinance administration and enforcement; and add post-disaster surge staffing assistance for code officials. These incentives can help to support code adoption and enforcement of up-to-date building codes.

Individual Preparedness: Securing Coverage to Improve Financial Preparedness

Attaining the proper insurance, such as homeowners or renters insurance, can help alleviate financial losses for individuals after disasters occur. Disaster assistance often does not cover the cost of damages for uninsured individuals, and individuals are not doing enough to obtain the proper insurance. Historically, the national rate for uninsured residential losses for disasters is approximately 70 percent for natural disasters, suggesting that individuals can do more to prepare themselves for disasters by obtaining the proper insurance. The 2018 National Household Survey suggests among those surveyed, 80 percent of people living in areas with a history of floods either do not have or do not know if they have flood insurance. These survey responses demonstrate a need to have disaster insurance coverage to help protect against losses. Individuals should take the following steps to improve their preparedness:

- Identify risks that your community faces
- Determine the types of disasters covered by your homeowners and/or renters insurance policies and obtain insurance that is adequate to cover the cost of replacing damaged or destroyed property
- Ensure that homeowners policies will cover the cost to rebuild your home
- Obtain insurance appropriate to the risks you face, including the types of disaster insurance not included in homeowners and renters insurance policies
  - Example: Homeowners in areas at risk of flooding acquire flood insurance
- Update and maintain the structural integrity of your home according to the most recent ICC building codes
- Develop individual financial disaster plans

Learn more at:

- https://www.fema.gov/mitigation-best-practices-portfolio
- https://www.iii.org/article/are-there-any-disasters-my-property-insurance-wont-cover
- https://www.corelogic.com/insights/2019-insurance-coverage-adequacy-report.aspx
- https://riskandinsurance.com/critical-coverage-gap/

Some individual citizens and businesses do not adequately align their insurance coverage to their insurance needs and local threats and hazards.

Insurance is a critical tool for individuals and businesses to mitigate the potential costs of disasters; however, insurance is most effective if it aligns to local threats and hazards. A recent report found that approximately 90 percent of California homeowners do not have earthquake insurance, despite the widespread earthquake risk across the state. Similarly, only one out of every 10 commercial buildings in California has insurance for earthquakes. The California Earthquake Authority notes that 75 percent of the Nation's property value with a high risk of earthquake damage is located in California, highlighting the huge potential loss that widespread lack of insurance creates. Standard homeowners or business insurance policies typically do not cover earthquakes; rather, homeowners, renters, and business owners must purchase earthquake-specific insurance.

In 2018, California also faced devastating property damage from wildfires, further highlighting the need to obtain insurance prior to disasters. The *2019 Insurance Coverage Adequacy Report* identified more than 110,000 properties in Southern California at either very high or extreme risk of wildfire. The average home in Southern California costs more than $400,000 to reconstruct, leading to a reconstruction cost exposure of more than $46 billion for property at very high wildfire risk in the region. Uninsured homeowners would bear the cost of reconstruction in the event of a loss. The wildfires of recent years were some of the costliest wildfires in history (the Mendocino Complex of 2018 is the largest California wildfire to date), highlighting the importance of proper insurance coverage in very high or extreme risk areas.

Gaps exist for flood insurance as well, which, like earthquakes, is not covered under standard homeowner or business insurance policies. Despite flooding being the most common and most costly type of disaster in the United States, FEMA estimates that less than five percent of homes have flood insurance. Even in Special Flood Hazard Areas—those areas most at risk for flooding—FEMA estimates that less than 30 percent of homes have flood-related insurance coverage, leaving most homeowners open to significant financial risk due to flood damage. Flooding can occur anywhere. The remnants of Hurricane Florence in 2018 caused severe flooding as far inland as Kentucky and Missouri, making it clear that the risk of flooding from hurricanes is not just limited to coastal areas, but also inland areas. As such, it is critical that individuals obtain appropriate insurance policies to ensure that they are covered in the case of a flood.

NFIP Improvements

In 2018, in response to customer feedback regarding NFIP coverage and associated costs, FEMA made a series of updates to:

- Reduce confusion regarding premium increases
- Reduce confusion regarding condominium coverage
- Improve processes and training to minimize impacts to coverage based on assumptions of primary/non-primary residence
- Clarify policy regarding refunds after a Letter of Map Amendment is issued

Learn more at:

- https://www.fema.gov/media-library/assets/documents/115278
- https://www.fema.gov/media-library/assets/documents/172215

Changes to the National Flood Insurance Program (NFIP) are helping to shift risk from the Federal Government and improve the financial stability of the program, while also improving program accessibility.

Administered by FEMA, the NFIP provides insurance to property owners, renters, and businesses while encouraging communities to adopt and enforce floodplain management regulations to help mitigate the effects of flooding on both public and private structures. In total, NFIP provides more than $1.3 trillion in insurance coverage to more than 5.6 million people, or approximately 4.7 percent of U.S. households,[18] protecting their homes and families from financial loss. Floods are the most common and costly natural disaster to the Nation, largely because floods can happen anywhere—more than 20 percent of flood claims originate outside of high-risk flood zones. Following the 2017 hurricane season, NFIP faced significant claims totaling approximately $8.9 billion from Hurricane Harvey and $1 billion from Hurricane Irma. Recent estimates by the National Oceanic and Atmospheric Administration (NOAA) show that 13 million people—or approximately four percent of the U.S. population[19] —could be exposed to major flooding in 2019, highlighting the need for a concerted effort to reduce flood damages. The increased exposure to major flooding without this coordinated effort may create challenges for the NFIP regarding its long-term financial viability.

What is Reinsurance?

Reinsurance is insurance for insurance companies. Insurance companies protect themselves from substantial financial losses by paying premiums to reinsurers, and in exchange, receiving coverage for excessive losses.

Learn more at: https://www.fema.gov/nfip-reinsurance-program

Through its NFIP Reinsurance Program, FEMA is taking a multi-year, private-sector partnership approach to better manage the financial risks associated with the NFIP. The NFIP Reinsurance Program helps FEMA manage the future exposure of the NFIP by transferring risk to private insurance companies and capital markets investors. In 2018, FEMA partnered with 28 insurance companies to secure $1.46 billion in reinsurance coverage for qualifying flood losses while also transferring $500 million of NFIP's financial risk to capital markets in a separate transaction. These reinsurance arrangements help distribute risk across the private sector and ensure the availability of claim payouts in the case of future catastrophic flooding incidents.

---

18. The percentage cited in this sentence is based on the U.S. Census Bureau estimated number of households from 2013-2017: 118,825,921 households. Learn more at: https://www.census.gov/quickfacts/fact/table/US/PST045218.

19. The percentage cited in this sentence is based on the U.S. Census Bureau estimated population from July 1, 2018: 327,167,434 people. Learn more at: https://www.census.gov/quickfacts/fact/table/US/PST045218.

MITIGATION CORE CAPABILITIES AND THE THIRA/SPR

In 2018, FEMA worked with preparedness stakeholders to develop standardized language for THIRA/SPR capability targets for core capabilities that support the Mitigation mission area (see **Figure 15**). FEMA will not require communities to use the standardized capability target language for the Mitigation targets in 2019 to assess existing capabilities and analyze how much capability they should sustain or build in these areas. However, in future years, FEMA will require communities to use this language to assess capabilities and means of addressing gaps in capability.

MITIGATION CORE CAPABILITES & TARGETS

Core Capability   **Target Language**

Community Resilience

Within (#) (time), (#) households are covered by risk-appropriate insurance, including homeowners, flood, windstorm, and seismic.

Long-term Vulnerability

Every (#) (time), (#) jurisdictions review their building codes, and if necessary enact or update risk-appropriate, disaster resilient building codes.

Risk & Disaster Resilience Assessment

Every (#) (time), after identifying threats and hazards of concern, model the impacts of (#) threat and hazard scenarios to incorporate into planning efforts.
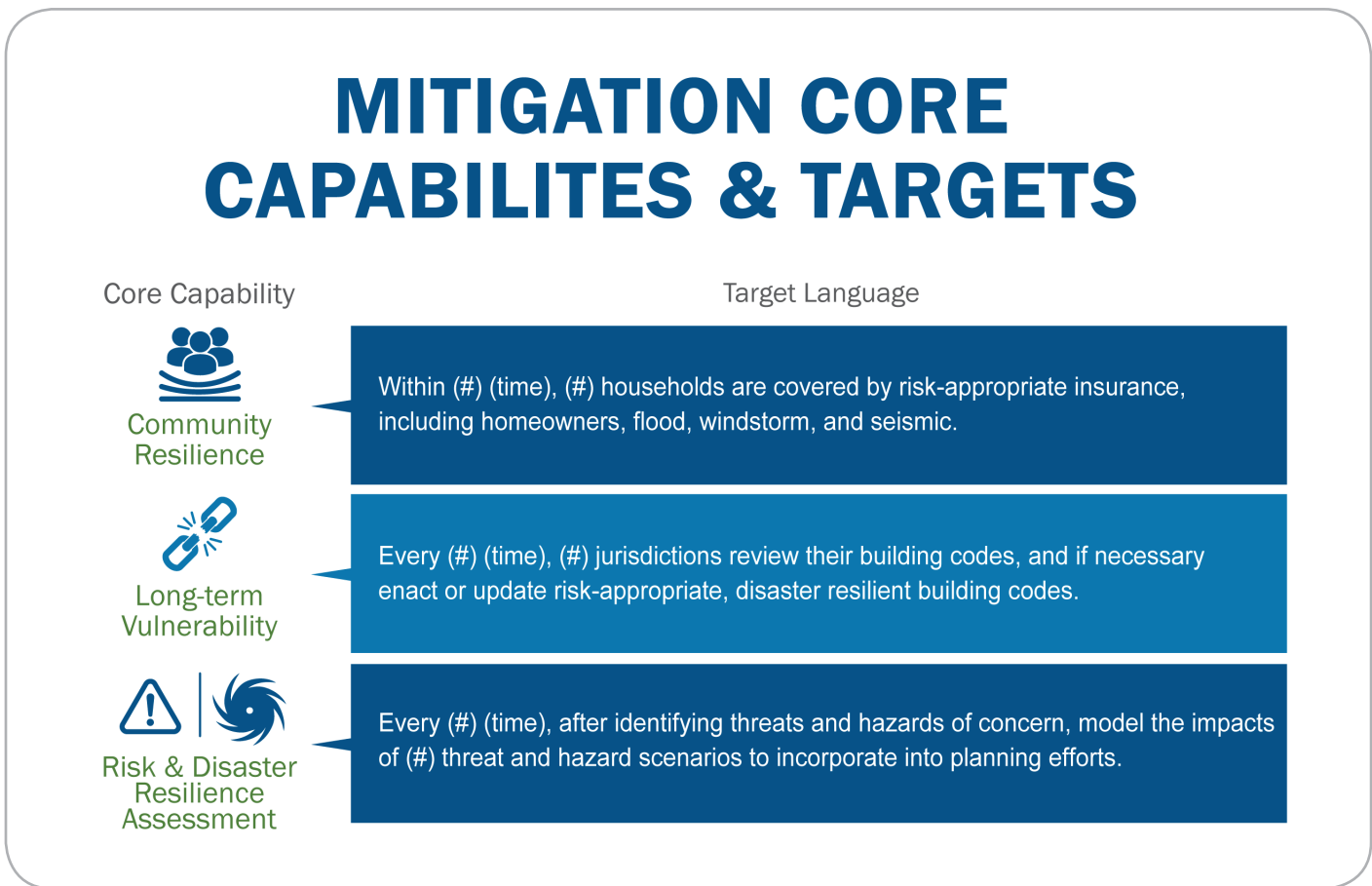
Figure 15: Communities will use this standardized language to set Mitigation capability goals starting in 2019 and to assess their Mitigation capabilities starting in 2020.

RESPONSE MISSION AREA

MISSION AREA OVERVIEW

The Response mission area focuses on saving lives, protecting the environment and property, and meeting basic human needs immediately following an incident. Under the *National Preparedness Goal*, 15 core capabilities work together through the National Response Framework (NRF) and Emergency Support Functions (ESF) to support the Nation's response to disasters. When executed successfully, these core capabilities maximize the effectiveness of locally executed, state, territory, or tribe managed, and federally supported response operations. These capabilities also help stabilize Community Lifelines and enable the continuous operation of government, business, and community functions.

Response Core Capabilities

- Planning
- Public Information and Warning
- Operational Coordination
- Infrastructure Systems
- Critical Transportation
- Environmental Response/Health and Safety
- Fatality Management Services
- Fire Management and Suppression
- Logistics and Supply Chain Management
- Mass Care Services
- Mass Search and Rescue Operations
- On-Scene Security, Protection, and Law Enforcement
- Operational Communications
- Public Health, Healthcare, and Emergency Medical Services
- Situational Assessment

MISSION AREA FINDINGS

The Nation has matured its response capabilities largely by supporting state, local, tribal, and territorial response networks and expediting services to disaster survivors and local businesses. Disaster after-action reports completed in 2018 and preparedness data analyses validated the Nation's progress and identified areas for improvement across the Response mission area. Cascading effects, which occur when a secondary threat or hazard follows a primary threat or hazard, remained an area of improvement for response capabilities and doctrine for all levels of government. Large-scale incidents such as the eruption of Hawaii's Kilauea Volcano—which lasted four months, led to over 60,000 earthquakes, and destroyed 716 dwellings with lava flow—demonstrated the importance of building response capabilities and sustaining Community Lifelines. Although individual communities are close to meeting many of their Response goals in their THIRA and SPR, communities also continue to experience challenges coordinating various partners during response missions.

Locally executed, state, territory, or tribe managed, and federally supported capabilities improved response operations by filling in key communication and knowledge gaps.

State, local, tribal, and territorial jurisdictions often address gaps in disaster response capabilities by establishing formal mutual aid agreements and reducing the need for immediate Federal support. Mutual aid agreements establish connections between agencies, organizations, and jurisdictions to quickly obtain emergency assistance in the form of personnel, equipment, materials, and other associated services. In 2018, 3,056 state and local jurisdictions had 3,621 mutual aid agreements in place with neighboring jurisdictions, nonprofit agencies, voluntary organizations active in disasters, and the private sector. For example, the Cajun Navy, a nonprofit organization that holds mutual aid agreements with several Southern states, rescued 160 people in North Carolina following floods resulting from Hurricane Florence.

Several Federal agencies implemented new initiatives in 2018, emphasizing the importance of state managed and federally supported capabilities. For example, the U.S. Geological Survey (USGS) in the Department of the Interior (DOI) embedded geological subject-matter experts (SMEs) in state emergency operations centers (EOCs). Local responders leveraged these SMEs throughout the 2018 hurricane season and following the 2018 Alaska earthquake. The presence of SMEs was particularly critical throughout the Kilauea eruption in Hawaii, as USGS volcanologists used unmanned aerial systems to provide real-time, data-driven situational awareness that enabled local emergency managers within the EOC to map lava flows and determine safe evacuation routes.

Also in 2018, FEMA developed FEMA Integration Teams (FITs) to provide direct support within state, local, tribal, and territorial partner offices. Through the FIT program, state, local, tribal, and territorial government partners benefit from on-the-ground FEMA subject matter expertise and technical assistance to build capacity, address gaps, build resilience, and ensure effective response and recovery operations. Embedded FITs coordinate with Federal partners at the state level, thereby reducing the need for states to reach back to their regional offices. As of September 2019, 36 states and territories within all 10 FEMA regions have received FIT program staff.

Many other Federal programs provide assistance to states, tribes, and local government partners. For example, the Federal Communications Commission (FCC) can provide analyses of radio spectrum activity prior to, during, and after a disaster. States, tribes, and local government partners can use these analyses to assess disaster impacts on communications infrastructure, facilitating the prioritization of communications restoration and the identification of potential disruptions to public safety communications and public alerting systems. The FCC can also issue waivers and grant special temporary authority during incidents to facilitate communications at the state, tribal, and local levels. In areas where on-the-ground communications may be congested, the FCC can provide first responders with temporary regulatory relief, improving the radio

Individual Preparedness: How Can I Prepare for a Home Fire?

The National Fire Protection Association (NFPA) releases updated fact sheets that provide accessible, consumer-friendly information to protect individuals from fires and related hazards. These points draw from their refreshed home evacuation plan:

- Draw a map of your home, showing all doors and windows
- Identify risks that your community faces
- Visit each room and find two ways out
- Make sure your home has smoke alarms
- Pick a meeting place outside
- Talk about your plan with everyone in your home
- Learn the emergency phone number for your fire department
- Practice your home fire drill
- Develop individual disaster plans
- Identify emergency actions to protect people and their families

If a wildfire impacts your home, it is important to understand local alerting systems, the associated risks around your home, and to identify evacuation routes.

Learn more at:
- https://www.nfpa.org/Public-Education/Staying-safe/Preparedness/Escape-planning
- https://www.nfpa.org/Public-Education/By-topic/Wildfire

transmission power needed to communicate with those affected, as well as freeing up frequencies otherwise dedicated for other purposes.

Another program that helps state, local, tribal, and territorial jurisdictions build response capacity—and reduce reliance on Federal assistance following a disaster—is FEMA's EMPG program. Many states rely on EMPG funding to build and sustain statewide capacities. For example, EMPG funds help states purchase upgraded equipment, weather-mapping software, and sheltering equipment. The EMPG program's funding also supports communications and warning systems, including 1,933 local and 525 state emergency response systems, 358 statewide and 697 local community warning systems, and 131 state EOCs. Through the EMPG program, states build and sustain response capacity and fill in key communication and capability gaps.

Updates to national response doctrine and coordination processes reflect and promote the importance of public-private partnerships and cross-sector collaboration in response operations.

As identified in FEMA's 2017 Hurricane Season After-Action Report, coordination between the public and private sectors during response and recovery operations remains a major challenge. To improve overall coordination among first responders and decision-makers, FEMA led an interagency effort in 2018 to update the doctrine that guides national response. As part of this effort, FEMA and DHS CISA developed and piloted a new Emergency Support Function (ESF)—an organizational structure that helps coordinate interagency support for Federal response to an incident. The new ESF #14: Cross-Sector Business and Infrastructure, focuses on improving coordination among infrastructure owners and operators, businesses, and government partners in coordination with sector specific agencies and existing ESFs. This new ESF is built on the principle that infrastructure sectors are interdependent and can prevent cascading cross-sector failures by working together.

During Hurricane Lane, major airline companies engaged the National Business Emergency Operations Center (NBEOC) to clarify information and cross-sector challenges to airline operational resilience. Through ESF #14, the NBEOC convenes private sector organizations to identify issues for resolution and distribute operational information. The NBEOC supported information sharing between the Federal Aviation Administration, three ESFs, and DHS to better align their efforts in support of Hawaii. Lessons learned from this process were later used during Hurricane Florence and Hurricane Michael to overcome transportation challenges impacting restoration and resupply activity.

In 2018, FEMA's Emergency Support Function Leadership Group (ESFLG) formed the Private Sector Integration Working Group (PSIWG) to identify barriers to information sharing between the public and private sectors. For example, while the ESF structure organizes public and private sector preparedness and response efforts by function, the group found that no singular point of contact exists for private-sector stakeholders to coordinate available disaster response resources at the state or regional levels. The PSIWG is working to address these barriers by identifying which states have Business Emergency Operation Centers and developing solutions to address the gap in states that do not possess this capability.

The NBEOC provides a platform to establish and maintain resilient public–private sector partnerships and information sharing, thereby addressing some gaps identified by the PSIWG. During the 2018 ESF #14 pilot, NBEOC membership increased by 78 new private-sector partners. **Figure 16** highlights three new NBEOC members and some capabilities to support disaster operations. By increasing its membership base, the NBEOC expanded partnership opportunities between the public and private sectors during response operations. For example, during the 2018 hurricane season, the NBEOC deployed staff to North Carolina and Florida to support private-sector response coordination and recovery planning. Through this effort, the NBEOC identified several important lessons. Foremost was the need for earlier pre-incident coordination to better understand how to leverage the self-reporting capabilities and outreach strategies of private-sector partners, in particular where these partners are not already engaged through existing ESF structures.

78 New NBEOC Members

MICROSOFT
In 2018, Microsoft released it's new Azure disaster response program that helps businesses recover from catastrophic losses of application functionality.

AMERICAN AIRLINES
During the 2018 hurricane season, American Airlines quickly restored airport functionality in North Carolina following Tropical Storm Florence.

SAFEGUARD IOWA
Safeguard Iowa provides critical situational awareness to community members for all-hazard events.
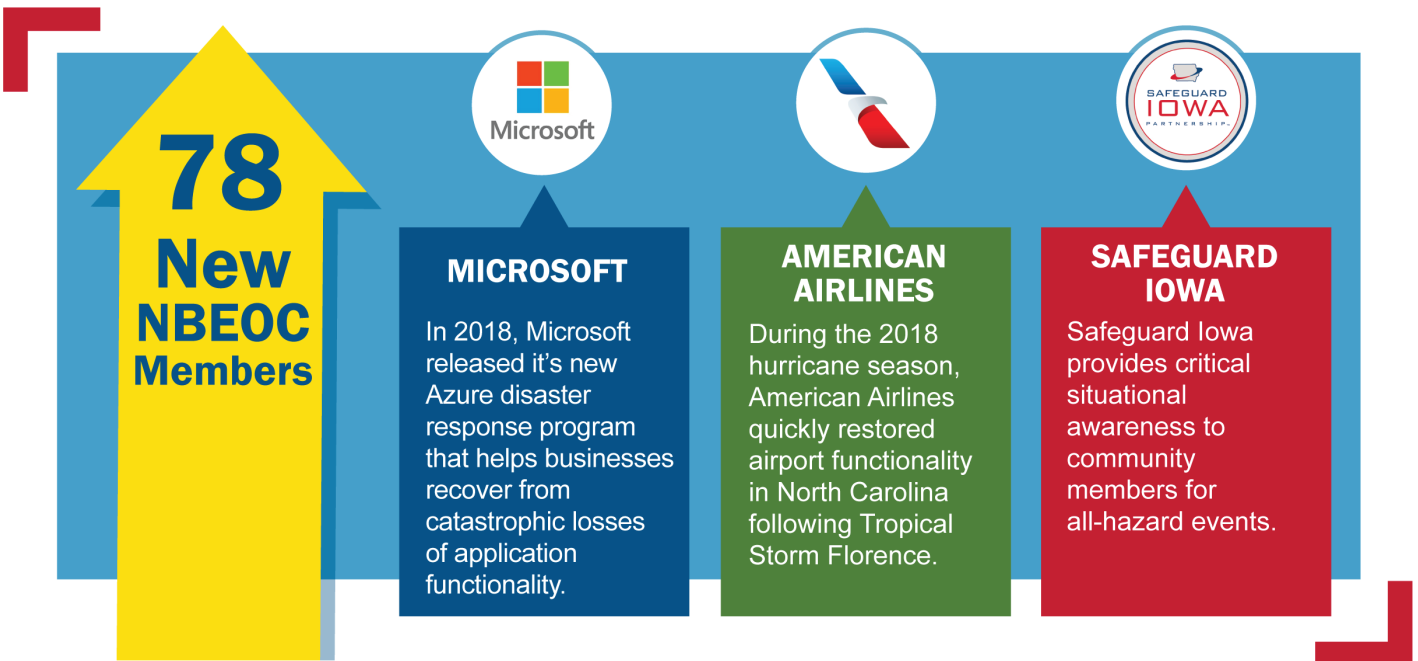
Figure 16: Three new members of the NBEOC add important capabilities to the partnership's response network.

Also in 2018, Federal departments and agencies collaborated and coordinated with the private sector to effectively issue the Emergency Alert System (EAS) and the first nationwide test of the Wireless Emergency Alert (WEA) system. The WEA system greatly expands the ability of departments and agencies to communicate with the public during a disaster. Issuing the first nationwide WEA test helps assess the reliability and effectiveness of alerting systems. Departments and agencies continue to work with participating wireless providers to improve WEA geographic accuracy and precision, develop longer messages, and provide Limited English Proficiency-language messages.

After identifying logistical and supply chain issues that arose during 2017 hurricane response operations in Puerto Rico, FEMA coordinated with the American Logistics Aid Network (ALAN) to improve supply chain redundancies and to engage with industry partners to solve complex logistics challenges. ALAN is an industry-wide organization that provides supply chain assistance to disaster relief organizations. FEMA's collaboration with ALAN offers another example of effective cross-sector collaboration that strengthens the interdependencies between public and private responsibilities during response missions. By improving supply chain redundancies, both FEMA and ALAN are better equipped to make sure that meals, water, and other lifesaving resources are delivered to the responders who provide those resources to survivors.

Preparedness in Practice: The First Responder Network Authority

In 2018, the First Responder Network Authority began to introduce the Nationwide Public Safety Broadband Network (NPSBN), which, when completed, will provide prioritized, wireless broadband data to more than 66,000-plus public safety agencies nationwide. The NPSBN increases local, state, and regional operational efficiency during incidents and disasters, including hurricanes, wildfires, and floods. The intent of the NPSBN is to increase situational awareness and improve access to and sharing of key information in preparation for, and in response to, all levels of disasters.

The newly implemented Community Lifelines construct enhances scalable response across all levels of government, nongovernmental organizations, and the private sector by facilitating response coordination efforts.

During a crisis, decision-makers across all levels of government, nongovernmental organizations, and the private sector must rapidly determine the scope, complexity, and interdependent impacts of a disaster. FEMA developed the Community Lifelines (see **Figure 17**) construct to improve coordination between decision-makers by providing a unified framework for prioritizing, sequencing, and focusing response efforts. As part of this coordination process, Community Lifelines help organize the ESFs based on priority and desired outcome. The ESFs help structure Federal interagency support in response to an incident and the core capabilities that drive response actions. Ultimately, Community Lifelines provide decision-makers with a framework to efficiently stabilize an incident by anticipating, resourcing, and managing immediate threats to life and property, and setting the conditions for delivery of assistance and long-term recovery, to include community resilience and economic recovery. Emergency managers and decision-makers at all levels can use Community Lifelines to understand and assess impacts on a community, identify limiting factors, and quickly develop outcome-based solutions following an incident.
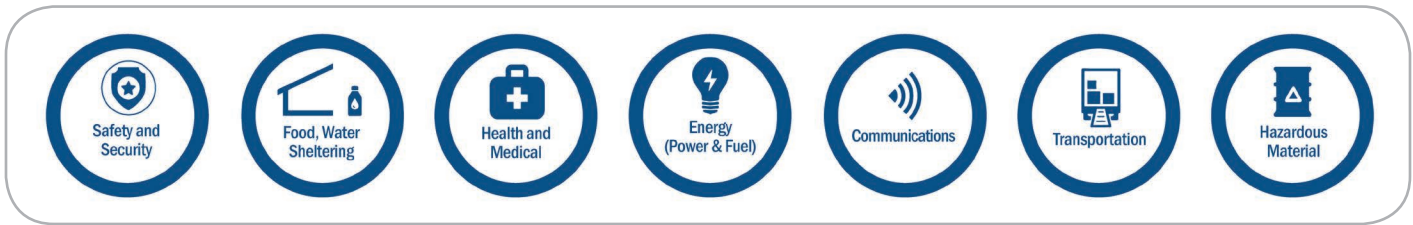
Figure 17: Community Lifelines support incident stabilization.

During the 2018 hurricane season, Community Lifelines helped response officials reframe incident information and conduct impact and causal analysis. For example, during Hurricane Florence, response officials used the Community Lifelines construct to understand the root cause and impacts of an incident involving 60 overflowing dams in North Carolina. Instead of targeting each individual dam failure, officials prioritized response missions based on relative impact to surrounding communities. This, in part, was possible because Community Lifelines provide a prioritization and sequencing structure that treat incidents holistically, rather than responding to each incident in isolation and coordinating disparately between multiple ESFs. Ultimately, through the Community Lifelines construct, officials prioritized and targeted the highest impact dam, which threatened a community of 1,000 residents and required evacuation.

Efforts to streamline lifeline implementation are also in progress. FEMA piloted the Community Lifelines construct during the 2018 hurricane season and refined it based on feedback from Federal, state, local, tribal, territorial, and private sector response partners. FEMA also provided Community Lifelines training across 27 states, to the Central United States Earthquake Consortium, and to several other consortiums and Federal agencies. However, a combination of state, local, tribal, and territorial stakeholders reported limited exposure to the Community Lifelines concept ahead of the 2018 disasters, hindering their ability to fully integrate Community Lifelines into their operations. Additionally, stakeholders identified that Community Lifelines reports required significant time to develop and varied in detail and completeness due to the lack of guidance and reporting process information. In an effort to standardize the understanding of the

Community Lifelines, FEMA launched the Community Lifelines Implementation Toolkit to:

- Provide whole community partners and the public with information and resources to understand Community Lifelines;

- Coordinate with entities using Community Lifelines; and to

- Serve as basic guidance for how to implement the construct during incident response.

Moving forward, state, local, tribal, and territorial government partners will be asked to identify stabilization targets for each Community Lifeline, incorporate Community Lifelines into their preparedness efforts, and determine the integration of Community Lifelines during recovery efforts.

RESPONSE CORE CAPABILITIES AND THE THIRA/SPR

In 2018, FEMA worked with preparedness stakeholders to develop standardized language for THIRA/SPR capability targets for core capabilities that support the Response mission area. For the 2018 THIRA/SPR process, communities—including all states and territories, as well as certain tribal nations and urban areas—performed the following activities:

- Assessed their current capability levels;

- Identified the level of capability they plan to achieve over time and assessed how close they currently are to those goals; and

- Rated their confidence in the accuracy of their capability assessments.

The following findings summarize THIRA/SPR analyses for the Response mission area.

Among the Response core capabilities, communities are closest to their goals in establishing interoperable communications and delivering situation briefings. However, challenges remain in sheltering and relocating affected individuals, and mobilizing and delivering life-sustaining goods.

The Response mission area continues to be an area of relative strength nationwide. Overall, communities placed a high priority on achieving their Response goals, suggesting that they intend to build and sustain capability in these areas. Despite this relative strength, gaps remain in the Response mission area.

For nearly all the targets, more than half of states and territories are close to meeting their goals. The exceptions are the goals for relocating affected individuals, mobilizing and delivering life-sustaining goods, and conducting search and rescue operations. Thirty-five percent report being far from their preparedness goal for relocating individuals affected by disasters—the most frequent in the Response mission area (see **Figure 18**).

CURRENT CAPABILITY RELATIVE TO GOALS
Response – States and Territories

Category	Capability	0-29% Impact Achieved	30-69% Impact Achieved	70-100% Impact Achieved	% of High Confidence
COMMUNICATIONS	Interoperable Communications	1%	24%	75%	44%
COMMUNICATIONS	Communication Systems	13%	22%	65%	29%
ENERGY (POWER & FUEL)	Community Power	20%	18%	62%	27%
FOOD, WATER, SHELTERING	Water Service	13%	27%	60%	29%
FOOD, WATER, SHELTERING	Evacuation	15%	27%	58%	15%
FOOD, WATER, SHELTERING	Community Sheltering	27%	22%	51%	31%
FOOD, WATER, SHELTERING	Life-Sustaining Goods Delivery	26%	27%	47%	27%
FOOD, WATER, SHELTERING	Relocation Assistance	34%	24%	42%	24%
HAZARDOUS MATERIAL	Decontamination	16%	20%	64%	16%
HAZARDOUS MATERIAL	Sanitation	11%	22%	67%	31%
HAZARDOUS MATERIAL	HAZMAT Cleanup	13%	25%	62%	36%
HEALTH AND MEDICAL	Body Recovery/Storage	26%	16%	58%	36%
HEALTH AND MEDICAL	Medical Care	16%	24%	60%	29%
SAFETY AND SECURITY	Situation Briefings	6%	9%	85%	49%
SAFETY AND SECURITY	Structural Firefighting	6%	24%	70%	42%
SAFETY AND SECURITY	Community Protection	13%	24%	63%	40%
SAFETY AND SECURITY	Search and Rescue	22%	29%	49%	53%
TRANSPORTATION	Clear Critical Roads	5%	29%	66%	36%

Percentage of States & Territories

🔵 = 0-29% Impact Achieved   🔵 = 30-69% Impact Achieved   🔵 = 70-100% Impact Achieved
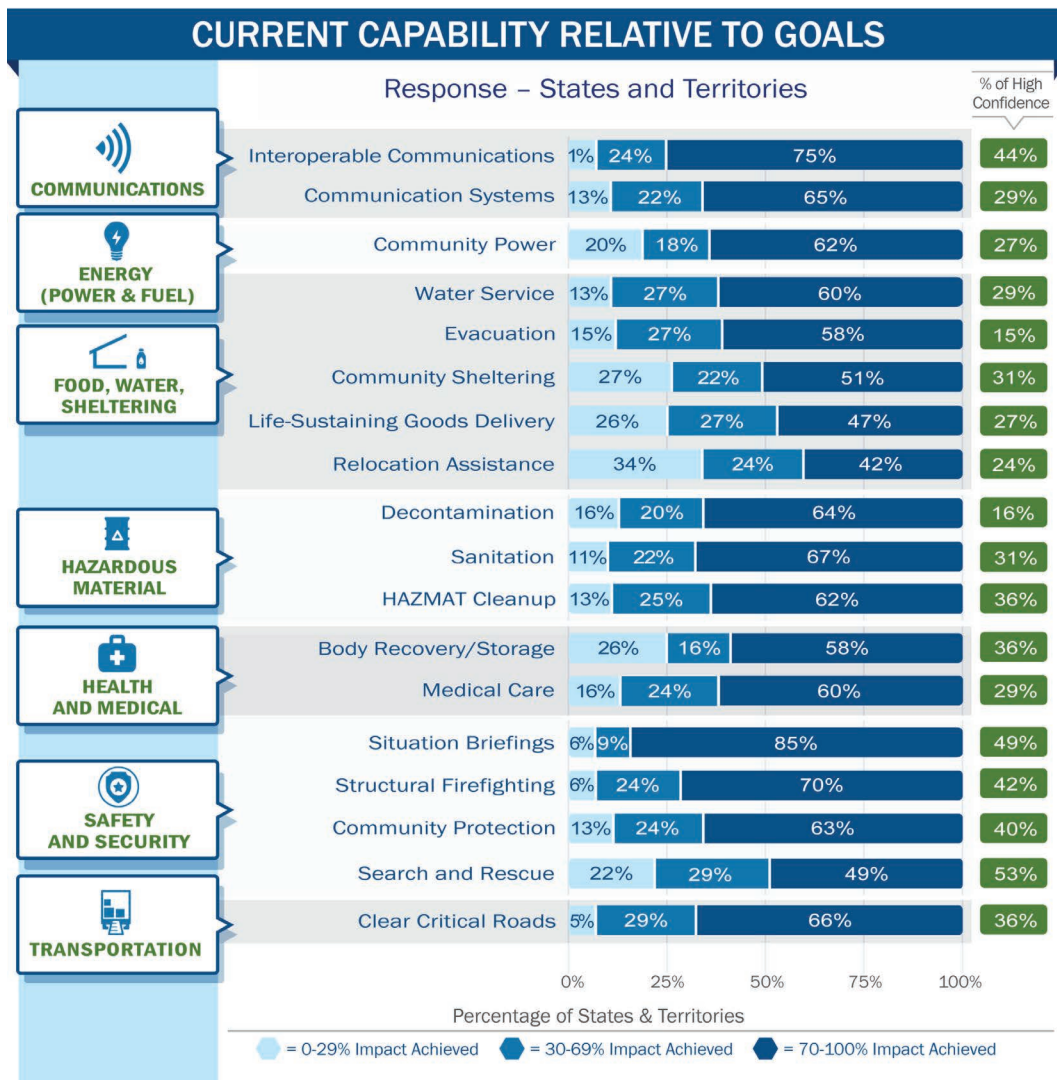
Figure 18: For the vast majority of response capabilities, communities have achieved over 50 percent of their goal. The confidence ratings indicate that communities generally do not have high confidence in their capability assessments.

Urban areas generally report similar trends as states and territories (see **Figure 19**). For most of the Response targets, at least 42 percent of urban areas report being close to achieving their goals. Fewer urban areas are close to their goals for sheltering affected individuals, relocating individuals affected by disasters, and mobilizing and delivering life-sustaining goods. Moreover, urban areas most frequently reported being far from their catastrophic requirements for those same three capabilities, suggesting these are areas where the Federal Government could focus support. Urban areas most frequently rated achieving the following goals as high priorities, indicating that they likely will prioritize investments to improve capability in these areas:

- Providing law enforcement protection;
- Establishing interoperable communications; and
- Providing community sheltering.

For most of the Response targets, more than half of tribal nations report being close to achieving their goals.[20] As shown in **Figure 19**, some of the areas in which tribal nations report being far from their goals are similar to the areas reported by states, territories, and urban areas. Despite reporting large capability gaps in sheltering affected individuals, tribal nations least frequently reported this as a high priority, indicating that they are unlikely to build the capability needed to reach their goals and may anticipate a high level of outside assistance during an incident. Conversely, they most frequently report establishing interoperable communications as a high priority.

CAPABILITY SNAPSHOT
By Community Type

	CAPABILITY CLOSEST TO GOAL	CAPABILITY FURTHEST FROM GOAL
STATES & TERRITORIES	Situation Briefings Interoperable Communications Structural Firefighting	Relocation Assistance Life-Sustaining Goods Delivery Search and Rescue
URBAN AREAS	Situation Briefings Communication Systems Interoperable Communications	Life-Sustaining Goods Delivery Relocation Assistance Community Sheltering
TRIBES	Community Protection Sanitation Water Service	Community Sheltering Communication Systems Relocation Assistance

Figure 19: Communities vary in their progress toward Response capability goals.

---

20. In 2018, FEMA required Tribal Homeland Security Grant Program recipients to complete the THIRA/SPR process for nine of the 18 Response targets.

PERSPECTIVES ON CATASTROPHIC PREPAREDNESS

This section provides an overview analysis focused on catastrophic preparedness and includes a map highlighting some of the most important catastrophic preparedness initiatives across the Nation. Catastrophic incidents refer to any natural disaster, act of terrorism, or other man-made disaster that results in extraordinary levels of casualties or damage or disruption severely affecting the population, infrastructure, environment, economy, national morale, or government functions in an area.

In catastrophic incidents, communities anticipate needing the most assistance in relocating and sheltering individuals affected by disasters, providing medical care, and providing law enforcement protection.

In addition to setting preparedness goals, communities also use the THIRA/SPR to identify the expected impacts of catastrophic incidents.[21] Determining how close communities are to addressing these impacts reveals how ready the Nation is to respond to catastrophic incidents. This also helps identify long-term gaps and prioritize where outside support may be needed (see **Figure 20**).[22] While some communities plan to address these catastrophic impacts themselves, the majority depend on outside assistance such as mutual aid or Federal assistance.

---

21. The analysis and associated graphic uses Response targets to analyze catastrophic preparedness.

22. Figure 20 displays the percentage of states and territories that have achieved a given percentage capability necessary to address their catastrophic impacts. FEMA categorized the analysis into three groups: those communities achieving between 0 percent and 29 percent of their catastrophic impacts, between 30 percent and 69 percent, and between 70 percent and 100 percent (or more). For example, 49 percent of states and territories report being able to achieve between 0 and 29 percent of their community sheltering requirements in the event of a catastrophic incident.

Most states and territories are not able to fully address the impacts of catastrophic incidents during response operations. More than half of states and territories have large gaps between their current capability and their catastrophic incident requirement in the following areas: providing medical care, decontaminating individuals exposed to HAZMAT, and providing law enforcement protection (see **Figure 20**).

Further, comparing community goals with their reported catastrophic impacts highlights gaps that reveal additional needs for outside assistance. Federal planners and responders can work with community officials to better understand these long-term gaps and develop strategies to help meet these needs during a catastrophic incident. In 2018, states and territories reported the largest long-term gaps between their goals and their catastrophic impacts in the following areas: providing medical care, providing law enforcement protection, and clearing critical roads.

CURRENT CAPABILITY RELATIVE TO WORST-CASE IMPACTS

States and Territories

Category	Capability	0-29% Impact Achieved	30-69% Impact Achieved	70-100% Impact Achieved	% of High Confidence
COMMUNICATIONS	Interoperable Communications	20%	29%	51%	44%
COMMUNICATIONS	Communication Systems	36%	18%	46%	29%
COMMUNICATIONS	Information Delivery	31%	24%	45%	38%
ENERGY (POWER & FUEL)	Community Power	36%	17%	47%	27%
FOOD, WATER, SHELTERING	Evacuation	35%	27%	38%	29%
FOOD, WATER, SHELTERING	Water Service	36%	27%	37%	15%
FOOD, WATER, SHELTERING	Community Sheltering	49%	15%	36%	31%
FOOD, WATER, SHELTERING	Life-Sustaining Goods Delivery	38%	26%	36%	27%
FOOD, WATER, SHELTERING	Relocation Assistance	53%	15%	33%	24%
HAZARDOUS MATERIAL	Sanitation	33%	20%	47%	16%
HAZARDOUS MATERIAL	Decontamination	53%	5%	42%	31%
HAZARDOUS MATERIAL	HAZMAT Cleanup	35%	25%	40%	36%
HEALTH AND MEDICAL	Body Recovery/Storage	47%	20%	33%	36%
HEALTH AND MEDICAL	Medical Care	62%	16%	22%	29%
SAFETY AND SECURITY	Situation Briefings	22%	20%	58%	49%
SAFETY AND SECURITY	Structural Firefighting	33%	20%	47%	42%
SAFETY AND SECURITY	Search and Rescue	46%	18%	36%	53%
SAFETY AND SECURITY	Community Protection	68%	16%	16%	40%
TRANSPORTATION	Clear Critical Roads	44%	27%	29%	36%

Percentage of States & Territories

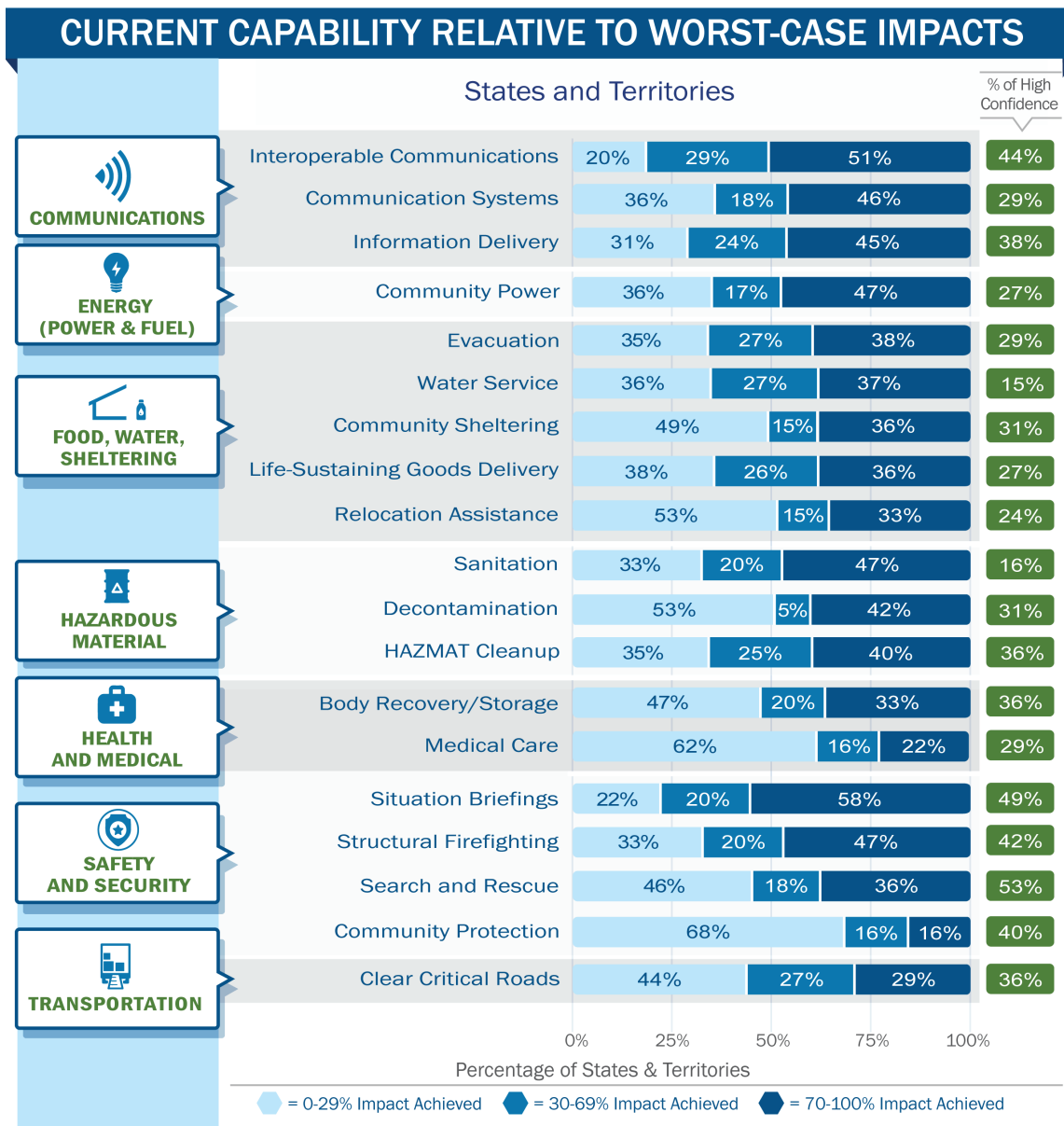= 0-29% Impact Achieved   = 30-69% Impact Achieved   = 70-100% Impact Achieved

Figure 20: Significant gaps persist as states and territories compare their capabilities to their estimated worst-case scenario impacts. However, the confidence ratings indicate that more and better data is needed to increase reliability.

Urban areas tend to have larger gaps between their current capabilities and their catastrophic incident requirements than states and territories. However, both groups are generally close to or far from achieving the capability to meet their catastrophic requirements in similar areas (see **Figure 21**). Additionally, like states and territories, urban areas tend to set goals that are furthest from their catastrophic impacts for providing law enforcement protection and medical care, suggesting that they expect to fill these requirements through mutual aid, Federal assistance, or other means.

WORST-CASE CAPABILITY SNAPSHOT
By Community Type

	CAPABILITY CLOSEST TO GOAL	CAPABILITY FURTHEST FROM GOAL
STATES & TERRITORIES	Situation Briefings Interoperable Communications Sanitation	Community Protection Medical Care Clear Critical Roads
URBAN AREAS	Situation Briefings Interoperable Communications Communication Systems	Community Sheltering Medical Care Life-Sustaining Goods Delivery
TRIBES	Interoperable Communications Water Service Sanitation	Community Sheltering Community Power Community Protection

Figure 21: Communities vary in their progress as they compare their preparation efforts to their worst-case Response scenarios.

Tribal nations generally have larger catastrophic gaps than states, territories, and urban areas. Unlike states, territories, and urban areas, tribal nations reported large gaps in restoring community power, suggesting they anticipate significant outside support—including mutual aid from the state or neighboring local and tribal jurisdictions and from the Federal Government—to address this capability during a catastrophic incident.
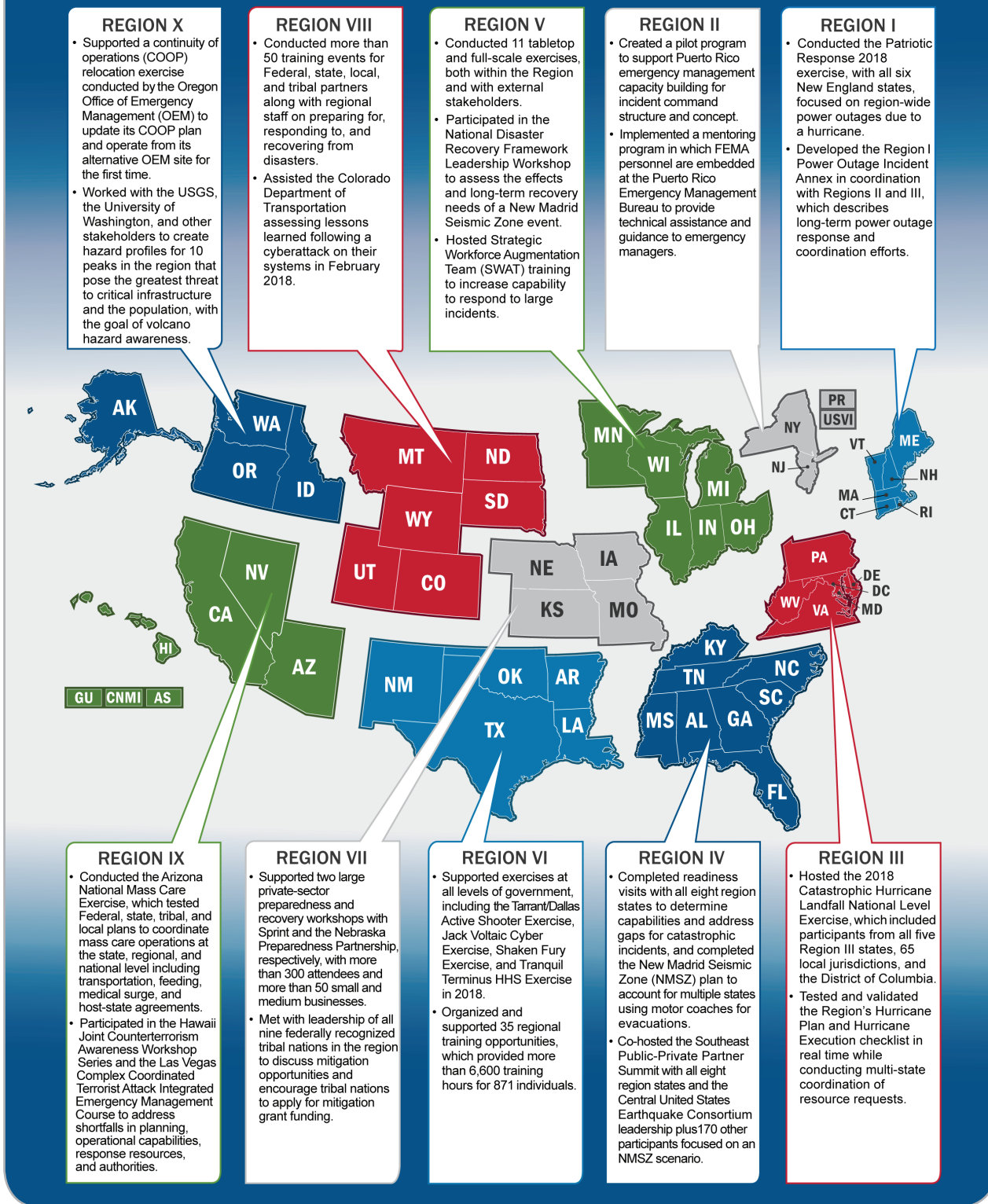
Catastrophic Preparedness Map

REGION X
- Supported a continuity of operations (COOP) relocation exercise conducted by the Oregon Office of Emergency Management (OEM) to update its COOP plan and operate from its alternative OEM site for the first time.
- Worked with the USGS, the University of Washington, and other stakeholders to create hazard profiles for 10 peaks in the region that pose the greatest threat to critical infrastructure and the population, with the goal of volcano hazard awareness.

REGION VIII
- Conducted more than 50 training events for Federal, state, local, and tribal partners along with regional staff on preparing for, responding to, and recovering from disasters.
- Assisted the Colorado Department of Transportation assessing lessons learned following a cyberattack on their systems in February 2018.

REGION V
- Conducted 11 tabletop and full-scale exercises, both within the Region and with external stakeholders.
- Participated in the National Disaster Recovery Framework Leadership Workshop to assess the effects and long-term recovery needs of a New Madrid Seismic Zone event.
- Hosted Strategic Workforce Augmentation Team (SWAT) training to increase capability to respond to large incidents.

REGION II
- Created a pilot program to support Puerto Rico emergency management capacity building for incident command structure and concept.
- Implemented a mentoring program in which FEMA personnel are embedded at the Puerto Rico Emergency Management Bureau to provide technical assistance and guidance to emergency managers.

REGION I
- Conducted the Patriotic Response 2018 exercise, with all six New England states, focused on region-wide power outages due to a hurricane.
- Developed the Region I Power Outage Incident Annex in coordination with Regions II and III, which describes long-term power outage response and coordination efforts.

REGION IX
- Conducted the Arizona National Mass Care Exercise, which tested Federal, state, tribal, and local plans to coordinate mass care operations at the state, regional, and national level including transportation, feeding, medical surge, and host-state agreements.
- Participated in the Hawaii Joint Counterterrorism Awareness Workshop Series and the Las Vegas Complex Coordinated Terrorist Attack Integrated Emergency Management Course to address shortfalls in planning, operational capabilities, response resources, and authorities.

REGION VII
- Supported two large private-sector preparedness and recovery workshops with Sprint and the Nebraska Preparedness Partnership, respectively, with more than 300 attendees and more than 50 small and medium businesses.
- Met with leadership of all nine federally recognized tribal nations in the region to discuss mitigation opportunities and encourage tribal nations to apply for mitigation grant funding.

REGION VI
- Supported exercises at all levels of government, including the Tarrant/Dallas Active Shooter Exercise, Jack Voltaic Cyber Exercise, Shaken Fury Exercise, and Tranquil Terminus HHS Exercise in 2018.
- Organized and supported 35 regional training opportunities, which provided more than 6,600 training hours for 871 individuals.

REGION IV
- Completed readiness visits with all eight region states to determine capabilities and address gaps for catastrophic incidents, and completed the New Madrid Seismic Zone (NMSZ) plan to account for multiple states using motor coaches for evacuations.
- Co-hosted the Southeast Public-Private Partner Summit with all eight region states and the Central United States Earthquake Consortium leadership plus170 other participants focused on an NMSZ scenario.

REGION III
- Hosted the 2018 Catastrophic Hurricane Landfall National Level Exercise, which included participants from all five Region III states, 65 local jurisdictions, and the District of Columbia.
- Tested and validated the Region's Hurricane Plan and Hurricane Execution checklist in real time while conducting multi-state coordination of resource requests.

Figure 22: FEMA's ten regions are acting to improve regional preparedness for catastrophic scenarios.

RECOVERY MISSION AREA

MISSION AREA OVERVIEW

The Recovery mission area guides efforts to restore and improve quality of life in affected communities after an incident. The goal of recovery efforts is to support the timely restoration, strengthening, and revitalization of infrastructure, health services, housing, and a sustainable economy, as well as the social, cultural, historical, and environmental fabric of communities. The stabilization of Community Lifelines by state, local, tribal, territorial, and Federal partners facilitates the transition to recovery operations and sets the conditions for long-term restoration, economic recovery, and program delivery from the eight Recovery mission area core capabilities. Successful recovery involves communities overcoming the physical, emotional, and environmental impacts of disasters and reestablishing a community's economic and social base.

Recovery Core Capabilities

- Planning
- Public Information and Warning
- Operational Coordination
- Infrastructure Systems
- Economic Recovery
- Health and Social Services
- Housing
- Natural and Cultural Resources

MISSION AREA FINDINGS

The Recovery mission area shows continued improvement in efficiently delivering services to disaster survivors. Recovery operations are underway for recent incidents, such as the 2018 wildfire season and Hurricanes Florence and Michael. Notable recovery progress is also ongoing for past incidents, such as Hurricanes Harvey, Irma, and Maria. Past *National Preparedness Reports* have identified challenges in the Recovery mission area, including significant gaps between current and target capabilities among state, local, tribal, and territorial government partners; low interest in addressing those gaps; and identification of housing, economic recovery, and infrastructure systems core capabilities as specific areas for improvement. The latter three core capabilities remain areas of focus in recent recovery efforts. Throughout the Recovery mission area, Federal, state, local, tribal, and territorial partners recognize these challenges and are taking steps to improve their operations for the future.

As disaster-related damages and insurance claims increase, the insurance industry is developing innovative ways to better support community recovery.

For disaster survivors, insurance provides a critical resource to recover and rebuild after an incident. However, the insurance system faces challenges caused by the increasing costs of disaster-related damages and associated insurance claims. Data from NOAA show a steady rise over the past three decades in the number of incidents causing $1 billion or more in damages (adjusted for inflation), from three incidents in 1980 to 14 in 2018. In 2017, damages related to Hurricanes Harvey, Irma, and Maria, as well as other disasters, set the record for the highest annual insured losses, totaling $101.9 billion for the year. Although 2018 damage assessments are still ongoing, the trend of increasing damage and insurance claims prevails, driven by factors such as land development and extreme weather events.

Individual Preparedness: Financial Resilience

In the weeks and months after a disaster, out-of-pocket expenses can pile up. As a disaster survivor, you may need to replace belongings or rent temporary housing while your home is repaired. Increased demand may raise rents and other costs, some of which may not be covered by insurance. Recent studies indicate that most Americans are not prepared to leverage insurance or pay unexpected costs, but you and your family can simplify your recovery with the following steps:

- Keep some savings to cover expected and unexpected expenses as you rebuild;

- Understand your insurance benefits so you know which of your expenses will be covered or reimbursed; and

- Evaluate your recovery once you are re-established: what went well, and what could be improved? Implement those improvements as much as possible.

These steps will help your household to rebuild quickly and efficiently while becoming better prepared for any future recovery. Learn more at: https://www.ready.gov/financial-preparedness.

In some cases, the challenges associated with increasing disaster-related insurance claims have directly affected the availability of recovery funds for affected survivors, communities, and businesses. For example, following the 2018 Camp Fire in California, the volume of insurance claims drove a local insurer into bankruptcy. California's state insurance guarantor stepped in to pay claims up to a $500,000 cap, covering the value of most homes in Paradise,

California. However, bankruptcy proceedings likely delayed payouts to families that lost homes and belongings, while survivors with property valued higher than $500,000 had to seek out other avenues to recover their additional loss.

In response to these challenges, the insurance industry is turning to a variety of innovative approaches to support community recovery. First, insurance firms are increasingly using advances in data collection, data analytics, and geospatial analysis to tailor insurance offerings and premiums more accurately to policyholders' risk levels. With improved data, insurers can recognize property-specific risk differences within previously broad geographic areas. Some insurers are making clearer linkages between pre-disaster mitigation activities and premiums for disaster recovery insurance. For example, the United Services Automobile Association (USAA) offers discounted rates for policyholders in fire-prone communities that take steps to assess and reduce their risk of wildfire damage. These types of insurance innovations increase the likelihood that post-disaster recovery will be faster and less expensive.

Second, insurers are issuing more catastrophe bonds to support recovery. First used in 1996, catastrophe bonds transfer disaster-related risks from primary insurers to capital markets, helping to ensure the availability of funds to support recovery after a disaster.[23] The bond funds become available to local governments for covered claims when a certain catastrophe threshold is met, such as a certain storm surge height or a specific level of financial loss. Between 2010 and 2017, the cost of issued catastrophe bonds more than doubled across the United States (2018 data are not yet available). The increasing use of catastrophe bonds is another way that insurance providers are utilizing this market opportunity while helping communities ensure the availability of resources needed to help individuals, communities, and businesses recover from major disasters.

Natural Disaster Protection through Coral Reef Rehabilitation

Coral reefs act as a buffer between populated shorelines and incoming storms, absorbing up to 97 percent of incoming wave energy. Because they safeguard local communities and economies, coral reefs are a critical element of natural infrastructure.

After hurricanes Maria and Irma damaged reefs around Puerto Rico and Florida, Federal partners worked together to assess the damage, repair salvageable coral colonies, and plan for long-term monitoring and rehabilitation to restore this unique and rich ecosystem. Healthy reefs boost tourism and allow local fish species to flourish, providing important support as local economies recover.

Federal agencies are coordinating with state, local, tribal, and territorial government partners to make recovery resources more accessible to individuals, businesses, and communities.

Although state emergency managers are often well-versed in pursuing Federal recovery support, local communities may be less familiar with recovery-related programs and processes, including how to access available funds from the diverse funding streams of multiple agencies. Even among state officials, relationships that are often critical to effective recovery operations—such as between emergency managers and housing officials—may not be in place. Individuals face similar challenges as they struggle to navigate the complex landscape of post-disaster recovery programs that can benefit them.

---

23. Catastrophe bonds are a form of reinsurance (see box on page 37 for an explanation of reinsurance). Local governments take out insurance policies from primary insurers to protect themselves from financial damage in case of a disaster. In turn, primary insurers issue catastrophe bonds to investors to protect themselves against the losses associated with financing recovery from a large disaster. Should a disaster occur, the primary insurer extracts the value of the bond to pay the policyholder. Until that point, the primary insurer pays premiums to bondholders (investors). Read more at https://crsreports.congress.gov/product/pdf/IN/IN10965.

To address these ongoing community-level challenges, Federal agencies have developed and continue to develop steady state and "just-in-time" guidance and trainings, as well as fact sheets and supplementary toolkits to guide stakeholders through recovery processes. In 2018, for example, the Economic Development Administration (EDA) funded an initiative to assess the economic needs of disaster-affected communities and to design a technical assistance program to respond to those needs. Further, FEMA's Community Planning and Capacity Building (CPCB) Recovery Support Function is developing a sequenced series of just-in-time trainings to address common skills deficits that local officials face when managing long-term recovery. To help individuals and businesses access disaster recovery loans, the SBA streamlined its approval and lending processes with technological upgrades and adopted more private sector lending practices. Additionally, realizing that applicants often confuse grant and loan programs offered to individuals by SBA and FEMA, the two agencies continue to coordinate on an internal data-sharing platform to track applicants' funding status at both agencies. With this information, FEMA and SBA can better communicate with applicants and avoid providing duplicative benefits. Ultimately, Federal departments and agencies support efforts to enhance DisasterAssistance.gov to allow disaster survivors to apply for and access benefits from all agencies through a single portal. These initiatives are designed to help individuals, businesses, non-profits, and local governments more easily access the Federal programs that support their post-disaster recovery.

State, local, tribal, and territorial government partners can also improve communication and collaboration efforts among local housing, economic, and emergency management authorities prior to a disaster. When local stakeholders develop recovery strategies collaboratively, they position themselves to efficiently prioritize their goals post-disaster and to utilize available Federal funds, such as Community Development Block Grant disaster recovery (CDBG-DR) funds. Bridging local interdepartmental knowledge and process gaps

Preparedness in Practice: The Greater Philadelphia Long Term Recovery Committee (GPLTRC) Assists Evacuees from Puerto Rico

In response to Hurricane Maria, Philadelphia assisted nearly 1,000 resettled families between October and December 2017. After the local relief office shut down, the GPLTRC, formed in early 2018 as a coalition of local nonprofit organizations, took its place. The GPLTRC works closely with families to determine their needs, and assists them with housing, employment, and household needs. To date, the GPLTRC has invested $350,000 in evacuee housing and provided case management services to 250 households.

can provide disaster survivors with more seamless assistance as they rebuild following a disaster.

The DRRA mandates further efforts to simplify disaster programs. Specifically, it directs Federal agencies to reduce disaster program complexity while providing additional legal authority to strengthen coordination between Federal and local recovery partners. The DRRA expands the set of organizations that FEMA coordinates with, recognizing domestic hunger relief groups among others as key partners, and modifies existing law to explicitly recognize the large volume of resources needed to support effective long-term recovery. By formalizing partnerships with major nonprofit organizations, FEMA will be able to provide recovery assistance through these organizations' well-established networks, expanding the reach of recovery efforts and connecting them more deeply to local communities.

Efforts are underway to develop a national, end user-driven recovery approach to help communities achieve specific goals.

Outcome-driven recovery is a problem-solving approach that promotes unity of effort among stakeholders to identify recovery needs, vision, and goals, and to resource comprehensive recovery solutions. In other words, this approach aims to support state, local, tribal, and territorial governments in developing the capability to plan for, manage, and execute community-based and holistic long-term recovery solutions. This is not a new idea in the disaster recovery and redevelopment field: the concept is also referred to as sustainable recovery, holistic recovery, and building back better. However, with significant lessons learned from 2017 and 2018 disaster response efforts, and the need to mature the National Disaster Recovery Framework, FEMA is incorporating this longstanding concept into its operational models and guidance.

Preparedness in Practice: EDA Grant to Support Business Disaster Response Center (BDRC) in Puerto Rico

EDA provided a grant of $3.5 million to Iniciativa Tecnológica Centro Oriental, Inc. (INTECO) in September 2018 to support the construction and operation of a new BDRC in Caguas, Puerto Rico. The aim of the BDRC is to support businesses across 12 municipalities with disaster recovery, incubation space, business education, and access to capital. These resources help local and small businesses remain open or to re-open, building upon and further advancing Puerto Rico's economic recovery. The BDRC is envisioned as an institution that will be able to support all phases of a disaster affecting local business, from preparation and mitigation to recovery.

A series of obstacles impacted the efficacy of recovery efforts in recent years, particularly those following large-scale incidents and requiring Federal support. Often, Federal assistance is determined and developed based upon individual agencies implementing recovery programs independently, focused on tasks and outputs rather than community-driven outcomes. However, the most comprehensive and successful recoveries result from local governments themselves quickly establishing recovery goals with Federal agencies organizing to support those integrated outcomes. As such, FEMA is working to address pressing coordination and capacity challenges at all levels of government. Outcome-driven recovery is a reaction to these recovery-related challenges, and will inform FEMA's operations, guidance, training, and exercises.

In the aftermath of Hurricane Maria, the challenges mentioned above have delayed Puerto Rico's Central Recovery & Reconstruction Office, COR3, in its efforts to clear storm debris. Recovery officials in COR3 noticed that the goal of debris-free streets and properties was not occurring at the local level. Officials engaged directly with local governments and discovered that their offices lacked the staff needed to locate debris and complete requirements for Federal grants. To address the staffing gap, COR3 enlisted the help of other departments' officers working in local branches. With their preexisting local relationships and knowledge of the landscape, these officers were able to assist with debris removal and with fulfilling grant requirements. Ultimately, this focus on collaborative, goal-oriented problem-solving–core principles of outcome-driven recovery– is allowing recovery officials in Puerto Rico to bypass traditional obstacles to achieve their goal of accessibility across the island.

RECOVERY CORE CAPABILITIES AND THE THIRA/SPR

In 2018, FEMA worked with preparedness stakeholders to develop standardized language for THIRA/SPR capability targets for core capabilities that support the Recovery mission area. For the 2018 THIRA/SPR process, communities—including all states and territories as well as certain tribal nations and urban areas—performed the following activities for the capabilities in the Recovery mission area:

- Assessed their current capability levels;

- Identified the level of capability they plan to achieve over time and assessed how close they currently are to those goals; and

- Rated their confidence in the accuracy of their capability assessments.

The following findings summarize THIRA/SPR analyses for the Recovery mission area.

Consistent with findings in past _National Preparedness Reports_, communities identified challenges in recovering from disasters, especially in restoring long-term housing and natural and cultural resources, as well as re-establishing economic conditions necessary for businesses to reopen.

As reported in their SPRs, communities are generally further from achieving their preparedness goals in the Recovery mission area compared to the Response mission area and Cross-Cutting core capabilities. Additionally, communities identified these capabilities as low or medium priorities much more frequently. This suggests that despite having larger gaps in Recovery, communities prioritize investing resources in the Response or Cross-Cutting core capabilities.

For nearly all targets, more than half of states and territories are close to meeting their Recovery goals (achieving more than 70 percent of their goal), except for establishing long-term housing (see **Figure 23**).

CURRENT STATE AND TERRITORY CAPABILITY RELATIVE TO GOALS

Recovery – States and Territories

	0-29% Goal Achieved	30-69% Goal Achieved	70-100% Goal Achieved	% of High Confidence
Sanitation	11%	22%	67%	16%
Communication Systems	13%	22%	65%	29%
Reestablish Services	5%	33%	62%	22%
Community Power	20%	18%	62%	27%
Water Service	13%	27%	60%	15%
Resource Restoration	24%	18%	58%	22%
Reopen Businesses	16%	29%	55%	18%
Long-term Housing	33%	27%	40%	11%

Percentage of States & Territories

⬡ = 0-29% Goal Achieved   ⬢ = 30-69% Goal Achieved   ⬢ = 70-100% Goal Achieved
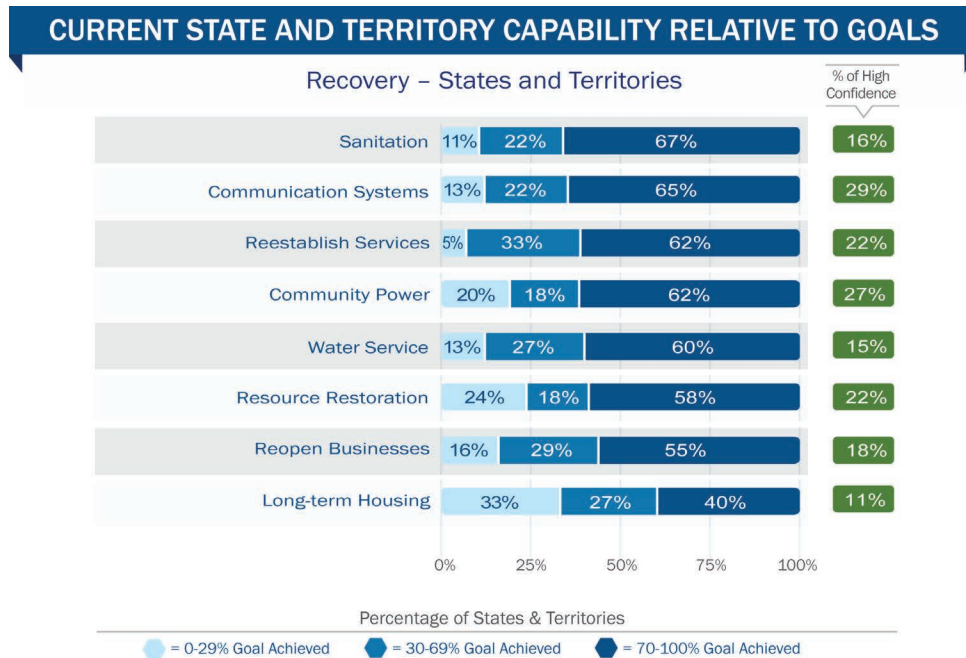
Figure 23: Communities are close to achieving their goals in many of these capability areas. However, Long-term Housing, identified as an area for improvement in previous NPRs, continues to challenge many jurisdictions.

For long-term housing, only 40 percent of states and territories report being close to meeting their goal, indicating the need for substantial Federal support to help them build capability.

Urban areas reported similar trends, although they report larger gaps with the goals they set. For example, at least 25 percent of urban areas are far from achieving their goals for five of the eight Recovery areas (achieving less than 30 percent of their goals). For states and territories, the same is true of only one of the Recovery areas, suggesting that urban areas may require targeted support from the Federal Government to address their specific capability gaps.

For each of the Recovery areas that FEMA required tribal nations to assess in 2018, at least 60 percent reported being close to achieving their goal. Tribal nations most frequently reported being far from their goal for restoring water service after an incident—an area in which states, territories, and urban areas tend to be close to achieving their goals. This indicates that tribal nations may rely on external support for this capability during an incident.

Although many communities are close to achieving their goals, they are further from being able to address the most challenging impacts they could potentially encounter during a catastrophic incident. For example, less than half of states and territories are close to being able to address these impacts for nearly all Recovery capabilities. **Figure 24** shows the areas in which communities are closest to and furthest from being able to address their catastrophic impacts. States, territories, and urban areas report being furthest from their catastrophic requirements for two of the same areas—re-opening businesses and providing long-term housing. Given the size of these gaps, and the low priority that communities tend to report for these areas, they will likely expect significant Federal support in these areas during a large-scale incident.

CATASTROPHIC CAPABILITY SNAPSHOT
By Community Type

	CAPABILITY CLOSEST TO CATASTROPHIC REQUIREMENT	CAPABILITY FURTHEST FROM CATASTROPHIC REQUIREMENT
STATES & TERRITORIES	Sanitation Community Power Communication Systems	Reopen Businesses Reestablish Services Long-term Housing
URBAN AREAS	Communication Systems Community Power Sanitation	Resource Restoration Long-term Housing Reopen Businesses
TRIBES	Water Service	Community Power

In 2018, FEMA only required tribes to complete the THIRA/SPR for four areas related to Recovery, so the graphic only displays the single area where they are closest and furthest from their catastrophic requirements.

Figure 24: Communities vary in their progress as they compare their preparation efforts to their worst-case Recovery scenarios.

CONCLUSION

In 2018, the Nation continued to strengthen preparedness across all five mission areas and promote cohesion across all levels of government. Federal departments and agencies worked with state, local, tribal, and territorial governments partners to improve community preparedness and to make resources and funding more accessible. Releasing key strategies, reports, and pieces of legislation, such as the *National Strategy for Counterterrorism*, the *2017 National Security Strategy,* the *Urgent Actions Are Needed to Address Cybersecurity Challenges Facing the Nation* report, and the *Disaster Recovery Reform Act of 2018* (DRRA), supported Prevention, Protection, and Mitigation efforts. Meanwhile, after-action reporting and data analysis allowed officials to identify areas for improvement and work to strengthen the Nation's Response and Recovery capabilities.

Federal agencies modified programs to enable state, local, tribal, and territorial partners to conduct operations to detect and prevent terrorist threats and incidents more effectively. In addition, fusion centers maintained strong performance levels and supported more national, state, and local events compared to past years, which improved terrorism-prevention capabilities. Federal, state, local, tribal, territorial, private sector, and non-profit partners are also strengthening protection capabilities. All levels of government are working toward improving security and resilience to malicious cyber activity. However, cybersecurity challenges remain, particularly regarding securing critical infrastructure that relies on information technology systems. Federal agencies formed new cybersecurity governance partnerships focused on protecting the Nation against malicious cyber activity, including the creation of the Cybersecurity and Infrastructure Security Agency (CISA). Developing tools and resources that promote cyber hygiene are improving private sector and individual resilience to malicious cyber activity.

The DRRA represents a transformative shift in mitigation policy and funding priorities. Although state, local, tribal, and territorial efforts to implement new building codes have been uneven, adopting new building codes proves to yield significant savings. Updated building codes reduced damage and lives lost due to natural disasters. Although individuals, communities, and the private sector face gaps in financial preparedness, national efforts are taking place to try to improve insurance coverage.

Efforts to promote partnerships and collaboration are improving preparedness capabilities. The newly implemented Community Lifelines construct enables scalable response across all levels of government in coordination with the private sector. Federal agencies are also working to simplify access to recovery programs for state, local, tribal, and territorial partners and the insurance industry is developing innovative ways to support community recovery.

Overall, the Nation has made important strides in addressing preparedness challenges. Federal departments and agencies are collaborating with state, local, tribal, and territorial governments partners to build and sustain preparedness capabilities at the local level. However, some significant challenges remain at all levels of government. By closing national policy gaps and simplifying state, local, tribal, and territorial stakeholder access to Federal disaster relief programs, communities nationwide can increase their resilience.

EVOLUTION

Moving forward, the *National Preparedness Report* will continue to evolve as FEMA gathers more data through capability assessments to use to better target preparedness investments. Although the 2018 THIRA/SPR only covered the Response and Recovery mission areas, the 2019 assessment will also include data from the Prevention, Protection, and Mitigation mission areas. Once communities complete the 2019 THIRA/SPR, they will have a comprehensive view of their preparedness and will be able to target investments with their capabilities across all mission areas. By assessing trends in national preparedness, FEMA can better meet the needs of communities across the Nation. For example, FEMA's training components will assess THIRA/SPR and other data sources, such as information on Community Lifelines, using the new Unified Training Needs Assessment process. This process will improve decision-making on training investments to help communities close key preparedness gaps.

While state, local, tribal, and territorial governments continue to build preparedness capabilities, FEMA and other Federal agencies are working to improve preparedness at the national level as well. The release of the *2019 National THIRA: Overview and Methodology* (National THIRA), which uses the same THIRA methodology as the community-level assessment, demonstrates a standardized approach to measuring preparedness. FEMA and its partners will use THIRA/SPR data and the National THIRA as part of the National Risk and Capability Assessment (NRCA). The NRCA is a unified approach to better measure National preparedness, where the Nation will set national-level capability targets and develop strategies for closing national capability gaps. Based on the identified national gaps, the NRCA will drive deliberate planning efforts, inform the development of the Principals' Strategic Priorities for the National Exercise Program, and provide a better understanding of the risks, capabilities, and gaps that the Nation faces. Future iterations of the *National Preparedness Report* will incorporate the findings of the NRCA.

Homeland Security

For more information about FEMA and its operations and capabilities, please visit **www.fema.gov**