Emergency Management Assistance Compact (EMAC) Response to the 2017 Hurricane Season

After-Action Report

October 2018

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Acknowledgments

After-action analysis is critical to the ongoing improvement of the EMAC Program. The National Emergency Management Association (NEMA) would like to thank 16,500 plus emergency personnel who supported emergency response and recovery activities for Hurricane Harvey, Irma, and Maria. NEMA recognizes the heroism of first responders, emergency management officials, and dedicated personnel, who are shining examples of public service and reflect EMAC's neighbor-helping-neighbor spirit.

NEMA also thanks the 200 plus deployed personnel, EMAC coordinators, and EMAC Advance Team members that participated in this after-action analysis and their continued support for helping our Nation be better prepared to respond to disasters.

It is our hope that the after-action report will be used to celebrate our successes and illuminate a call to action on the areas for improvement. EMAC is a team sport! The spirit of support that inspired states to provide needed resources to states and territories during a time of need is needed to address the lessons learned outlined in this report. This after-action report is one of many tools that is used by NEMA and emergency management agencies across the country to identify what went well and what should be improved. Many of the lessons learned outlined in this report are already being addressed by NEMA, by individual states, and by intergovernmental and interdisciplinary strategic assignment taskforces. We thank you for your continued support as we enhance the execution and implementation of EMAC.

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Executive Summary

Background

In every disaster the most heroic stories are of neighbors helping neighbors. The Emergency Management Assistance Compact (EMAC) is one of the purest examples of this type of heroism. At its core, EMAC is a commitment between all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands (USVI), and Guam, to provide aid to each other during their most desperate times of emergency. The 2017 hurricane season demonstrated an exceptional level of commitment to the compact, as states across the Nation came together in an overwhelming show of unity and sacrifice. It is clear that the support provided by EMAC saved lives and minimized damage to property. These sentiments are also echoed in the words used by EMAC personnel. When asked what they were most proud of, EMAC deployed personnel frequently stated the opportunity to help survivors and experience gained from supporting the Requesting States.

Figure 1: The Most Frequently Used Terms Used by Participants Regarding Their EMAC Deployment Achievements

The 2017 hurricane season was the fifth most active season in recorded history. Over 45 states deployed 16,556 responders to support EMAC missions during Hurricanes Harvey, Irma, and

Maria. Reflecting back on the season, the numbers clearly show that the Member States readily responded to the call to action.

Furthermore, these statistics from the 2017 hurricane season reveal the critical role EMAC plays in disaster response. EMAC is the backbone of our nation's response system and it is essential that all involved in the 2017 hurricane response – from deployed veterinarians in Puerto Rico to EMAC liaisons coordinating at the highest levels of government – reflect upon their activation and implement the lessons learned outlined in this After-Action Report (AAR).

Purpose

Established in 1993, EMAC is an all-discipline, all-hazards mutual aid compact, with a systematic process to provide a consistent and coordinated response across the Nation. The National Emergency Management Association (NEMA) 2017 Hurricane Season AAR provides a detailed analysis of the EMAC process: coordination and control, request and offer, mobilization, deployment, demobilization, and reimbursement. This report illuminates what went well during the response to Hurricanes Harvey, Irma, and Maria, as well as the areas needing improvement.

Since the humble beginnings of EMAC following Hurricane Andrew in 1992, the leadership of EMAC has been committed to making sure we pause to reflect, renew, and recommit to making EMAC as strong as the next emergency requires it to be.

The strength and quality of EMAC that distinguishes it from other plans and compacts lies in its governance structure; its relationship with federal agencies, national organizations, states, counties, territories, and regions; the willingness of response and recovery personnel to deploy; and the ability to move any resource to support disaster response. The increasing use of EMAC in recent years and the growing recognition of the value of the compact by state emergency management agencies is a direct result of improvements made to EMAC following activations. This report recommends both strategic and tactical ways to improve coordination between partners and the delivery of essential support, as well as enhancements to the overall effectiveness, scalability, and efficiency of the system.

The response of other organizations under their own authority, including federal, state, and local government agencies, are not the subject of this report. Although EMAC was activated for other disasters occurring in 2017 (e.g., the California wildfires), this report covers activation for only the three major hurricanes.

Methodology

The information contained in this report was obtained from three primary sources: (1) the EMAC Operations System (EOS); (2) an online survey sent to EMAC participants; and (3) a three-day after-action conference.

1. To produce a useful document, EMAC operational data must be gathered and analyzed. Much of the data contained in this report was derived from the EOS, which serves as the repository for EMAC resource management, including EMAC situation reports and Request for Assistance (REQ-A) transactions. Information was entered and tracked by the EMAC Advance Teams (A-Teams) supporting the Requesting States, and reports were produced by NEMA for use during the after-action review.

2. During February and March 2018, a web survey tool was distributed to seven stakeholder groups to gather their perspective on EMAC response efforts: Requesting States, assisting A-Team members, Assisting States, deployed personnel, receiving jurisdictions, NEMA and the National Coordinating State (NCS), and National and Regional EMAC Liaison Teams. Survey results provided useful first-impression insights to compare with the information gathered during subsequent facilitated forums. A report on the survey results is provided in Annex B: 2017 Hurricane Season Post Survey Results.

3. The week of May 22, 2018, NEMA hosted an after-action conference for 166 emergency responders, representing all disciplines in the EMAC response to the 2017 hurricane season. The conference was highlighted by a facilitated group discussion that spanned three days. The first day and a half (May 22-23) involved five breakout groups composed of the NCS, National Response Coordination Center (NRCC) Liaisons, and Regional Response Coordination Center (RRCC) Liaisons; Requesting States, Virtual A-Teams, A-Teams deployed to Puerto Rico, A-Teams deployed to USVI, and A-Teams deployed to both Texas and Florida.

   The second day and a half (May 23-24) engaged eight breakout groups made up of Public Health, EMS, and Medical; Engineering, Transport and Highways, and Public Works; National Guard; Mass Care and Sheltering, Human Services, Animal Health, and Agriculture and Forestry; Law Enforcement; Search and Rescue; Emergency Management and Incident Management Teams; and two groups of Assisting States.

To provide structure to breakout group discussions, each group addressed six[1] aspects of the EMAC system: request and offer, mobilization, deployment, demobilization, reimbursement, and coordination and control. Groups were asked to identify and discuss what worked well, as well as issues and recommendations for improvement.

"What worked well" was defined as any best practices, lessons learned, or any valuable information that could be taken home and implemented to improve EMAC response.

Issues and recommendations encompassed single items, pertinent to an individual aspect of the process, that stated a problem and specified an approach or process that, if implemented, would lend itself to the successful resolution of the identified problem.

After Action Report Organization

This AAR contains an Executive Summary and the full report, with seven major sections and six annexes.

Section 1 – The Big Three: This section contains detailed information on the 2017 hurricane season and individually highlights the cause, effect, and catastrophic results of Hurricanes Harvey, Irma, and Maria, as well as EMAC resources that were deployed.

Section 2 – Emergency Management Assistance Compact: This section provides information on the background of EMAC, including its operations management, procedures, and systems.

Section 3 – Coordination and Control: This section addresses areas such as span-of-control, operational control, administrative management responsibilities, the transition of personnel, and coordination of assistance with assisting and cooperating agencies and jurisdictions.

Section 4 – Request and Offer: This section examines all aspects of initiating support through the EMAC system.

Section 5 – Response-Mobilization: This section refers to all aspects of preparing resources to deploy.

Section 6 – Response-Deployment: This section includes the actual conduct of response and recovery operations in the field.

Section 7 – Response-Demobilization: This section refers to all aspects of resources returning to their home state.

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[1] An additional category of "other" was included as a discussion topic to ensure identification of "what worked well" or areas for improvement for issues that did pertain to the six aspects of the EMAC process. However, content from this category was eventually incorporated into the ARR throughout each of the six areas.

Section 8 – Reimbursement: This section discusses all aspects of the reimbursement process.

Section 9 – Conclusion: This section represents the overall summary of the prioritized "what worked well" feedback and issues and recommendations, identified by after-action conference participants during a 2017 hurricane season review session on May 23-25, 2018.

In addition, Sections 3 – 8 include a brief introductory description, followed by a discussion of "what worked well", and issues and recommendations particular to each corresponding part of the EMAC process. Similar comments have been consolidated to avoid duplication, as many of the discussions were common among the different breakout groups. Not all actions identified as a "what worked well" were uniformly implemented; thus, some topics mentioned in the report may be listed in both a "what worked well" section and in an "issues and recommendation" section. These variances reflect differences in experiences and perspective between individuals, agencies, and levels of involvement in EMAC. This report intends to express the consensus view, while still including dissenting opinions.

Appendices include:

- A – Saffir-Simpson Hurricane Scale
- B – EMAC Response to the 2017 Hurricane Season Conference: Survey Results
- C – Deployment Utilization Data
- D – Acronyms

Validation

A multi-tiered validation process was conducted with after-action conference participants to ensure the information in the final report represents a fair and accurate depiction of findings. Representatives from all the respective EMAC constituencies participated in the validation process.

This AAR has been reviewed by the EMAC Committee Chair and Vice Chair, EMAC Executive Task Force (ETF) Chair, Past Chair and Chair Elect, and NEMA staff who validated recognized areas that worked well and identified opportunities for improvement and recommendations.

Further validation of the suggested Corrective Action Plan will be conducted by the full EMAC Committee, in coordination with the EMAC ETF, and will result in the development of a final Implementation Plan.

EMAC Improvements Since 2011, 2016, and 2017 Hurricane Seasons

The improvements achieved in EMAC operations since the last formal Hurricane Season AARs from the 2011 and 2016 seasons are substantial. These changes are provided below:

- **A more robust and active EMAC Organizational Structure.** During recent deployments there have been more communication and coordination between NEMA, the EMAC Committee, EMAC, ETF and the EMAC Advisory Group, which has led to greater pre-planning to solve issues prior to a disaster and supported faster problem-solving during disaster response.
- **Increased utilization of Mission Ready Packages™ (MRPs™).** States and stakeholders are developing MRPs for commonly deployed or requested capabilities and resources. MRPs outline all the information elements needed for a REQ-A, including cost. Thus, by developing and researching these elements prior to a disaster, Requesting States can submit a request for assistance faster and the Assisting States are able to submit offers of assistance quicker, greatly reducing the response time for requests and increasing the accuracy of offers. The next step is encouraging states and stakeholders to upload their MRPs to the Mutual Aid Support System (MASS) Database to provide an online inventory of resources visible to the A-Teams.
- **Knowledge of EMAC stakeholders is being expanded beyond emergency management disciplines**. The wide range of services needed during a disaster covers practically every discipline. Thus, EMAC resource providers come from every discipline. In recent years, discipline-specific associations, such as the Association for State and Territorial Health Officials (ASTHO), the Water/ Wastewater Agency Response Network (WARN), and the Telecommunicator Emergency Response Taskforce (TERT), are actively participating in EMAC training, developing plans and procedures that support the EMAC system, and working with their members to create MRPs, all in preparation for EMAC deployments.
- **EMAC engagement by urban areas and regions is increasing.** Associations and groups—such as the Central United States Earthquake Consortium[2] (CUSEC) and Big City Emergency Managers[3] (BCEM)—have incorporated EMAC into emergency planning efforts. These groups conduct risk and resource analysis to identify the capabilities

[2] CUSEC is a partnership of the Federal Government and the eight states most affected by earthquakes in the central United States.

[3] BCEM is a group of 15 urban areas representing over 20 percent of the Nation's population and 90 percent of the Urban Area Security Initiative Grant (UASI) funds that are allocated by FEMA annually.

needed to address their threats and hazards, work together to identify states/resource providers that can help address these resource risks leveraging the legal authorities and reimbursement mechanism of EMAC.

- **Development of multiple Standard Operating Guides (SOG) and training.** NEMA has developed Standard Operating Guidelines (SOGs) tailored for: resource providers and deploying personnel, the NCS, NRCC/RRCC operations guides, EMAC guidance documents on reimbursement procedures, law enforcement deployment tips guidelines, and the creation of the Mission Order Authorization Form (Mission Order). In addition, NEMA has also increased its training opportunities for all stakeholders with five eLearning courses and face-to-face training for the National Guard.

Moreover, in direct response to discussions during the May 2018 After-Action Conference, the EMAC leadership has already begun to address specific issues from the 2017 hurricane season. Highlights of these recent developments are identified below:

- NEMA recognized several comments received during the events and at the After-Action Conference related to the EOS and the need for overall improvements including a change to the paperwork process. With the online system, the Section 1 of the EMAC REQ-A is not legally necessary and is an area where the process can be delayed waiting for a signature for an offer that was just accepted. The EMAC Leadership voted unanimously to adopt this noteworthy change. Changes and upgrades to the EOS began immediately and are ongoing.
- NEMA has continued to build out the virtual A-Team concept with the identification of necessary training; identifying the infrastructure these teams would need, for instance, a mechanism to receive on-the-ground situational awareness; determining set/agreed-upon times for connecting with Requesting States; and establishing two operational periods (i.e., a day shift and a night shift). In addition, NEMA is currently converting the face-to-face A-Team course to an online offering enabling states to train and qualify more personnel.
- Immediate actions addressing reimbursement issues are as follows:
    - The EMAC ETF Chair established a Strategic Assignment Task Force (SATF) to focus on reimbursement. This task force, consisting of state emergency management agency personnel, will look to standardize (as much as possible) EMAC reimbursements across the Federal Emergency Management Agency (FEMA) regions and states, and incorporate FEMA public assistance expertise, as needed. The SATF is completing a comprehensive review of reimbursement guidelines at the state level. Using consistent forms and procedures the process will set expectations and improve consistency of implementation.

- This newly formed task force will also address improvements to EOS, with the vision to allow states to upload documents and manage the reimbursement process online.

- Maintaining situational awareness throughout the EMAC process was identified as a challenge. A SATF was established to review situational awareness materials from previous deployments; to determine informational needs for A-Teams, assisting states, incoming resources, the NCS, and NEMA; and to identify improved methods for data collection. The SATF will streamline information gathering and dissemination, update training and identify technology solutions where possible.
- NEMA is working to re-focus the training program to provide more direct technical assistance to the Member States to support them in fulfilling their EMAC signatory responsibilities.

Major Accomplishments and Opportunities for Continued Improvement

Major Accomplishments

- The EMAC system exhibited a tremendous ability to scale to meet the increasing demand and need for emergency response resources. States truly stepped up to help each other in their time of need.
- The NCS maintained operational command and control and served as the backbone of coordination between all response elements.
- Coordination of the state EMAC response at the national and regional levels–through deployment of EMAC liaisons as part of the National EMAC Liaison Team (NELT) and the Regional EMAC Liaison Team (RELT) to the FEMA NRCC and RRCC, respectively–helped to anticipate needs, facilitate the allocation of assets, enhance situational awareness, and support logistics for large missions.
- The use of virtual A-Teams was a huge success and helped provide critical and timely support when there was no power or communications.
- While communications, logistics, and situational awareness were identified as major challenges throughout the 2017 hurricane season, pre-deployment and transition teams facilitated mobilization and deployment, and helped Requesting States craft or refine missions (as codified in the REQ-A). Together, the pre-deployment and transition teams helped obtain better situational awareness, identify points of contact, establish communications, secure lodging, identify other logistical considerations for incoming personnel, and provide continuity during the transition from one team to the next.

Opportunities for Continued Improvement

- An overarching recommendation seen throughout the AAR is the need for Member States to improve integration of EMAC into their emergency plans and risk analyses. Impacted areas that had EMAC planning infrastructure in place were better positioned to leverage EMAC throughout the hurricane response.
- Requesting and Assisting States, as well as deployed personnel, expressed a need for greater communication, coordination, and resource consideration prior to requests and offers being developed and sent out. It is essential that requests and offers are shaped appropriately to fit the needs of the impacted areas and provide adequate support.
- Numerous challenges existed in coordinating with the National Guard. Future EMAC training and response must emphasize and increase coordination and information sharing between the Requesting State, state-level National Guard, and the National Guard Bureau (NGB) to improve command and control. Minimum EMAC and National Guard knowledge requirements should be established through joint operating training courses.
- Establishing better logistics coordination is a burden shared on all levels and between all EMAC partners. Logistics challenges delayed the arrival of resources and deployed personnel to impacted area, and hindered personnel from carrying out their missions in an efficient, effective, and safe manner. Such challenges may be decreased through systems that integrate EMAC deployed personnel into federal transportation and lodging provisions, and by leveraging partnerships with the private sector.
- A number of issues and recommendations emerged from the reimbursement analysis. Inconsistencies in documentation requirements by the FEMA Public Assistance Program, lack of EMAC knowledge, lack of procedures, burdensome administrative processes and procedures associated with resource reimbursement, as well as varied reimbursement standards across the Requesting States caused delays in processing and receiving reimbursements. Assisting States are not submitting their reimbursement packages in a timely manner. In states where the EMAC Coordinator is not part of the reimbursement process, there are more issues as the finance/administrative personnel (including private contractors) are not familiar with EMAC. As outlined above, EMAC Leadership is addressing this issue.

After-Action Report Summary

The 2017 hurricane season resulted in a remarkable story of states helping states in their darkest hour. EMAC again proved its scalability and flexibility in supporting impacted areas and delivering valuable resources to those in need. A full review of the accomplishments and areas that worked

well, along with a system of prioritization to address the issues and recommendations for improvement, will result in better capabilities, faster response, and more efficient mass mobilizations of emergency resources.

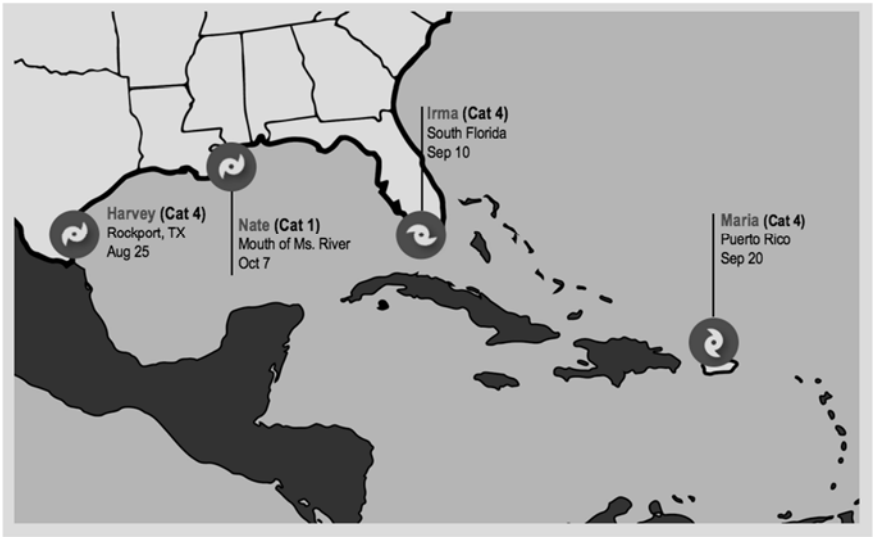
As recounted repeatedly in many previous EMAC response after-action reports, there are two major factors that determine the success of a state in responding to, recovering from, or providing assistance for any disaster event:

- This after-action analysis confirms that those that had experience in EMAC and had prepared in advance were better able to utilize the capabilities of EMAC. Requesting and Assisting States should conduct the pre-event preparation activities established by EMAC law to address the lessons learned outlined in this AAR.
- Qualified, knowledgeable, and trained personnel, including executive leadership, enhance the process of expediting mutual aid state-to-state assistance when needed. Executive leaders in every state should have a baseline understanding of EMAC Requesting and Assisting State procedures prior to a disaster.

1 The Big Three

The 2017 hurricane season will be remembered for the far-reaching devastation to the Texas Gulf Coast, the State of Florida, the U.S. Virgin Islands, and Puerto Rico in the wake of Hurricanes Harvey, Irma, and Maria. But the 2017 hurricane season should also be remembered for the generosity of states helping each other in times of greatest need and for the individual heroism of the 16,556 responders that heeded the calls for help.

Figure 2: 2017 U.S. Hurricane Landfalls



The 2017 hurricane season brought 17 named storms and 10 hurricanes, six of which were major hurricanes and four that made landfall in the US. Hurricanes Harvey, Irma, and Maria are among storms that will live on in minds and hearts of Americans because of the devastation and lives lost in Texas, Florida, the US Virgin Islands, and Puerto Rico. In response to each of these hurricanes, EMAC played a critical life-saving role, bringing much-needed resources and personnel to the hardest hit areas.

The catastrophic nature of the 2017 season necessitated assistance from across the United States to several concurrently impacted states and territories. A large number of assisting states and the many concurrent missions provides an opportunity for the NEMA to examine lessons learned and best practices from the 2017 season and apply them in future EMAC guidance, training, and practices.

This AAR examines the impact of concurrent response operations and provides factual and quantitative evidence on the role of EMAC. This AAR will be used to document what worked well and should be replicated as a best practice in the future along with areas for improvement to enable NEMA and its Member States to enhance the execution and implementation of EMAC.

1.1 Hurricane Harvey

Hurricane Harvey made landfall near Rockport, Texas, as a Category 4 storm on August 25, 2017, at 10:00 p.m. Central time. The devastating impact of 132mph hurricane-force winds and 12.5-foot storm surge was compounded with the rain as the system stalled over southeastern Texas. Due to its slow motion and a week-long period of onshore flow, more than 19 trillion gallons of rainwater fell on parts of Texas, causing catastrophic flooding.

Over 270,000 homes were impacted by Harvey with nearly 80,000 homes having at least 18 inches of floodwater, and 23,000 of those had more than five feet. Sixty-one public water systems and 40 wastewater treatment facilities were rendered inoperable or even destroyed at the height of the storm, resulting in approximately 200 public water systems issuing boil-water notices.

More than 200 million cubic yards of debris also accumulated due to the damage from extreme winds and widespread flooding that occurred during Harvey -- two to three times as much as the debris left by Hurricane Katrina.

Approximately 4,895 personnel from 36 states deployed to support Hurricane Harvey.

Figure 3: Hurricane Harvey By the Numbers

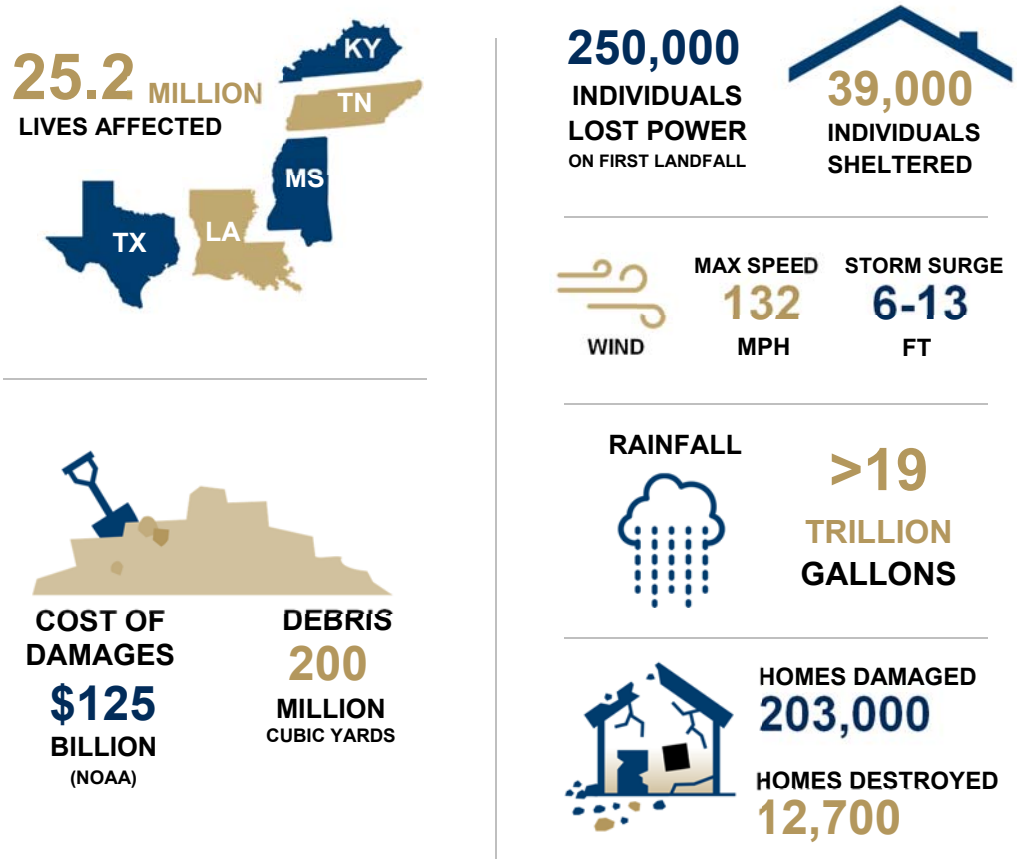
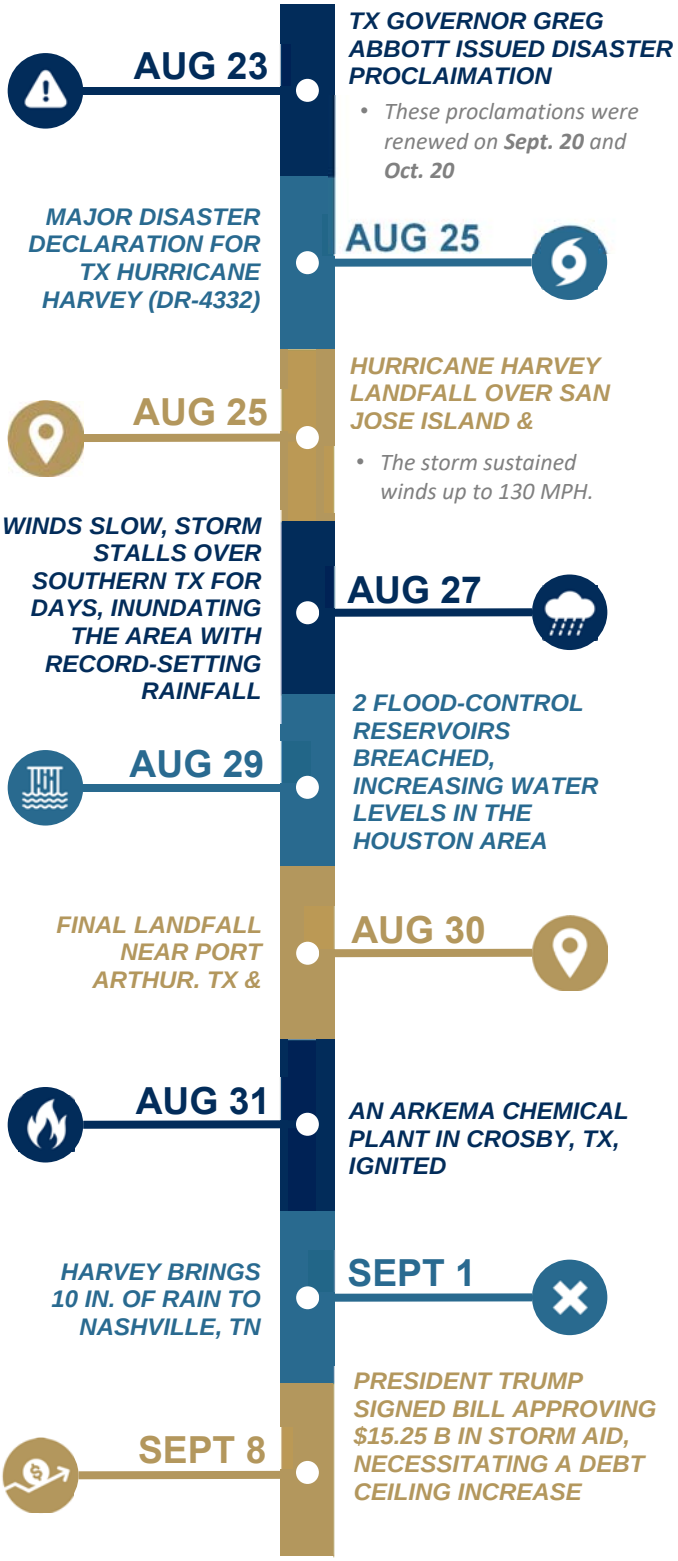


Figure 4: Hurricane Harvey Timeline



1.2 Hurricane Irma

Sixteen days later, the nation was struck by Hurricane Irma. Hurricane Irma made five landfalls in Barbuda, St. Martin, British Virgin Islands, Bahamas, and Cuba. The hurricane brushed the USVI with punishing hurricane force winds and rain prior to making landfall on September 10 in the Florida Keys as a Category 4 hurricane and on Marco Island as a Category 3 hurricane.

Hurricane Irma was one of the nation's largest evacuation efforts. Approximately 6.5 million in Florida and another 500,000 people in Georgia were ordered to evacuate. To support a large number of evacuations, over 700 shelters were opened in Florida. Sheltering operations continued long after the storm due to damage to homes and the widespread loss of power.

This is the first time on record two Category 4 landfalls occurred in the continental United States in the same hurricane season. Member states rallied to support response activities in Florida, South Carolina, Georgia, and the USVI. Approximately 5,642 responders from 40 states deployed through EMAC.

Figure 5: Hurricane Irma by the Numbers

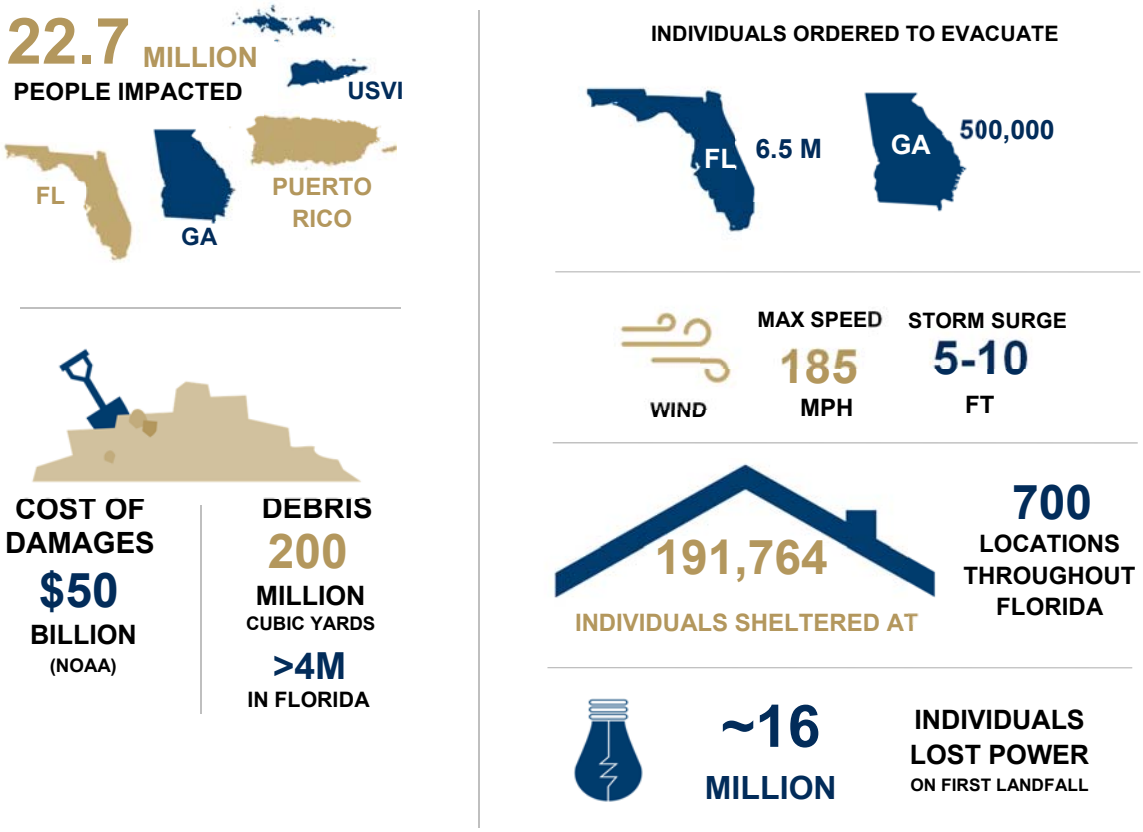
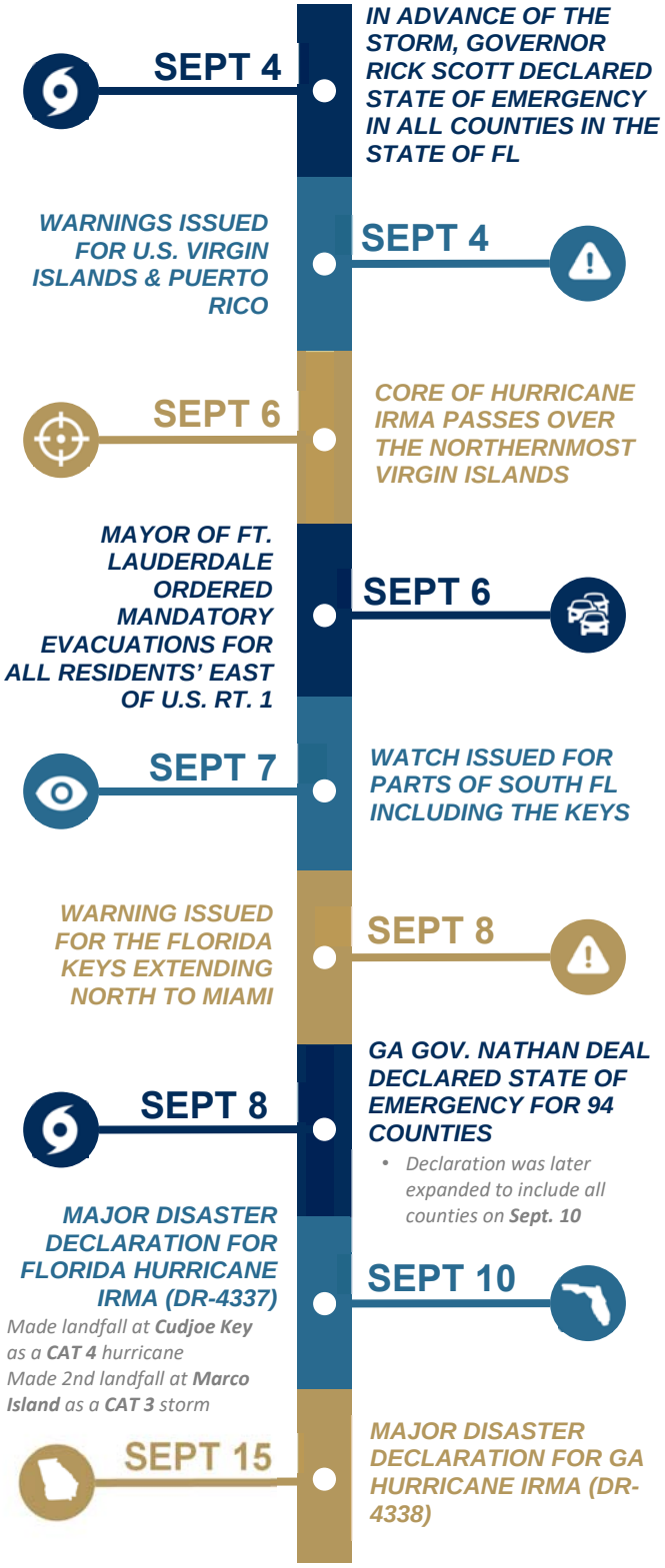


Figure 6: Hurricane Irma Timeline



1.3 Hurricane Maria

A mere nine days later, Hurricane Maria passed just south of the USVI as a Category 5 and made landfall on Puerto Rico as a Category 4 on September 20. The USVI, still dealing with the impacts of Hurricane Irma, was overwhelmed by the widespread devastation to 70 percent of buildings and almost complete destruction of power and cellular communication. Maria and Irma created over 1.1 million cubic yards of debris. Twenty-one states sent 346 responders to assist the USVI.

In Puerto Rico, there was record-breaking river flooding, severe harbor and marina damage, significant or complete destruction of buildings and near-complete destruction of the electrical and cell-service grids. Thirty-five states sent approximately 5,659 responders through EMAC to support missions in Puerto Rico.

Figure 7: Hurricane Maria by the Numbers

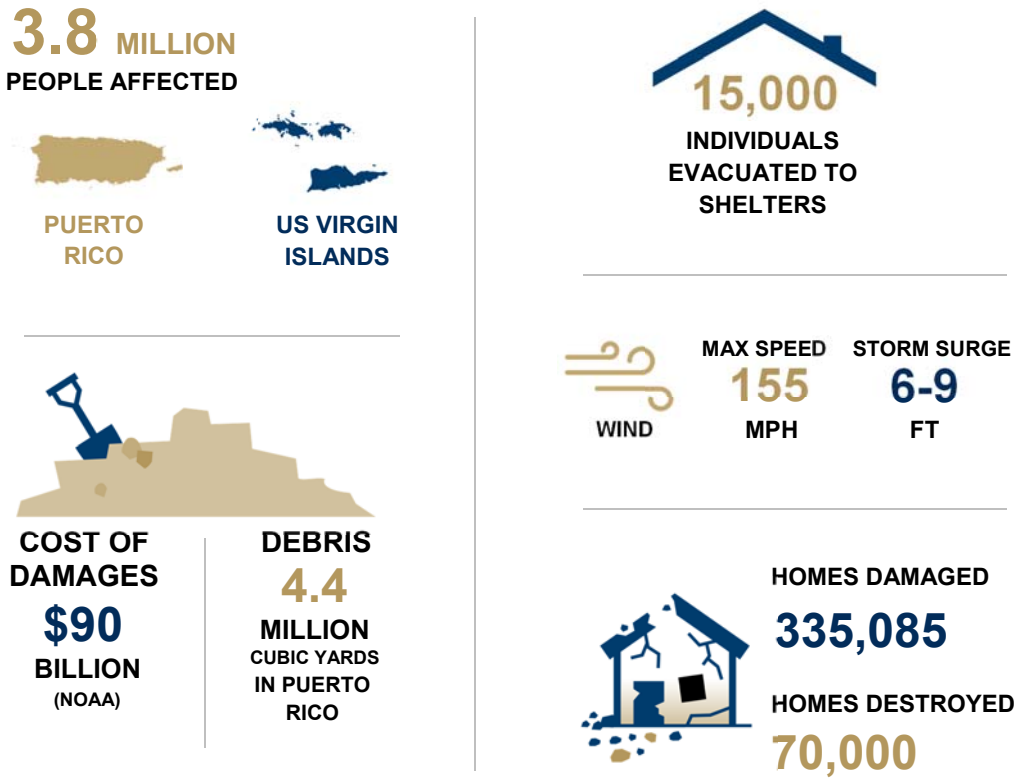
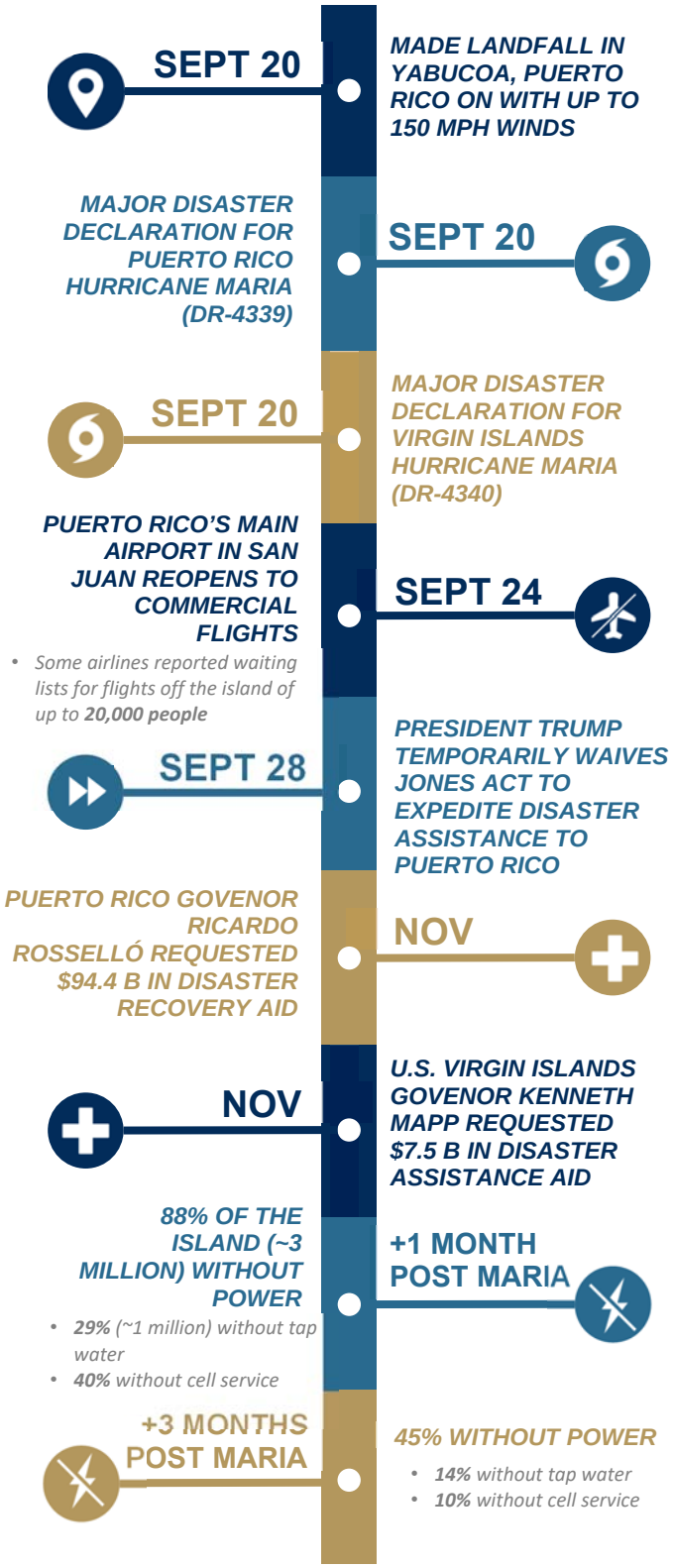


Figure 8: Hurricane Maria Timeline



1.4 EMAC Response

Approximately 16,556 personnel representing **22 disciplines** deployed from **45 states** and supported all three hurricanes. In addition to conducting concurrent response operations for Hurricanes Harvey, Irma, and Maria, states were also deploying resources to support the wildfire operations in California. A key strength noted by stakeholders was the ability of EMAC to scale to meet the need. It is only through this unity of effort – all EMAC Member States working with federal agencies, resource providers, non-profit organizations, private sector businesses – that the nation can meet the needs of disaster survivors.

The EMAC response to the 2017 hurricane season clearly demonstrates the power of EMAC; it mitigates weaknesses and maximizes capabilities in our emergency response system by providing a mechanism for affected states to access the unique skills and capabilities of Member States and resource providers. The following section describes the skills and capabilities provided through EMAC.

Figure 9: 2017 Hurricane Season Deployments

	Harvey		Irma		Maria	
State / Territory	**Personnel**	**Assisting States**	**Personnel**	**Assisting States**	**Personnel**	**Assisting States**
Texas	**4895**	**36**	-	-	-	-
Florida	-	-	**3915**	**40**	-	-
South Carolina	-	-	**11**	**3**	-	-
Georgia	-	-	**4**	**3**	-	-
U.S. Virgin Islands	-	-	**1712**	**19**	**347**	**21**
Puerto Rico	-	-	-	-	**5659**	**35**

An additional seven EMAC liaisons deployed to the NRCC and six to the RRCCs in Regions II, IV, and VI.

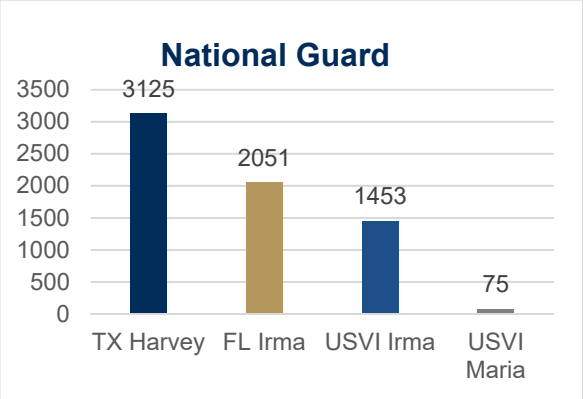
1.4.1 The National Guard

The National Guard was critical to the emergency response effort for all three hurricanes. The National Guard units brought much-needed personnel, communication, transportation, security

and a full complement of logistical support and critical infrastructure. A total of 9,117 National Guard personnel from 40 states were deployed through EMAC.

In Texas, the National Guard conducted primarily search and rescue operations. In Florida, National Guard units provided a wide range of support such as transportation, security, search and rescue, virtual geographic information systems (GIS) mapping support, and returning patients to hospitals following evacuation.

Figure 10: Number of National Guard Personnel by Requested State



For USVI and Puerto Rico, the National Guard provided transportation support for EMAC personnel when no other transportation was available. In Puerto Rico, National Guard units delivered food, water, and other critical supplies to towns cut off by blocked roads and without power or any communication capabilities. In many cases, a camouflage-painted National Guard vehicle or helicopter was the first sign of help for stranded citizens.

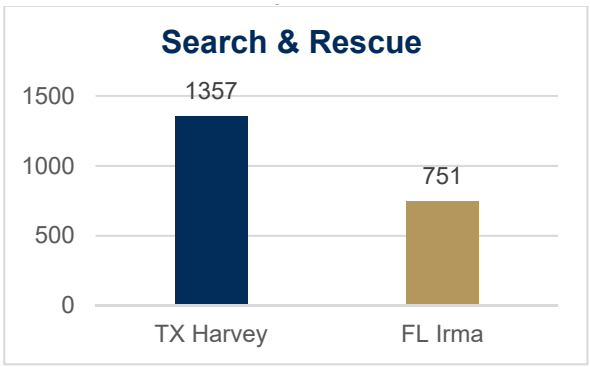
National Guard units also provided search and rescue operations, security and force protection, medical clinics and medical care, and maintenance teams to repair structurally compromised facilities.

Because of the complete devastation of critical infrastructure and damage to ports (air and marine), the National Guard units had to be self-sufficient and brought in complete base camps to support National Guard response efforts.

1.4.2 Search and Rescue

In response to Hurricanes Harvey, Irma, and Maria, 2,108 search and rescue personnel deployed under EMAC from 26 States. During the 2017 hurricane season, search and rescue missions conducted by civilian teams (as opposed to National Guard units) were conducted in Texas and Florida. FEMA estimated that the catastrophic flooding in Hurricane Harvey led to almost 450,000 people needing rescue. Several teams deployed to Texas and then redeployed to Florida.

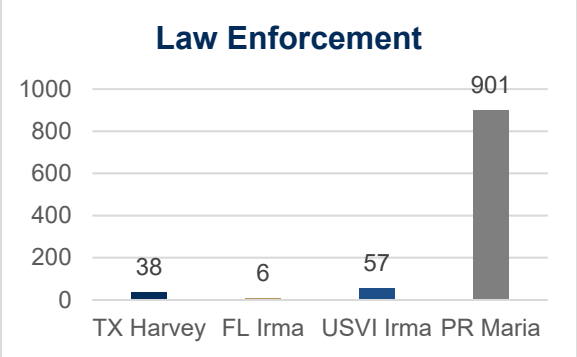
Figure 11: Search and Rescue Personnel by Requested



1.4.3 Law Enforcement

Under the provisions of EMAC, more than 1,000 law enforcement officers from 12 states deployed to support response operations for the three hurricanes. Missions ranged from swift water rescue and backfill support in Texas, to a Telecommunications Emergency Response Task Force (TERT) in Florida, to security/law enforcement and incident management support in Puerto Rico.

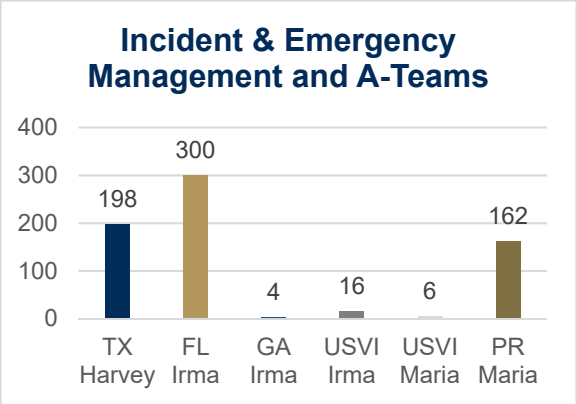
Figure 12: Law Enforcement Personnel by Requested State



1.4.4 Incident and Emergency Management and A-Teams

There were 686 incident management and emergency management personnel from 31 states deployed to help reestablish or reinforce local emergency operations. Most missions focused on EOC support, recovery support (knowledge and expertise in public assistance and individual assistance programs), donations management, and logistics. Requesting states also requested A-team (on-site and virtual) support.

Figure 13: Incident and Emergency Management by Requesting State



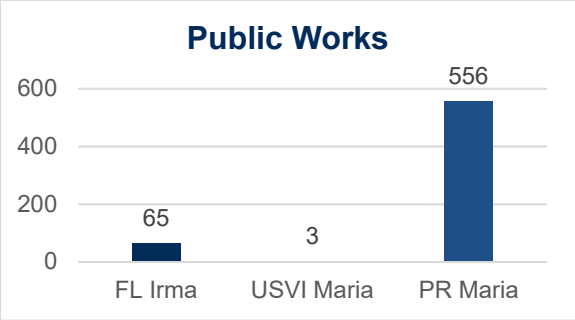
There were several notable missions also categorized as incident and emergency management:

- New York deployed a team of 12 to provide technical assistance, engineering expertise, initial debris, and construction management to protect or restore public works and critical infrastructure. Technical drones were used for additional assessment.
- Louisiana sent a housing strike team to work along with the Secretary of Housing for Puerto Rico to assist with planning and development of housing solutions for displaced citizens.
- New York City Department of Education sent a team of five to assist reestablishing the school system in Puerto Rico.
- Delaware provided an EMAC reimbursement subject matter expert to remotely assist the Puerto Rico Emergency Management Agency (PREMA) and FEMA with reimbursement process and documentation needs.
- Both Massachusetts and Rhode Island sent commodities (radios and satellite communications systems) to Puerto Rico.

1.4.5 Public Works and Engineering

Under EMAC, 624 public works personnel from eight states deployed to support damage assessment, building inspection, debris management, fuel operations, and repair of electrical infrastructure and breaks in the water system.

Figure 14: Public Works and Engineering Personnel by Requesting State



Entire communities, including their supporting infrastructures, were washed or blown away. Sewage and hazardous waste processing plants and treatment facilities were inundated and tainted the rising flood waters. The electric and communication infrastructure was destroyed on both USVI and Puerto Rico. EMAC public works and engineering teams provided subject matter expertise to complement the repair efforts of the National Guard and private-sector repair crews.

1.4.6 Other EMAC Missions

An additional 2,071 personnel supported public health and medical, emergency medical services (EMS), transportation and highways, mass care and sheltering, engineering, human services, agriculture and forestry, animal health, and cyber missions.

The following are a few noteworthy EMAC missions:

- Member states in FEMA Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas) created the Interstate Emergency Response Support Plan (IERSP). This plan established procedures for host-state sheltering. Texas and Louisiana leveraged EMAC to support the opening and management of shelters in Louisiana for residents of Texas, demonstrating the value of incorporating EMAC into emergency response plans and the importance of regional resource planning.
- Medical teams from New Jersey and North Carolina established mobile operating rooms and an intensive care unit for more than 330 days in the USVI.
- The Animal Health Team from North Carolina helped Puerto Rico obtain a $12 million grant that saved the island's pork industry.
- Florida sent a team of transportation and highway experts to advise Puerto Rico on how to quickly re-establish the traffic signal system as well as how to rebuild a system that is more resilient and can withstand the damage of future hurricanes.

Figure 15: EMAC Makes an Impact!

"Our EMS Teams in USVI have been invaluable. Currently there are less than 10 USVI EMS workers on the island assisting therefore the need is as great as ever. We are responding to more than 400 9-1-1 emergency calls monthly and nearly 500 mobile integrated healthcare patient encounters with a team of 18."

"During the 2017 Hurricane season, over 800 personnel from 60 agencies in New Jersey deployed to 4 states/territories on 17 missions with a total estimated cost of approximately $20 million."

"Team conducted 80 applicant briefings for DR-4337 [Florida Hurricane Irma], affecting 800+ potential PA applicants"

"I was forward deployed to a county with seven PODs and coordinated incoming state logistics for those PODs. We provided food, water, and ice to up to 14,000 people a day."

"Toledo Fire & Rescue Department SRT as well as the other agencies were responsible for and conducted welfare checks and search & rescue operations in Orange County Texas which covers approximately 380 square miles. This area was heavily damaged by flood waters that have not yet completely receded. We performed searches in over 100 residences in five different cities with approximately five miles searched by boat. The team was honored to be able to relieve the crews that worked so hard during the height of the storm."

"Produced and distributed over 900 thousand gallons of potable water to at least four communities in Comerio area [in Puerto Rico.]"

"I felt good when the 7 nurses got off the plane and I knew I had a little part of getting them there. "

"Our GIS Section won two national GIS awards related to this event, Hurricane Irma."

"The USVI Health Department Commissioner and executive staff met with us this afternoon and asked if we would stay in place for another 90 days to provide 911 and Mobile Integrated Healthcare Services… Our State agencies worked together with their sister agencies in the respective states and were integrated into their response efforts with combined teams, etc."

2 Emergency Management Assistance Compact

The Emergency Management Assistance Compact is an all-disciplines, all-hazards mutual aid compact that serves as the cornerstone of the nation's mutual aid system. EMAC is the primary mechanism for states to request and provide trained resources to other states during governor-declared states of emergency or disaster.

The EMAC system allows states to send personnel, equipment, and commodities to assist with response and recovery efforts. EMAC also allows support for virtual missions (GIS mapping or A-Team support) and host-state response support (such as mass care and sheltering).

The National Guard deploys through EMAC in both State Active Duty and under Title 32 to assist the Member States.

EMAC establishes a firm legal foundation for sharing resources between states. Once the conditions for providing assistance to a requesting state have been set, the terms constitute a legally binding agreement. The EMAC legislation solves the problems of liability and responsibilities of cost and allows for credentials, licenses, and certifications to be honored across state lines.

EMAC Benefits

- *Fast and Flexible Assistance*
- *All-Disciplines All-Hazards*
- *Resources deploy through the emergency management agencies of their respective states allowing for a coordinated deployment*
- *Deployments are coordinated with the federal response to avoid duplication and overlap*
- *EMAC greatly reduces the time required for states to request or provide resources*

The strength of EMAC and the quality that distinguishes it from other plans and compacts lies in its governance structure; its relationship with federal agencies, national organizations, states, counties, territories, and regions; the willingness of state and response and recovery personnel to deploy; and the ability to move ***any*** resource one state wishes to utilize to assist another state.

EMAC History

EMAC is the state–to–state mutual aid compact administered by the National Emergency Management Association (NEMA). EMAC was established in 1993 and was ratified by Congress in 1996. All fifty states, the District of Columbia, the U.S. Virgin Islands, the Commonwealth of Puerto Rico, and Guam are members.

2.1 EMAC Governance and Responsibilities

The success of EMAC rests on the capabilities and implementation of its Member States. When Member States[4] ratified EMAC legislation, they agreed to formulate procedural plans and programs to support interstate cooperation. Member states' responsibility and ability to implement these plans and programs are critical to the successful execution of EMAC and, in turn, the successful deployment and acceptance of mutual aid support during an emergency.

Member States' Responsibilities

Member State internal procedures should, at a minimum:

1. Establish an EMAC training program that provides awareness of EMAC to state and local officials.
2. Develop a standard operations guide for the implementation and utilization of EMAC as both a Requesting and Assisting State.
3. Conduct a hazard analysis and capability assessment to determine where resource gaps exist, and specifically what types of mutual aid resources may be needed. Conduct pre-planning for the sharing of resources through EMAC with neighboring states.
4. Conduct National Incident Management System Resource Typing and develop Mission Ready Packages (MRPs) for internal use and for EMAC deployments; maintain an inventory of available MRPs.
5. Designate a sufficient number of Authorized Representatives and Designated Contacts to implement EMAC. Authorized Representatives have the governor's authority to request or to deploy mutual aid assets thus committing the spending of state funds. A minimum of three Authorized Representatives is recommended to ensure availability of a designated Authorized Representative with signature authority at all times.
6. Designate one individual to be the "lead" on EMAC as an EMAC Coordinator.
7. Designate and train a minimum of two Type IV A-Teams.
8. Follow the "typing" guidance provided for EMAC A-Team assets when requesting or deploying EMAC A-Teams.
9. Be prepared to provide adequate workspace and logistics support to an A-Team whenever one is deployed to their state EOC or other duty station.
10. Develop legislation, intrastate mutual aid agreements, or memorandums of understanding with locals, volunteer agencies, and the private sector (if allowed under state law) to deploy seamlessly through EMAC.
11. Maintain contact information for EMAC Authorized Representatives and Designated Contacts on the EMAC website.
12. Develop an EMAC training and exercise program that involves stakeholders at the state and local levels of government and others that may be eligible to deploy through EMAC, such as volunteer agencies and the private sector.

Additional guidance to help states meet these requirements can be found in the EMAC Operations Manual available for State Emergency Management Agencies.

[4] According to EMAC's Article of Agreement I, "states" in reference to EMAC is defined as the fifty states, Puerto Rico, the District of Columbia, and the U.S. territories.

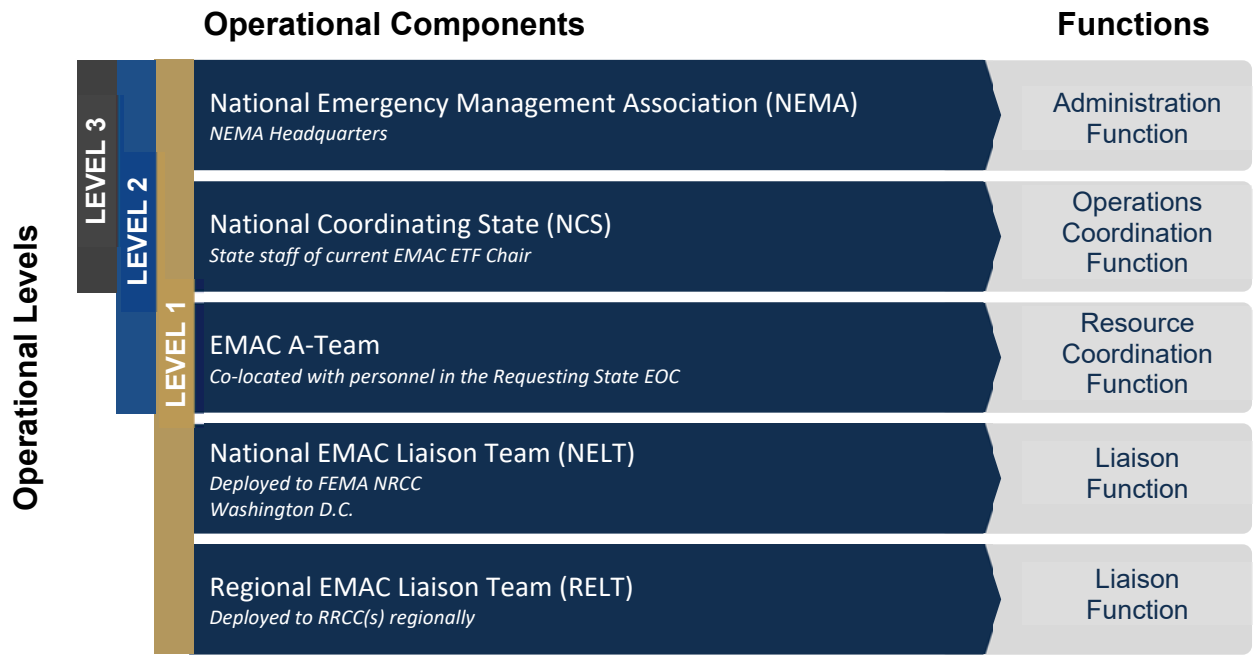
2.1.1 The Five Operational Components of EMAC

There are five EMAC Operational Components:

- The National Emergency Management Association
- The National Coordinating State
- The A-Team
- The National EMAC Liaison Team
- The Regional EMAC Liaison Team

The EMAC Operational Components work together during an incident to share information and ensure the EMAC procedures are being followed.

Figure 16: EMAC Operational Components



2.1.1.1 National Emergency Management Association

During an incident, NEMA serves an administrative function with the following responsibilities:

- Work with the National Coordinating State (NCS) to coordinate operations.
- Maintain the EOS and resolve system issues.
- Maintain data integrity and ensure events are maintained and updated.
- Answer questions about the use of the EMAC system and provide technical expertise as needed to the Member States.
- Ensure the timely fulfillment of resource requests.
- Resolve policy issues in coordination with the NCS or NEMA leadership.

- Ensure the coordination between the NCS, A-Teams, the National EMAC Liaison Team (NELT), and Regional EMAC Liaison Teams RELT(s).

2.1.1.2 National Coordinating State

This NCS is an EMAC Member State with national operational responsibility for EMAC and is the primary point of contact for a disaster affected state. The chair of EMAC serves as the lead of the NCS. Thus, the NCS is the home state of the EMAC Executive Task Force (ETF) Chair. During the 2017 hurricane season, Kansas served as the NCS and the EMAC ETF Chair.

The NCS serves an operations coordination function with the following responsibilities:

- Ensure that operational procedures are followed and, in coordination with NEMA, resolve any policy or procedural issues.
- Identify and staff A-Teams and liaison teams.
- Ensure timely situation reports on EMAC activities.

2.1.1.3 Advance Team

Advance Teams (A-Teams) have the primary responsibility of implementing the EMAC process in both the Requesting and Assisting States as assigned by the state emergency management director or their designee. Because of A-Team members critical response role in the procurement of resources during large disasters, A-Team members must have extensive disaster experience; be fully knowledgeable of EMAC policies, procedures, and EMAC Operations System (EOS); and be able to work in a high-stress environment without direct supervision. A-Team members represent the best of the best.

During the 2017 hurricane season, 55 people from 15 states served as A-Team members.

2.1.1.4 National EMAC Liaison Team

The NELT is responsible for coordinating EMAC operations with the Federal Emergency Management Agency (FEMA) at the NRCC. FEMA requests the NELT when the EMAC system is activated and states are actively requesting/deploying resources on large scale events through EMAC. When the request is received, a team will be identified by the NCS and deployed to the NRCC.

The NELT serves as a liaison team representing all aspects of EMAC (NEMA, the NCS, and the EMAC Member States). The role of the NELT is to share situational awareness with EMAC Operational Components, FEMA, and the Emergency Support Functions (ESFs) and to take issues that arise during the operation to the NCS, on behalf the EMAC Member States. The NELT may

need to contact the NCS or EMAC A-Teams to validate information or obtain situational awareness that was not shared through the EOS or on the daily EMAC Coordination Calls.

The NELT may comprise one or more persons experienced in EMAC operations. The composition of the NELT depends on mission requirements.

While the NCS identifies the NELT team, the EMAC Member States are responsible for recommending personnel to serve on the NELT. The mission requires individuals with experience and the ability to engage with the federal-level management team.

Over the course of the 2017 hurricane season, seven individual from six states deployed to the NRCC.

2.1.1.5 Regional EMAC Liaison Team

In a large-scale disaster, there may be the need to coordinate the state response through EMAC with the FEMA/DHS at FEMA regional offices. This is the responsibility of the Regional EMAC Liaison Team (RELT). FEMA/DHS request the RELT to support RRCCs. If states are actively requesting/deploying resources through EMAC, the NCS will identify a RELT to support the activated RRCC(s).

During the 2017 hurricane season RELTs were deployed to FEMA Region VI RRCC in Denton, TX, FEMA Region IV in Atlanta, GA, and FEMA Region II in Colts Neck, NJ. Over the course of the 2017 hurricane season, six individuals from six states deployed to RRCCs.

EMAC Member States are responsible for the identification of personnel to fill the RELT. Like the NELT, the mission requires individuals with experience and the ability to engage with the federal-level management team.

2.2 EMAC Operational Levels

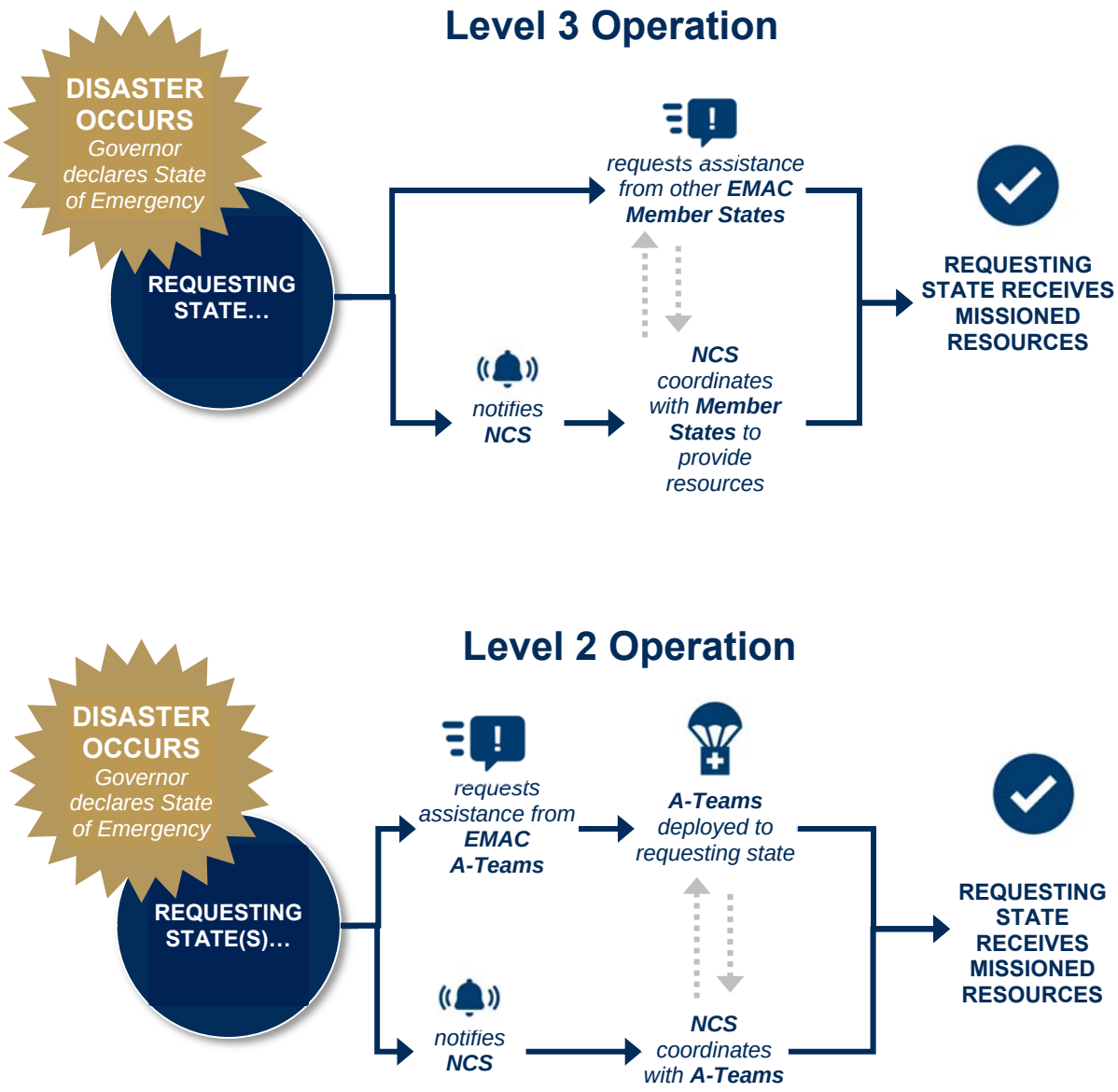
There are three EMAC operational levels that reflect which EMAC Operational Components are activated and indicate the severity of response to the incident that is needed.

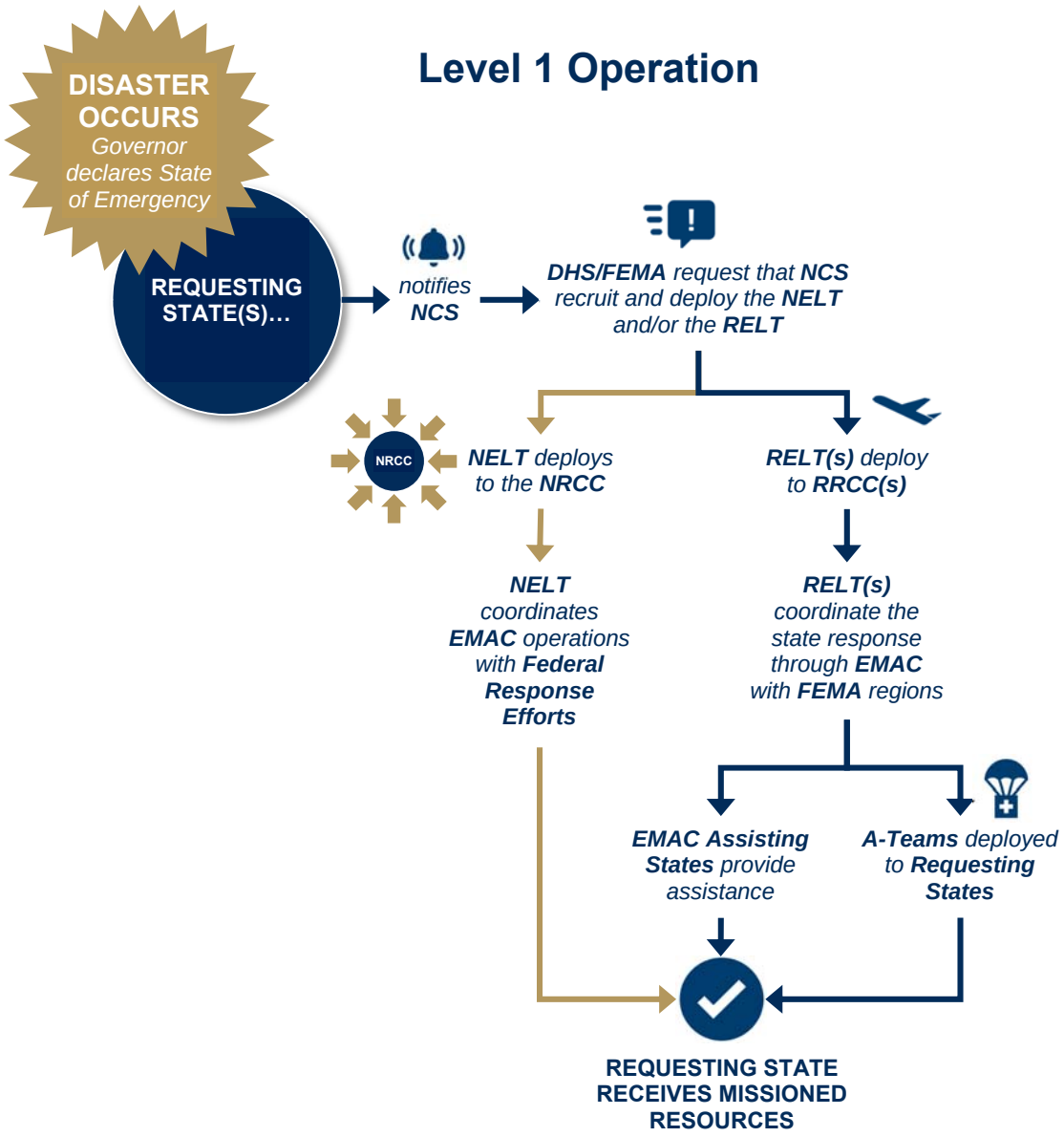
The operational levels are designed to mirror most state and federal operations levels and have worked effectively and seamlessly within the National Incident Management System (NIMS).

- **Level 3:** During day-to-day monitoring and supporting states with operational activities, NEMA and the NCS are at a Level 3 operation. Should a state be managing an incident and requesting resources through EMAC, they are utilizing their internal A-Team.
- **Level 2:** Once a state requests an EMAC A-Team to be deployed into their state, EMAC is automatically at a Level 2 operation.

- **Level 1:** The deployment of a NELT or RELT increases the EMAC operational level to a 1, indicating all operational components are fully engaged.

Figure 17: EMAC Operational Levels




Level 1 Operation
DISASTER OCCURS
Governor declares State of Emergency
REQUESTING STATE(S)…
notifies NCS
DHS/FEMA request that NCS recruit and deploy the NELT and/or the RELT
NRCC
NELT deploys to the NRCC
RELT(s) deploy to RRCC(s)
NELT coordinates EMAC operations with Federal Response Efforts
RELT(s) coordinate the state response through EMAC with FEMA regions
EMAC Assisting States provide assistance
A-Teams deployed to Requesting States
REQUESTING STATE RECEIVES MISSIONED RESOURCES

2.3 EMAC Process

The five phases of the EMAC Process provide a systematic approach that has proven to be effective, scalable, and efficient:

2.3.1 Pre-Event Preparation

Under EMAC Article III, it is the duty of each Member State to formulate internal procedural plans and programs and to stand prepared to request or provide interstate mutual aid to the other Member States.

All jurisdictions (local, county, state, private) should:

- Work with state emergency management agency to develop in-state EMAC procedures
- Incorporate lessons learned from past deployments
- Match resources to NIMS Resource Typing Criteria
- Develop Mission Ready Packages (with cost estimates)
- Train and exercise personnel

The importance of Member States completing the tasks associated with this phase was demonstrated numerous times during the 2017 hurricane season. States with established EMAC procedures that trained and exercised their emergency management teams prior to the deployments were much better prepared to deploy or receive resources. Many of the recommendations identified by stakeholders relate to states fulfilling the basic Member State requirements.

The list of required Member State responsibilities can be found in the EMAC Operations Manual available to State Emergency Management Agencies.

2.3.2 Activation

With a known event, such as a hurricane, the governor of potentially impacted state(s) issues an emergency declaration/proclamation as the hurricane approaches authorizing state emergency

management agencies to invoke and administer EMAC. (Note: Only the affected state needs to declare an emergency or disaster.)

The impacted state's EMAC Authorized Representative (AR) or EMAC Designated Contact (DC) opens an event in the online EOS (alerting both the National Coordination State and NEMA that a request for resources is likely) and sends out a situation report.

This is a very busy time for both the impacted states/Requesting States as well as potential Assisting States. The Requesting States are engaged in the following activities:

- Identifying potential resources (personnel, equipment, skills, services, etc.) needed
- Activating the in-state A-Team
- Requesting an external A-Team through the NCS, if needed
- Developing situation reports on the EMAC website and broadcasting the information as appropriate
- Establishing a reception center to check in/out deploying resources

Non-impacted states are potential Assisting States. During this period, Assisting States are engaged in the following activities:

- EMAC Coordinator monitors activity from the affected states.

The NCS is critical to the efficient coordination of EMAC. During this phase, the NCS is engaged in the following activities:

- Establishing communications with the Requesting States to determine the need for A-Team personnel
- Establishing and conducting daily (or as required) conference calls among EMAC Operational Components and Requesting State

2.3.3 Request and Offer

The request and offer phase starts once the affected state/Requesting State's EMAC AR has identified that EMAC will be the source to fulfill a needed resource. The Requesting State's EMAC AR passes the resource request to the in-state EMAC A-Team (or an A-Team that has been sent by Assisting State to support the Requesting State).

This A-Team facilitates the EMAC process under the direction and control of the EMAC ARs. The A-Team communicates the request for assistance to the potential Assisting States, through the EOS, phone, or email.

The potential Assisting States assess their own risk level, and if able, the Assisting State will contact potential Resource Providers to determine their ability to assist. The Assisting State may

then indicate the state's ability to offer assistance through the online Operations System, phone, or e-mail. The Assisting State may stand up their internal A-Team to support the operation.

The Requesting and Assisting State emergency management agencies then complete the EMAC Request for Assistance Form (REQ-A) within EOS. For any request to be valid through EMAC, the Requesting State and Assisting State must complete all three parts of the REQ-A. The Requesting State completes details and signs the request for assistance in REQ-A Section I, the Assisting State makes its offer through REQ-A Section II, and the Requesting State—should it accept the offer—completes REQ-A Section III. Once completed, the REQ-A constitutes a legally binding agreement.

When the Requesting State approves an offer and signs off on Section III, the Requesting State commits itself to be responsible for the estimated expenses associated with that mission that are detailed in the REQ-A.

2.3.4 Response

Once a REQ-A has been completed in the EOS or the EMAC ARs verbally agrees on the terms of the mission within the 30-day provision, the Assisting State starts to mobilize and deploy the personnel and equipment or coordinate for the service/commodity to be delivered/provided.

The event timeline of the response phase can be broken down into three sub-stages:

- Mobilization (prepare to support the Requesting State by standing up the virtual support or leave the Assisting State and travel to the Requesting State)
- Deployment (perform the mission in the Requesting State or render services virtually)
- Demobilization (complete mission and stand down the virtual team or and return to Assisting State)

2.3.4.1 Mobilization

Mobilization is the process of notifying the responding personnel that they will be deploying on an EMAC mission, activating the individual, team or Mission Ready Package (MRP), and addressing logistical support that will be needed throughout the mission.

Through available technology, some EMAC missions may be accomplished virtually without the physical deployment of personnel and equipment. For example, virtual A-Teams, GIS mapping, public assistance advisory services, weather forecasting or subject matter expert advice.

The Assisting State A-Team personnel or EMAC DCs should send the individual or team leader a Mission Order from the EOS and review the Mission Order as well as other pertinent information during a pre-deployment briefing.

The importance of a comprehensive pre-deployment briefing cannot be stressed enough. This briefing serves to educate deploying personnel on EMAC—ensuring they understand their responsibilities in tracking mission expenses and maintaining documentation, as well as contact with the Assisting State EMA while on their deployment. The briefing also informs deploying personnel of existing conditions where the work will be performed and provides critical logistical information. Several of the issues identified in the deployment, demobilization, and reimbursement sections of this AAR can be attributed in part to information not communicated during a pre-deployment briefing.

2.3.4.2 Deployment

Deployment includes all the actions necessary to get the responding mutual aid resources from home station to the affected state and all actions taken to support the EMAC mission. Requesting States are strongly encouraged to establish a Reception Center or Staging Area for all deploying and demobilizing EMAC teams for personnel to check in and received an updated mission briefing.

The deployed team should render services within the scope they are trained and certified/licensed to perform per the mission outlined in the REQ-A. If the mission assignment changes, an amendment may be needed. The deployed team should convey any changes in mission to their home state A-Team to coordinate any amendment changes.

While resources are deployed, the Assisting State A-Team or EMAC DC should conduct personnel accountability reporting with teams to monitor for issues. As issues are identified, they can work for resolution.

Throughout the deployment, personnel should keep track of costs, maintain documentation, and retain receipts as described in the pre-deployment briefing to be ready to submit reimbursement.

2.3.5 Demobilization

Demobilization is the process of releasing mutual aid assets following the completion of their assigned mission and returning them safely to their home station.

When missions are completed, deployed personnel should develop a demobilization plan to transition the operation, check out at the Requesting State's staging area (or other designated location) and be debriefed before they start to travel to their home station. Once home, the Assisting State should do their own debriefing and offer critical incident stress management support to personnel and review reimbursement requirements and timeline.

2.3.6 Reimbursement

Although reimbursement is chronologically the last phase of the EMAC process, the steps required for timely reimbursement begin during pre-event preparation, with establishing EMAC reimbursement procedures that are shared by the Requesting State during the request and offer phase. Both the Requesting State's and Assisting State's reimbursement requirements should be communicated to deploying personnel during the pre-deployment briefing. The reimbursement delays associated with the 2017 hurricane season can be directly attributed to the lack of reimbursement policies and procedures, poor communication of reimbursement requirements, and inconsistencies in implementing the reimbursement process.

Steps Required for Timely Reimbursement:

1. Deployed personnel should organize, package, and submit all receipts necessary to obtain reimbursement for travel and other mission-related expenses from the Resource Provider.
2. The Resource Provider collects, prepares, audits, and submits reimbursement documentation to their state's emergency management agency.
3. That state's emergency management agency, in turn, audits and reviews the submitted documentation and may then (if allowed by the state) reimburse the Resource Provider for the costs incurred to perform the EMAC mission.
4. The state emergency management agency prepares and forwards the complete reimbursement package to the Requesting State for reimbursement.
5. The Requesting State audits the reimbursement package and, if all costs are properly documented, repays the Assisting State in a timely manner.

Reimbursement under the Compact is **not** dependent upon receipt of Disaster Relief Funds that are available through FEMA after the president declares a major disaster or emergency. The Requesting State may seek funds from FEMA or any other sources, but its obligations under EMAC law to pay for services rendered are not contingent upon receipt of said funds.

3 Coordination and Control

EMAC Operational Management encompasses the coordination during an incident to share information and ensure that EMAC procedures are being followed. Depending on the EMAC operational level activated, these components, as well as state EMAC personnel, resource providers, deployed teams, and assisting/cooperating agencies and jurisdictions, work together to respond to the event and provide EMAC assistance.

The after-action analysis discussions on coordination and control during the 2017 Hurricane Season NEMA After-Action Conference addressed issues such as span-of-control, operational control, administrative management responsibilities, issue resolution, the transition of personnel, and coordination of assistance with cooperating agencies and jurisdictions.

The following section outlines areas for action identified throughout all breakout group discussions on coordination and control. Details from these discussions are organized into two sections: "What Worked Well" and "Issues and Recommendations for Improvement."

3.1 What Worked Well

3.1.1 The scalability of the EMAC system allowed for multiple affected states to be supported simultaneously.

The 2017 hurricane season was the fifth most active season on record. Hurricanes Harvey and Irma were the first two Category 4 hurricanes to make landfall in the continental US in the same season; Hurricane Maria is considered the most devastating in Puerto Rico's history; and the USVI endured a direct impact of two consecutive major hurricanes (i.e., Irma and Maria) within a matter of weeks. Throughout the hurricane season, the West Coast of the United States was also impacted by a series of large wildland fires.

Through all these events, the EMAC system was successfully utilized. Over 43 states assisting during simultaneous extreme events across the country, deploying a combined total of 16,556 personnel to Texas, Florida, Puerto Rico, the USVI, South Carolina, and Georgia, covering over 22 disciplines.

The USVI, which had never used EMAC until the 2017 hurricane season, received training on EMAC immediately before landfall of Irma. Because of this support, USVI was able to utilize the EMAC system to receive essential life-saving support.

The ability of states to provide emergency assistance for multiple major disasters, Hurricanes Harvey through Maria, with the backdrop of California wildfires, demonstrates the viability of the

EMAC program and underscores the importance of the EMAC system as the foundation of our nation's emergency response system.

3.1.2 The EMAC Operations Coordination Calls led by the NCS worked well to share information, assign tasks, and resolve issues.

The NCS, NELT, RELT(s), NEMA, as well as deployed and virtual EMAC A-Team leads from affected states/territories, met daily via the NCS-led coordination calls to share information and solve problems. The discussions covered anticipated needs, exchanging solutions to solve logistical and communication issues, coordinating with other response organizations and levels of government, and maintaining overall situational awareness.

3.1.3 Utilization of Virtual A-Teams enhanced Requesting States capabilities during severe power and communication outage.

The successful use of Virtual A-Teams to support the USVI and Puerto Rico was identified as a resounding success. As mentioned previously, the USVI had never used EMAC. The Virtual A-Team provided the necessary support and technical guidance USVI needed to successfully utilize EMAC to obtain the resources they needed. The loss of power and communications across the island would have made it difficult to coordinate and communicate EMAC missions. Thus, the virtual nature of the A-Team allowed the team to continue to coordinate EMAC missions from their home state on behalf of USVI.

3.1.4 Maintaining a team email address improved coordination, communication, and transitions between missions.

A-Teams that utilized one team email address experienced more efficient coordination, communication, and transitions during the response. Having a common email address granted access to information for all team members to see the history on an issue and respond to incoming communication in a timely manner.

3.1.5 A-Team transition conference calls supported coordination between incoming and outgoing teams.

Prior to returning to their home state, demobilizing A-Teams would host conference calls with incoming A-Teams to relay information regarding the situation on the ground. Information regarding living and working conditions provided guidance to incoming teams on what to bring with them (e.g., office supplies). These calls were crucial in allowing for more candid conversations that covered a wide gamut of questions. In situations as extreme as Puerto Rico,

the A-Team members felt this was invaluable as several teams had deployed without this call being instituted and did not arrive with the same level of preparation. Transition conference calls should be formalized in the future, or at the very least, transitional information should be included in EOS as a modified situation report, with specific condition considerations for each ESF.

3.1.6 Designated team leads facilitated coordination between states and deployed personnel.

The presence of a pre-designated team lead helped to provide guidance to deployed assets and served as a single point of contact for both deployed personnel and the Requesting State.

3.2 Issues and Recommendations

3.2.1 Sharing information with EMAC trusted partners was challenging.

During an event, EMAC A-Teams are tasked with sourcing resources from EMAC Member States through the state emergency management agencies. Requesting State and Assisting States are often inundated with phone calls from well-meaning agencies and other entities wanting to see how they can assist. Oftentimes sharing information on open requests creates an influx of queries to the Assisting State A-Team decreasing their efficiency and creating barriers to filling requests.

The data collected is the property of the states. While NEMA can share, during non-sensitive events, general response information, NEMA is not staffed at a level to be able to respond to the influx of questions and specific information requests. During sensitive events, NEMA may not share information due to concerns regarding privacy and security of deploying personnel (although this is uncommon).

- ***Recommendation:*** Consider evaluating the types and level of information that might be appropriate to share with NEMA trusted partners that would not burden the Assisting States, A-Teams, or NEMA.

3.2.2 Federal and state response partners lack a comprehensive understanding of EMAC resources and processes.

During the Puerto Rico response, federal partners wanted to make EMAC requests for assistance to the EMAC A-Team. EMAC is a mutual aid agreement between states and territories. The only individuals that can authorize missions are the EMAC AR(s) in a state or territory. The ARs are the only individuals able to accept the financial obligation associated with an EMAC mission. As this authority is in law, it cannot be arbitrarily granted to federal employees.

- ***Recommendation:*** States/territories should identify in their laws who has the legal authority to financially obligate and provide enough available EMAC ARs.
- ***Recommendation:*** NEMA should provide comprehensive EMAC training for federal and state partners.
- ***Recommendation:*** While NEMA utilized a liaison during the event, conference calls with the National Guard to coordinate EMAC request and logistics associated with National Guard deployments under EMAC would provide better situational awareness to all parties.

3.2.3 Situation reports were challenging to complete and submit, leading to an absence of timely information.

Assisting States indicated that situation reports were often incomplete or submitted on an inconsistent basis, which hindered coordination and control efforts and prevented deploying teams from getting a good understanding of what to expect. In multiple instances, EMAC A-Team transitions led to increased confusion and questions from the Assisting States, as information that should have been included in the reports was not communicated.

Conversely, Requesting States indicated that completing EOS situation reports were challenging due to time constraints. Key information differed from the Requesting States' standard internal situation reports and thus, the EMAC situation reports were an additional burden to Requesting State personnel. Although the Requesting States struggled to submit timely reports, the group acknowledged that these reports were essential to coordination and control and "just needed to get done."

In some cases, external A-Teams did not receive all necessary information to complete the situation report or were required to have it approved before publishing which caused delays. Ensuring that A-Teams are well integrated into state operations and are provided situational awareness is extremely important.

- ***Recommendation:*** Encourage A-Teams to obtain as much information as possible from internal state situation reports to reduce the workload.
- ***Recommendation*:** Edit the EOS situation report template to provide the name and contact information for the currently assigned A-Team.
- ***Recommendation:*** NEMA should consider streamlining EOS situation report prompts by removing duplicate content to make completion easier for Requesting States.

3.2.4 Controls to help validate hours spent during deployment do not exist.

Some of the deployed teams that worked in Requesting States without an established in-processing centers and/or check-in protocols did not secure documentation that confirmed their arrival and departure. These teams were unable to or had to find additional documentation to demonstrate that the time reported on their timesheets was accurate.

- ***Recommendation:*** States should establish in-processing centers to track arrivals and departures of deployed teams and resources.
- ***Recommendation:*** In the absence of a formalized validation process of deployment hours, assign responsibilities to team leads to track hours on site.

4 Request and Offer

The after-action analysis pertaining to the *Request and Offer* phase addressed the process for requesting resources; filling requests; sending broadcast notifications; obtaining approvals and signatures from EMAC ARs; handling logistical issues in the development of requests or offers; exchanging information; completing the REQ-A; and sending the Mission Order.

The following section outlines areas for action identified throughout all breakout group discussions on *Request and Offer.* Details from these discussions are organized into "What Worked Well" and "Issues and Recommendations for Improvement."

While request and offer discussions did not explicitly focus on the *Pre-Event Preparation* or *Activation* phases of the EMAC process, there was a natural transition and overlap between these phases and the request and offer phase. Lessons learned associated with these two phases have also been included in this section.

4.1 What Worked Well

4.1.1 Early activation of EMAC and A-Teams supported more efficient response.

Once a state's governor declares an emergency or disaster, state funds are authorized to be expended for response and recovery and EMAC assistance may be requested. The deployment of A-Teams and the execution of the *Request and Offer* phase, consequently, hinge on the activation of EMAC by the Requesting State. During Hurricane Irma, Florida activated EMAC and requested A-Teams as soon as they understood the predicted severity of the storms days prior to hurricane landfall. Experience from previous hurricane events demonstrated how the rapid accumulation of requests can quickly overwhelm a Requesting State; early activation of the EMAC system and quick mobilization of A-Teams improves the processing of requests, offers, and receipt of resources.

Florida was able to quickly assess what resources they needed based on previous experience and therefore able to quickly submit requests for assistance reducing the time for needed resources to be deployed to affected jurisdictions.

4.1.2 Virtual A-Teams allowed the Commonwealth of Puerto Rico and USVI to obtain support without logistical burdens.

Extreme conditions (e.g., significant logistical issues, including the absence of commercial flights, inability to communicate with hotels to obtain accommodations, extensive power outages, and

other communications challenges) in the USVI and Puerto Rico prevented the effective deployment of ground-based A-Teams. Instead, virtual A-Teams, who worked from their home office/state, were utilized to support EMAC operations. Virtual A-Teams provided heavily impacted USVI and Puerto Rico with the necessary EMAC coordination support to aid with getting life-saving resources to the islands. Without reliable power and communications, the USVI and Puerto Rico were limited in their ability to communicate requests and receive offers. Additionally, EMAC was a new process for USVI; having a virtual A-Team allowed them to utilize the expertise of A-Team members to understand what types of resources to request and navigate the logistical challenges of transporting and coordinating the hundreds of mobilized response personnel and their equipment. Both the USVI and Puerto Rico expressed profound gratitude to these virtual A-Team members who were able to continue to address critical resource requests, analyze the offers, and provide necessary administrative and logistical support and advice. The virtual A-Teams continued to provide support, even when there was an A-Team representative placed onsite, due to ongoing limited communication connectivity and scarcity of lodging and other infrastructure.

Virtual A-Teams, first utilized in 2012 during Hurricane Sandy, are a relatively new concept. The full potential of virtual A-Teams had not been tested until the 2017 hurricane season. While virtual A-Teams exhibited great success in facilitating the *Request and Offer* process, a critical opportunity exists to improve upon and leverage their capabilities. See section 4.2.2 for further detail on how to improve upon the utilization of virtual A-Teams.

4.1.3 Coordination of EMAC response at the national and regional levels facilitated allocation of assets.

As discussed in Section 2, in a large-scale disaster, there may be the need to coordinate the state EMAC response with FEMA/DHS at FEMA headquarters and/or at FEMA regional offices. During the 2017 hurricane season, activation of the NELT and the RELT ensured that EMAC liaisons were embedded within the NRCC and the RRCC. This enhanced situational awareness and facilitated intergovernmental coordination by assisting with lodging and airlifts; aiding in the completion of appropriate paperwork; and bolstering general coordination. Daily coordination calls with the NCS and NEMA provided national situational awareness to mitigate issues and unify the event coordination. In addition, the daily regional coordination calls between the RELT and Assisting State representatives (e.g., Virginia and Pennsylvania) helped regional partners identify requests that had been filled, coordinate with neighboring states to provide transportation, and collaborate to fulfill requests.

Moreover, deploying regional representatives to impacted areas (e.g., FEMA Region VI from Denton to impacted areas in Texas) allowed for close coordination and communication between

the A-Team and federal assets in the region to ensure efficient and effective response to rising issues.

Communication between the Assisting States and regional task forces enhanced ground truth through the dissemination of up-to-date information on lodging availability and fueling stations along deployment routes.

There is always room for improvement in intergovernmental coordination and communication. Section 3.2.2 provides further details on how to continue to improve EMAC coordination efforts at the national and regional level.

4.1.4 FEMA Region IV emergency support function 8 coalition model enabled better allocation and prioritization of public health and medical resources.

FEMA Region IV unified planning coalition for ESF 8 enables information sharing on individual state resources within the region. The effect of this model on the *Request and Offer* phase is three-fold: (1) it supports the capacity of Assisting States to fill requests for assistance across the region. During the 2017 hurricane season, FEMA Region IV states were able to support many of the large team requests for assistance (e.g., increased number of nurses) by consolidating resources; (2) the coalition fosters the practice of targeting requests for aid starting with neighboring states rather than using national broadcasts, a foundational concept of the EMAC system; and (3) the model promotes the development of more robust MRPs in the *Pre-Event Preparation* phase that accounts for resources throughout the region. These MRPs were utilized throughout the Request and Offer phase to determine regional capabilities and submit offers of assistance during the 2017 hurricane season.

4.1.5 Pre-Planning and the Interstate Emergency Response Support Plan leveraged the use of EMAC.

Texas and Louisiana also implemented their plan to stand up mass care response leveraging legal protections and procedures outlined in EMAC Article 10: Evacuation. These procedures were developed prior to the incident. Louisiana served as a host state and provided mass care and shelter to residents of Texas.

The Interstate Emergency Response Support Plan (IERSP) is an agreement between FEMA Region VI states to provide an immediate response and support capability when requested, in preparation for, during, or after a disaster or catastrophic event. During Hurricane Harvey, the IERSP was implemented to rapidly deploy resources through EMAC into Texas.

The plan serves as a model that demonstrates the importance of states doing the necessary regional analysis of risk, resource needs, and planning. It also successfully demonstrates the

power of EMAC to facilitate rapid integration of resources into the affected state. Other regions should follow a similar planning process and integrate EMAC into plans and procedures.

4.1.6 Technical subject matter experts assisted with the development of more accurate and informative request and offers of assistance.

An overwhelming number of after-action conference participants repeatedly underscored that requests for and offers of assistance, developed and assessed with resource-specific subject matter experts, were more informative, detailed, and more accurately reflected incident needs. For specialized fields such as law enforcement, the inclusion of law enforcement checklists in the REQ-A and Mission Order helped set expectations on law enforcement powers, clarified the capabilities and authorities of deploying law enforcement in the Requesting State, and formalized agreements between Assisting and Requesting States. EMAC coordinators that worked consistently with ESF leads to complete and vet resource requests and offers of assistance were the most effective in carrying out the *Request and Offer* process. Developing strong working relationships with ESF experts prior to a disaster will help when validating resource requests.

See Section 4.2.9 for further detail on issues and recommendations surrounding subject matter experts in the 2017 hurricane season.

4.1.7 Leveraging MRPs helped the Assisting States develop more timely and accurate offers of assistance.

States that had developed MRPs were able to develop offers for assistance faster and more accurately than the Assisting States who did not use MRPs. This was true even when the resource being requested did not match the resources covered in the MRP. Massachusetts, for example, utilized their 300-plus MRPs as a guide for personnel completing offers of assistance. MRPs document the skills, capabilities, equipment, and the cost of various assets. Thus, having MRPs for commonly requested assets greatly reduces the amount of research needed to develop the offer of assistance, often reducing the time required from days to a few hours.

Assisting States' representatives also observed that incorporating personnel with MRP development experience also reduced the time to develop offers. As part of *Pre-Event Preparation*, South Carolina convenes an annual MRP workshop to provide training on the functionality and development of MRPs. Many of South Carolina's ESF partners understand how to create an MRP and were able to apply this knowledge to support the development of offers of assistance.

After-action conference participants acknowledged that using the Mutual Aid Support System (MASS) database and MRP template posted on MASS could also support the development of requests for assistance.

4.1.8 Experienced and cross-trained deployment teams were more self-sufficient and faced fewer difficulties during their deployments.

Teams deployed during the 2017 hurricane season that had previous experience in disaster response and recovery (e.g., search and rescue, medical, public health) were self-sufficient and flexible in responding to requests for assistance. Experienced teams were able to both gather supplies quickly and anticipate additional needed resources that were not included in the original REQ-As. Furthermore, states that previously encouraged multiple credentials among resource providers and cross-training between disciplines generated rapid organization of personnel and made for effective and efficient team deployment.

4.1.9 The annual All-Hazards Coordination Workshop hosted by the Louisiana National Guard provided a valuable opportunity to discuss and identify solutions to critical resource issues.

Prior to the start of the 2017 hurricane season, the Louisiana National Guard hosted their annual All-Hazards Coordination Workshop. The workshop addressed a shift in *pre-event preparation*, highlighting the need for additional partnerships between states not affected by the same hazard and not within the same region, and deconflicting requests for resources from the same Assisting States. This conference encouraged states to proactively seek partnerships outside their region, which were later activated and considered critical to EMAC response during the 2017 hurricane season.

4.1.10 The EOS was easy to use to carry out the request and offer process.

Overall, both Requesting and Assisting States expressed that the EOS was easy to use and facilitated the request and offer process. This was further supported in survey responses; 91 percent of survey respondents stated that they thought, “the EOS was easy and intuitive to use.” Both Texas and Florida noted that the financial report generating feature of EOS was especially useful and an integral part of the system.

See Section 4.2.7 for further detail on issues and recommendations surrounding EOS in the 2017 hurricane season.

4.2 Issues and Recommendations

4.2.1 Lack of full integration of onsite A-Teams and EOC liaisons hindered the ability of personnel to provide the required support.

Onsite A-Teams and EMAC liaisons were not always well integrated into Requesting State EOC operations, the NRCC, and RRCCs, which impacted the teams' ability to perform job duties, function effectively, and facilitate coordination between the Requesting States and Assisting States. Integration issues included onerous security issues related to badging and building access, lack of integration into systems and information technology access, and limited or inadequate workspace—as well as exclusion from coordination calls, decision-making processes, and response discussions.

- ***Recommendation:*** Provide additional training and education to help Member States understand and prepare integration of Assisting State EMAC A-Teams in their response structures.
- ***Recommendation:*** Work with FEMA to streamline the effective integration of EMAC liaisons into federal facilities and ensure adequate workspace.
- ***Recommendation:*** Ensure A-Team training include information on how to operate in challenging environments and communicate with EOC staff to maximize their deployment.
- ***Recommendation:*** Integrate EMAC into local, state, and federal exercises and preparedness activities.

4.2.2 A-Teams were insufficiently staffed to provide the level of support needed.

Initial requests for the type of onsite and virtual A-Teams did not always accurately reflect the extreme nature of the hurricane or incident needs. As a result, A-Teams quickly became overwhelmed as the support needed exceeded team capacity. A-Team deployment represents a significant dedication of time and effort; due to insufficient personnel, the A-Team points of contact were on call for 24-hours. Since most of A-Teams were Type IV they did not include National Guard representatives.

Having a National Guard representative as part of the A-Team would provide the A-Team with knowledge of National Guard systems, terminology, and capabilities. This knowledge would have been useful given the large number of National Guard EMAC missions.

- ***Recommendation:*** States should establish minimum A-Team requirements for large-scale or catastrophic disasters and plan accordingly for space and logistical support.

EMAC guidance recommends to right size the A-Team to the disaster – standing up a Type I team for large-scale disasters.

4.2.3 The scope of A-Team duties included coordinating transportation and lodging for deploying assets, a task that most were untrained to support.

Under the provisions of EMAC, A-Teams that are deployed to Requesting States help identify the type of assistance that may be needed and coordinate the preparation and submission of EMAC REQ-As. However, due to the catastrophic nature of Hurricane Maria, logistical support was not present within the emergency operations centers (EOCs), such as arranging transportation and lodging for deploying assets. A-Teams supporting the USVI and Puerto Rico assumed responsibility for providing logistical support, an activity typically outside the scope of their normal duties. Multiple A-Team representatives expressed that their deployment was akin to acting as a "travel agency." A-Team members stated they were ill-prepared to coordinate these logistical and transportation issues and had to quickly learn on-the-job. The daily coordination calls were very helpful; A-Team members exchanged ideas and solutions to these types of challenges during these calls.

- ***Recommendation:*** Inform A-Teams during training and pre-deployment that, while not part of the conventional A-Team role in EMAC response, large-scale and catastrophic event response may require a level of logistics management to support the affected state and help realize deployment missions.
- ***Recommendation:*** Coordinate with FEMA to establish better mechanisms for EMAC deployed personnel to obtain lodging and transportation resources during mission deployment. Provide for easy transition of these resources between incoming and outgoing personnel.

4.2.4 NEMA should develop virtual and hybrid A-Team training.

While there was resounding positive feedback regarding the use of virtual and hybrid A-Teams, many after-action conference participants noted that working as a virtual A-Team required additional training. Due to their remote location and lack of consistent connectivity with Requesting State points of contact, virtual A-Teams faced additional challenges related to carrying out the *Request and Offer* phase (e.g., obtaining ground-truth, obtaining signatures for REQ-As, communicating offers of assistance, and obtaining mission authorization). Current A-Team training does not include a realistic description of the level of coordination needed between the Requesting State, Assisting State, and virtual A-Team; the intensity of the work; and potential communication and logistical issues in working remotely.

- ***Recommendation:*** Update A-Team training to include virtual team concepts and unique requirements. Consider including video interviews of A-Team members describing their experience to provide a more realistic expectation of what it means to virtually deploy as an A-Team member under different scenarios.

4.2.5 Delays in responding to offers of assistance caused extreme frustration.

Delays in accepting and declining offers of assistance created multiple downstream impacts:

- Impeded the Assisting States from responding to additional requests for assistance as resources were already committed to pending offers;
- Caused frustration among personnel awaiting possible deployment; and
- Deterred resource providers from offering future assistance.

Delays in adjudicating offers were largely attributed to the lack of authorized representatives with signatory authority, insufficient integration of onsite A-Teams into emergency operations, and factors external to the EMAC process (e.g., changing conditions and requirements in the field, financial considerations, and formal authorization by other governmental entities).

- ***Recommendation:*** Work with EMAC Member States to ensure that each state has a minimum of three EMAC ARs as outlined in EMAC guidance. These ARs must be able to coordinate with A-Team members within an appropriate timeframe.
- ***Recommendation:*** Consider establishing time guidelines within the *Request and Offer* process, including submission deadlines on offers of assistance, timelines on mission status updates, time limits on accepting or declining offers, and automatic expiration on offers sent to the Requesting State.
- ***Recommendation:*** Declining offers of assistance as soon as resource requests needs are filled must become routine practice within *Request and Offer* and should be incorporated into all states' EMAC operations procedures.

4.2.6 Verbal agreements[5] should be communicated in a timely manner to support formal execution and smooth mobilization of resources.

Requesting State EMAC Coordinators and A-Teams were not informed about resource agreements between elected officials (e.g., governors) or State Director level-resource decisions, causing difficulties in documenting requests and incorporating resources into the existing logistical arrangements (e.g., transportation for the National Guard).

[5] According to EMAC procedure, verbal agreements are permitted but must be authorized within 30 days of mission deployment; and costs and personnel numbers are finalized during reimbursement.

In a few instances, Requesting States decided to decline offers of assistance they had verbally accepted, once they had an opportunity to vet offers and view associated costs. In one instance, an Assisting State initiated mobilization of a team before receiving information that their missions were canceled.

These examples highlight how important it is for elected officials and decision-makers to understand the EMAC process. Many of the issues identified above could have been resolved if the EMAC Coordinator was notified early about the verbal agreement and could negotiate and coordinate the mobilization of the deploying asset.

- ***Recommendation***: Verbal agreements can only be made between two EMAC ARs. Ensure that EMAC Member States understand that every governor is an EMAC AR. Provide elected officials and decision-makers with additional education about the EMAC process, the role of EMAC Coordinators and the importance of keeping everyone informed on all resource requests, including verbal agreements.
- ***Recommendation***: Conduct training on how to initiate verbal agreements through the EMAC system. EMAC law states that a request and offer made through a verbal agreement can be open for thirty days before all necessary EMAC paperwork must be completed. Prior to deployment, the names of deploying personnel must be entered into EOS.

4.2.7 EMAC Emergency Operations System limitations caused technical difficulties and delays in the request and offer process.

The EOS posed several challenges during the 2017 hurricane season. States experienced several technical issues regarding the system, uploading MRPs that had formulas changed or tabs rearranged caused system-wide slowdowns. Further, the system is not compatible with mobile devices making the offer-inbox difficult to utilize.

The EOS intentionally limits an Assisting States ability to view activity from other states causing frustration from users.

When resource requests are duplicated, the offers of assistance are moved to the new resource request, making it difficult to trace the offers back to the original request.

When offers of assistance are turned down, the individual who made the offer receives an email notifying them the offer was declined; but, the offer is no longer visible in the system so others working on the Assisting State team do not have visibility of the offer being declined.

- ***Recommendation:*** NEMA must identify a methodology such that uploads of altered MRPs do not have a negative impact on the overall system speed.

- ***Recommendation:*** NEMA should consider ways to provide greater situational awareness on the status of request and offers. For example, the ability for Requesting States to identify "offer under consideration," and "interested," would allow Assisting States to better understand the status of their offer and the probability of it being accepted.
- ***Recommendation:*** Create system email notifications when offers have been accepted.
- ***Recommendation:*** Once offer decisions are made, keep that offer in the grid with the status for the Assisting State to see the offer disposition.
- ***Recommendation:*** Create system email notifications when REQ-A sections have been uploaded.

4.2.8 Coordination with the National Guard was challenging.

An overall lack of understanding existed among National Guard personnel regarding how the National Guard integrates into the response through the state emergency management agencies. Clarity was needed in the following areas: (1) authorities for the deployment of National Guard resources; (2) the pre-deployment to staging areas or deployment of resources outside of an EMAC mission; (3) information sharing; (4) the ability of a state to utilize its own National Guard to provide airlift transportation; (5) National Guard duty status, protections, and pay rates; (6) EMAC law and process including reimbursement; (5) triggers for National Guard involvement; and (6) communication between state National Guards without the involvement of the Requesting State.

- ***Recommendation:*** Emphasize and increase coordination between the Requesting State, state-level National Guard, and the National Guard Bureau (NGB) to improve command and control; conduct joint operating training courses to both EMAC and National Guard personnel to clarify National Guard roles and responsibilities within the EMAC system; educate the National Guard on A-Team functions; increase awareness of the National Guard's duty status and Joint Information Exchange Environment (JIEE) operating system; and provide an overall understanding of National Guard policies, procedures, and terminology as they pertain to emergency management and EMAC (e.g., the Essential 10 translated into ESFs). Ensure that courses are led by subject matter experts from both the National Guard and NEMA, as applicable.
- ***Recommendation:*** Qualify A-Team trained personnel within each state's National Guard and advocate for emergency management-specific planners to be embedded within each state's Joint Force Headquarters (JFHQ) to coordinate with the state emergency management agencies.
- ***Recommendation:*** NEMA, states, and the NGB should work together to develop guidance on the implementation of the EMAC process for National Guard resources. This guidance

document should clearly identify how duty status impacts the reimbursement of the missions.

- ***Recommendation:*** NGB and state-level National Guard should not pre-deploy to staging areas without a specific mission order.
- ***Recommendation:*** NEMA should develop an "EMAC – National Guard" fact sheet in coordination with states and the NGB.
- ***Recommendation:*** While the NGB utilizes JIEE for communications with the state National Guard, JIEE plays no formal role in the EMAC process and is not a deployment authority. National Guard A-Team qualified personnel should be integrated into the Requesting State EMAC A-Team to utilize JIEE for the identification of assisting sources under the direction and control of the state emergency management agency.
- ***Recommendation:*** Establish minimum EMAC knowledge requirements for National Guard personnel to deploy on a joint enabling team (JET) to ensure critical NGB Joint Staff, Army National Guard (ARNG) and Air National Guard (ANG) expertise is available at the request of the state to support crisis events and offer solutions of resources that can be requested through EMAC to assist. The Directorate of Military Support for the affected state can request the JET to their state to provide coordinating support of military assets; however, the JET teams must be knowledgeable about the EMAC process and work with the state emergency management agency to ensure effective coordination and implementation under the state's authority.
- ***Recommendation:*** Ensure information sharing of the state National Guard response with the National Guard Coordination Center.
- ***Recommendation:*** Utilize the JIEE to identify potential Assisting States to accelerate the National Guard response through EMAC.

4.2.9 Information in the resource request mission and resource capability descriptions made it difficult for Assisting States to fulfill requests.

Requesting States did not always have a clear understanding of the response capability, resulting in resource requests that were too vague to adequately describe the need, leaving Assisting States challenged to identify qualified staff as well as appropriate quantities and types of equipment to effectively meet response demands.

Requests for assistance were also written to be overly specific in the scope of the mission, resulting in amendments needed upon arrival to the affected state. EMAC deployed personnel are only permitted to complete the mission as stipulated in the REQ-A/Mission Order.

These inaccurate and inadequate descriptions of the mission, resource needs, and site conditions resulted in the deployment of overly qualified personnel and excessive amounts of equipment (e.g., deployment of 500 licensed law enforcement officers with oversized vehicles and ammunition to direct traffic), limited functionality and poor ground utilization of deployed resources (e.g., teams of medical personnel were deployed to overly staffed medical shelters and delays in submitting and approving amendments prevented the timely transition of personnel to shelters in need of support), and inefficient spending on unnecessary or ineffective resources (e.g., deployment of engineering equipment that was not adequate for the local soil).

- ***Recommendation:*** NEMA should expand and emphasize in current training and education efforts how Member States should develop requests that allow for flexibility in the mission purpose *and* emphasize best practices when describing the level of resource capability needed. NIMS resource typing is useful to assist in request development but may limit the types of offers of assistance. Conversely, using NIMS resource typing in the offer of assistance clearly identifies the resource being offered. Requesting States should be prompted to consider the unique aspects of their locale and convey this information to Assisting States through mission-oriented requests (i.e., using mission statements to broadly identify what needs to be accomplished) and clear resource descriptions listed on the REQ-A. Requests should be developed using SMART (specific, measurable, achievable, realistic, and time-based) objectives.
- ***Recommendation:*** State EMAC Coordinators should work closely with counties that require highly technical resources to create detailed resource descriptions prior to disasters to pre-script accurate requests to address resource shortfalls identified through pre-planning. Increased coordination between the local and state level will help eliminate confusion in the capabilities of needed resources and prevent inaccuracies in the number and type of resources required.
- ***Recommendation:*** Identified as a *What Worked Well* in section 4.1.6, incorporate subject matter experts and ESF leads, from both the Requesting and Assisting States, into the development of requests and offers to clarify and discuss details prior to finalization of the REQ-A. Increased communication between subject matter experts will help avoid an over-commitment of resources, minimize costs, and clarity on the necessary skills and equipment needed to complete the mission.
- ***Recommendation:*** Requesting States should allow for flexibility in associated offers to meet the mission and include a clause in requests stating, "We will consider partial or alternate offers." REQ-As should also specify between mandatory and preferred offer requirements with regard to resource capabilities and quantities.
- ***Recommendation:*** Identified as a *What Worked Well* in section 5.1.3, assisting states should utilize pre-deployment teams. These teams can help obtain ground truth prior to

deployment, clarify the scope of and right size the mission, and identify equipment needs prior to full deployment of the asset.

- ***Recommendation:*** NEMA should consider adding a "pre-scripted resource request" ability into the EOS for states to populate from their established menu.

5 Response - Mobilization

After-action analysis on the *Mobilization* phase focused on preparation activities for mission deployment once the REQ-A process was complete. Both Requesting and Assisting State stakeholders emphasized the importance of providing deploying personnel with a pre-deployment briefing and an accurate and comprehensive EMAC Mission Order prior to deployment. The pre-deployment briefing helps to ensure deploying personnel are educated on EMAC; their responsibilities; requirements for tracking mission expenses and maintaining documentation; and the need to keep contact with the home (Assisting State) Emergency Management Agency throughout their deployment.

The following section outlines areas for action identified throughout all breakout group discussions on *Mobilization.* Details from these discussions are organized into "What Worked Well" and "Issues and Recommendations for Improvement."

5.1 What Worked Well

5.1.1 Pre-established communication plans facilitated coordination between deployed assets and the Requesting and Assisting States.

Communication plans developed during mobilization helped to establish and set expectations for maintaining coordination between deployed assets, the Requesting State/receiving jurisdiction, and their home state. Deployed assets that had communication plans during mobilization were able to sustain communication during response—as a reporting rhythm had been instituted that allowed Assisting and Requesting States to track resources during the response. Plans included pre-set call-in times, the use of group texts, vehicle portable radios, and activity logs.

5.1.2 EMAC's operational management plans and procedures helped provide effective mobilization and integration of operational management personnel.

EMAC's operational management plans and procedures were successful in effectively mobilizing personnel and coordinating with the NCS, NEMA, NRCC, RRCCs, as well as EMAC A-Teams upon their arrival in the Requesting States. Leveraging established relationships between states and the FEMA regions enabled rapid mobilization and integration of EMAC Liaisons at the NRCC and RRCC.

5.1.3 *Requesting and Assisting States were empowered to develop and implement creative strategies to support deploying teams for their EMAC missions.*

The 2017 hurricane season presented unique challenges for those deploying. Requesting and Assisting States implemented creative solutions to overcome communications, situational awareness, and logistical challenges. For example, to facilitate communication between deployed teams and local stakeholders, a Requesting State's EMAC Coordinator issued state-owned cell phones pre-programmed with contact information. Resources deploying to Puerto Rico purchased inexpensive translation devices. To support situational awareness, another Assisting State created an "arrival tracker"[6] through a cloud-based web application, which provided information on when, where, and how deployed resources were arriving and promoted greater coordination of lodging and transitions between teams. Overall, EMAC is most successful when staff involved in the process are flexible and problem-solving oriented; the resourcefulness of EMAC personnel and those coordinating deployments, even under the most arduous of conditions, certainly contributed to the achievements of each mission.

See Section 6.1.6 for further detail on deployment tracking in the 2017 hurricane season.

5.1.4 *Pre-deployment and transition teams allowed for smoother mobilization of assets.*

The 2017 hurricane season demonstrated the utility of pre-deployment and transition teams. Pre-deployment teams, typically a small group of two to four individuals, are deployed a few days ahead of the larger groups of resources to obtain better situational awareness, identify points of contact, establish communications, secure lodging, and identify other logistical considerations for incoming personnel. The idea was pulled from the military practice of sending an "advance convoy."

When transition teams were used, they were able to successfully provide situational awareness to incoming personnel and helped Requesting States craft or refine REQ-As to support the next phase of the response operation. The cost for these teams can be reimbursed if included in the REQ-A. During the after-action conference, participants widely touted the use of these teams as a best practice.

[6] NEMA is working to develop and incorporate similar "arrival tracker" software into the EMAC process to facilitate remote coordination and collaboration of deployed assets.

5.1.5 Deploying teams benefited from comprehensive pre-deployment briefings.

The Assisting States' implementation of comprehensive pre-deployment briefings was consistently mentioned as beneficial across all discussion groups. A comprehensive pre-deployment briefing allowed teams to plan for austere conditions and understand operations expectations. It also provided pre-deployed personnel with available situational awareness and assignment information prior to conducting their missions. Deployed personnel stated that these pre-deployment briefings helped them better prepare to carry out EMAC missions. Deployed personnel underscored the need for the briefings to include financial accounting responsibilities and processes, as well as communicating any changes in the mission and any health actions that should be taken prior to deployment (e.g., health screening, fit testing, vaccination records).

A comprehensive pre-deployment briefing includes:

- Identification and review of assignments;
- Severity and nature of changing conditions;
- Health and environmental concerns;
- Safety;
- Cultural considerations;
- Potential language barriers;
- Organizational codes of conduct;
- Personnel accountability requirements;
- Departmental policies, duties, and powers;
- Protocols for injuries;
- Point of contact information;
- Financial rules and expectations; and
- Documentation and reimbursement process.

5.2 Issues and Recommendations

5.2.1 Requesting States struggled with providing timelines for when resources were needed for deployment.

Because of the complex nature of hurricane impacts, Requesting States struggled with identifying exactly when they needed Assisting State resources. This resulted in short lead times for deployment and shifting timelines for mobilization. Some Assisting States were repeatedly asked to stand down after prepping their equipment for deployment. Additionally, requests for assistance were sent out to provide resources within a specified timeframe and then submitted offers went unanswered for days past the requested timeline. Timing is essential to the deployment of resources. One deploying team noted "twelve hours sooner on the road would have made all the difference," since the team was caught in extremely long traffic jams along their deployment route.

- ***Recommendation:*** Requesting States need to be cognizant of external factors (e.g., lack of transportation, travel times along deployment routes), that may hinder the mobilization and deployment of resources when deciding on and accepting offers. Communicating these factors to teams asked to stand down or postpone deployment is critical to preventing frustration among mobilizing assets.
- ***Recommendation:*** Resource requests should be broadcast to the nearest non-impacted states and expand to other regions as needed. Nationwide broadcasts for assistance should be avoided unless under extreme circumstances.
- ***Recommendation:*** Offers of assistance should be adjudicated in a timely manner.
- ***Recommendation:*** States should develop pre-event plans to identify the most commonly needed resources and work with states surrounding them to provide those resources.

5.2.2 Inconsistent communication and inadequate identification of points of contact prohibited effective mobilization and preparation of deploying teams.

Identifying knowledgeable and consistent points of contact, designated to specific missions, is essential to successful mobilization of EMAC deployed personnel. During mobilization, deploying personnel were frequently referred or sent to un-informed points of contact or directed from person to person when requesting information on mission status, logistics, and operations. Consequently, EMAC teams were not properly prepared for the response environment and did not receive adequate guidance on additional items to include in their deployment packing list.

Additionally, challenges related to communication with points of contact during mobilization extended into deployment. See Section 6.1.6 and for further detail on issues and recommendations surrounding points of contact and in-processing of deployed teams during the *Response* phase.

- ***Recommendation:*** Additional points of contact directly connected to the mission and/or receiving entity should be listed on the Mission Order. Increased transparency and communication with points of contact ensure there is shared knowledge of the problem at hand and can improve the preparedness efforts of mobilizing personnel.

5.2.3 Mobilizing teams prepared for deployment without sufficient situational awareness.

It is incumbent on the Requesting State to relay field conditions and provide situational awareness so that the Assisting States can make informed decisions regarding mobilization and preparation of deploying teams. However, due to damaged communications infrastructure and

a lack of on-the-ground contacts, situational awareness was not adequately provided to the Assisting States and their mobilizing teams. As a result, pre-deployment briefings could not sufficiently describe and prepare teams for the full austerity of field conditions, and teams had to search for supplies and/or spend time identifying additional or new lodging and transportation when they arrived.

- ***Recommendation:*** Provide multiple points of contact, with multiple contact methods, to provide situational awareness prior to deployment. (See recommendations above.)
- ***Recommendation:*** Continue leveraging virtual and on-the-ground A-Teams to support communication of situational awareness.
- ***Recommendation:*** Provide accurate descriptions of hazards on the REQ-As and Mission Orders to help the Assisting States prepare deployed teams for conditions.
- ***Recommendation:*** Create a capability in EOS that allows deployed teams to capture and distribute situational awareness for mobilizing and deployed personnel.

6 Response - Deployment

The after-action analysis focused on the actual conduct of response and recovery operations in the field including personnel accountability, information exchange, equipment, cost tracking, financial management, transportation, food, lodging, and safety of personnel throughout their deployment.

The following section outlines areas for action identified throughout all breakout group discussions on *Deployment.* Details from these discussions are organized into two sections: "What Worked Well" and "Issues and Recommendations for Improvement."

6.1 What Worked Well

6.1.1 EMAC was incorporated into regional planning efforts to allow neighboring states to provide mutual aid support with the regulatory protections and reimbursement mechanism of EMAC.

EMAC is often perceived as being utilized only when assets are deployed to the impacted jurisdiction. However, EMAC can be successfully used even when supporting virtually, transferring services, or when assets support response effort from within the home state as was demonstrated by Texas and Louisiana.

Following Hurricane Katrina, Louisiana and Texas created an interstate sheltering plan with an emphasis on Texas sheltering Louisiana residents. During Hurricane Harvey, this plan was reversed and Louisiana opened and managed shelters for Texas residents fleeing wind and storm waters. This plan utilized EMAC Article X and leveraged the law to provide legal authority, protection, and a reimbursement mechanism during the evacuation, care, and repatriation of citizens. Both Texas and Louisiana strongly recommend incorporating the EMAC program into regional planning efforts.

6.1.2 Co-locating EMAC liaisons with response partners helped resolve challenging logistics issues.

The 2017 hurricane season brought many challenges surrounding deployment of teams to the USVI and Puerto Rico due to travel, housing, and transportation logistics issues. FEMA, military, and National Guard transports were used to deploy assets when traditional transportation methods were impossible to employ. The EMAC liaisons in FEMA's NRCC and Region II RRCC proved crucial in coordinating all strategic airlifts and barge movement of resources.

Coordination onsite with FEMA, in areas where FEMA was heavily integrated into response, proved to be a huge asset in resolving challenging logistics issues.

The process to organize transportation of personnel and equipment as well as housing was not well understood. However, EMAC personnel's resourcefulness and just-in-time coordination with response partners provided solutions to deploying critical assets and on-the-ground logistics support necessary in responding to the region's needs. Assisting States and deployed resources were very adaptive – problem-solving and completing additional paperwork to provide assistance where needed amidst information that was frequently changing.

See Section 6.2 for further detail on how logistics coordination for deploying assets may be improved.

6.1.3 Requesting States were empowered to share deployed and donated resources that were no longer needed for their response operation.

Positive working relationships and experience with EMAC enabled the Requesting States to share resources. Texas, suffering from the impact of Hurricane Harvey, shared donated resources obtained through EMAC with states that were affected by Hurricane Irma and Maria. Texas worked with Louisiana to share 1,000 pet cages and thousands of pre-filled sandbags with other affected states, and through EMAC sent 40-50 truckloads of donated water left over from Hurricane Harvey to Florida. Stakeholders stated that one of the central tenets of EMAC is reciprocity. Therefore, it was not a surprise that Texas, while still dealing with the impacts of Hurricane Harvey, would reach out to support Florida and Louisiana, who had previously supported Texas during Hurricane Harvey.

6.1.4 Pre-identification of trained NRCC and RRCC liaisons ensured effective coordination with response partners.

As previously identified in *Section 2: Request and Offer*, the NCS effectively supported EMAC operations. Daily coordination calls provided situational awareness, identified issues in near real-time, and offered an opportunity for A-Team members to obtains answers to policy questions.

Pre-identification of NRCC and RRCC liaisons during the *Pre-Event Preparation* phase improved mobilization, integration, and competency during deployment, as well as created enhanced relationships between EMAC and FEMA. The training and experience of these liaisons was also evident in the smooth transition from the NRCC/RRCC (Level 1 of EMAC operations) to NCS (Levels 2 and 3 of EMAC operations) and to demobilization. NEMA is considering pre-assigning NRCC and RRCC liaisons on a scheduled basis to ensure similar success is realized in future deployments.

6.1.5 *The staggered arrival of deployed staff increased continuity in operations.*

For a few missions, the arrival of teams was staggered so that each new arrival was greeted by an individual that had already been supporting similar response efforts. The organization of overlapping shifts provided resources with a greater level of situational awareness prior to deployment, understanding of how they might have to advocate for their team, and an introduction upon arrival of who they reported to and what duties they were assigned. Continuity of operations was further increased by ensuring that one deployed staff member was constant throughout operations; this helped maintain greater oversight of the staggered arrivals and establish personal connections with the Requesting State's points of contact.

6.1.6 *Pre-planned use of smartphone applications and web-based programs allowed for ongoing communication between deployed teams and the Assisting States.*

As referenced as a *What Worked Well* item in section 5.1.1, Assisting States that discussed communication plans and check-in procedures with EMAC teams prior to deployment were better equipped to maintain communication with deployed assets during the response. While in the field, deployed teams had strong command and control which supported internal team accountability. Planned use of the "WhatsApp" software application and satellite phones provided redundant forms of communication. Assisting State Team Leads used the technology to conduct wellness check-ins with deployed personnel and communicate needs to the Assisting States. One state used SharePoint as a central data collection point, which facilitated tracking of records and ICS forms. The use of these technologies enhanced vertical communication and served as an efficient method to collect and push information to deployed teams.

See Section 6.2 for further detail on how vertical information with Assisting States may be improved.

6.1.7 *Deployed personnel helped secure grant opportunities between the Requesting State (territory) and the Federal Government post-deployment.*

Circumstances throughout the 2017 hurricane season prompted deployed teams to perform extraordinary efforts to assist local jurisdictions in recovering from the hurricanes. Deployed personnel from North Carolina on an animal health mission continued to provide subject matter expertise and guidance long after the deployment was complete. North Carolina assisted Puerto Rico with applying for disaster funds to support two major agricultural industries, dairy and pork. The assistance included guidance on a grant application to receive emergency federal assistance from the USDA to support dairy operations (which were previously incapacitated due to fuel

shortages) and to obtain a disaster grant to help the local pork industry receive emergency federal assistance to resume operations. Local Puerto Rico representatives credited the support and grant dollars received with saving these industries. The actions taken by these EMAC individuals increased economic opportunities for local businesses for years to come.

6.2 Issues and Recommendations

6.2.1 NEMA should collect and share situational awareness data, specifically on logistics.

The daily coordination calls serve as the primary mechanism to collect and disseminate information on issues related to EMAC deployments as known by A-Team members. The participants on the call are the NCS, NEMA, NELT, RELTs, and A-Team leads serving in the Requesting States.

There is no event-wide methodology to collect and disseminate information to and from deploying personnel.

For example, information gathered from one team or resource was often lost, requiring each team or resource to conduct its own logistical planning. The initial teams might identify hotels that were operational and had available occupancy, but were not suitable for their purposes; however, there was no mechanism in place to formally capture that information and share it with other resources that could benefit. Both vertical and horizontal communication needs to be improved to provide better situational awareness.

- ***Recommendation:*** Requesting States should utilize staging areas for arriving and departing personnel to share and collect on-the-ground situational awareness and ensure logistical needs are met in the incident area.
- ***Recommendation:*** EOS has the capability to track when a deployed team arrives by sorting data in the arrival date field. NEMA is currently incorporating additional fields of logistical information that can also be tracked as needed. Once the EOS system has been completely updated, EOS training should be made available to all individuals (e.g., a webinar) and specifically to targeted EMAC personnel (e.g., integrated into in-person training) to review changes and help disseminate new system capabilities.
- ***Recommendation:*** As identified as a *Recommendation* for section 3.2.3, NEMA should create a capability in EOS that allows deployed teams to capture and distribute situational awareness for mobilizing and deploying assets.
- ***Recommendation:*** Enhance and formalize the communication process and data shared between deployed team leaders, Assisting States, and the EMAC A-Team.

6.2.2 Personnel transitions affected coordination of EMAC response.

As described in 4.1.3 and 5.1.2, established relationships with FEMA regions and divisions promote effective operational management of the EMAC process. New personnel at both the state and federal levels were not sufficiently familiar or trained on the EMAC process, which resulted in a lack of understanding of position roles and responsibilities and affected coordination.

- ***Recommendation:*** NEMA and FEMA should identify training and exercise opportunities to provide greater familiarization for FEMA personnel on EMAC processes and procedures, and for EMAC liaisons to have greater familiarization on NRCC and RRCC operations. This training should be ongoing to ensure that coordination is not impacted by the transition of staff.
- ***Recommendation:*** NEMA should develop a training program on EMAC for states beyond the current EMAC A-Team course offering to ensure states understand their obligations to the Compact under the law. NEMA should engage jurisdictions that have not activated EMAC recently or have never used the system. Develop and provide just-in-time training for individuals that are assigned to serve an EMAC role in a disaster.
- ***Recommendation:*** States should maintain a single EMAC Coordinator as the primary point of contact as well as a minimum of three individuals that are fully trained on EMAC processes and procedures. States should notify NEMA of departures or additions to EMAC-trained personnel.
- ***Recommendation:*** States should integrate EMAC into their planning, training, and exercising. This will ensure that states are able to effectively access EMAC and its capabilities when needed.

6.2.3 State personnel were not always provided effective training on EMAC systems, documentation, and personnel accountability requirements.

Deployed teams and supporting state agencies (such as finance and human resources) were not always given a comprehensive training on EMAC processes, specifically training on reimbursement documentation requirements, EMAC tools and systems, and state personnel accountability requirements. As a result, there were a few situations where deploying teams and supporting agencies were not aware of the EMAC tools available to them. As a result, deployed personnel did not always follow required protocols with regards to EMAC documentation and personnel accountability. (See *Section 8: Reimbursement* for more details on the impact of not having the correct EMAC documentation.) Conversely, when deployed teams included personnel who had previously deployed under EMAC, or were very familiar with EMAC protocols,

procedures, and requirements for their states, the deployment was smoother, and the teams had little to no issues.

- ***Recommendation:*** States should develop a comprehensive training on EMAC that includes state requirements for personnel accountability, mobilization briefing, reimbursement documentation, communication and reporting requirements, instructions for response to potential issues that may arise during deployment, guidance on what to pack and take, and other EMAC best practices and tools. Placeholders for situation-specific information should also be included. This training should be updated and delivered to all deploying teams, either virtually or in-person, prior to an EMAC deployment. The training should be supplemented by EMAC eLearning courses, just-in-time training materials, job action sheets, checklists, and quick reference guides that can be utilized pre-event, during mobilization, and throughout the response.
- ***Recommendation:*** EMAC training should also be given to personnel who support EMAC deployments remotely. For example, finance and administration, human resources, and other departments may be called upon to support emergency response personnel deploying to affected states. These representatives play a vital role in the effective deployment, demobilization, and reimbursement of personnel. These agencies should have EMAC procedures that meet state requirements and incorporate standard EMAC protocols and procedures. They should conduct or participate in EMAC planning, training, and exercise opportunities held by the state.
- ***Recommendation:*** State personnel with EMAC responsibilities for reimbursement should take the online eLearning course on the EMAC website that focuses on reimbursement.
- ***Recommendation:*** The EMAC Coordinator of each state should take the lead role in reimbursements and assist finance/administration personnel to ensure EMAC procedures are being followed.
- ***Recommendation:*** States should develop an internal mentor/shadow program for A-Teams and personnel who lack deployment experience in order to promote growth of the overall EMAC cadre.

6.2.4 Transportation to Puerto Rico and the U.S. Virgin Islands was challenging.

The catastrophic damage to air and seaports and limited commercial options made the transportation of teams and their equipment to the islands logistically challenging. Legal issues associated with utilizing National Guard and federal transportation assets increased the complexity of the issue. Some teams waited three weeks to resolve transportation logistics issues for their teams and equipment. Even if transportation to the USVI or Puerto Rico could be arranged, Assisting States' leadership entities were being asked to send emergency response

personnel with no guarantee of transportation back. In one situation, an EMAC-deployed person had a family emergency and had to fly home immediately. Through extensive and arduous coordination on the part of on-site A-Team members and the EMAC Coordinator in the Assisting State, the individual was able to find a flight out within 24 hours. However, the effort to coordinate required both A-Team members and the Assisting State EMAC Coordinator working almost exclusively on this issue, deferring other pressing issues, for approximately six to eight hours.

- ***Recommendation:*** Each deployed team should develop an emergency demobilization plan in coordination with their home state emergency management agency.
- ***Recommendation:*** NEMA, the NGB, and FEMA should establish an OCONUS or regional logistics pre-planning task force to address transportation logistics issues (e.g., suspension of DOT regulations, pre-certification of deployable equipment for air drops, weight restrictions, and documentation).
- ***Recommendation:*** States should work with aviation and maritime industry associations to pre-plan and discuss potential solutions for deployments outside of the continental United States.

6.2.5 Supporting and refueling huge convoys en route to impacted areas was difficult.

Coordinating convoys (e.g., engineering, public works, law enforcement) to deploy to the Requesting States was challenging. Often, these convoys included large numbers of personnel and were delivering massive pieces of equipment. Convoys faced challenges in navigating toll roads and accessing fuel both en route and onsite.

- ***Recommendation:*** Deploying teams should utilize trail teams to conduct pre-planning for interstate re-fueling along major transportation corridors.
- ***Recommendation:*** The Requesting States should allow access to refueling stations where possible.
- ***Recommendation:*** The Requesting States should lift tolls for incoming Assisting State convoys and/or provide the Assisting States with documentation so they can be exempted from tolls.
- ***Recommendation:*** NEMA should work with private and public-sector transportation partners to better understand and improve convoy logistics.

6.2.6 EMAC team members were often competing with federal and private responders for on-site resources such as lodging and rental cars.

States assisting Puerto Rico and USVI reported significant difficulties in securing lodging and rental vehicles for deployed personnel. To compensate for the shortage of lodging options, some states booked stays through Airbnb. Other states sent a small contingent of two to four personnel to secure lodging and other resources for the team prior to the deployment of the full team. In several instances, the EMAC liaison to the NRCC coordinated with FEMA so that EMAC assets could stay at FEMA-contracted lodging. There were a few instances during which EMAC personnel were refused entry and access to FEMA space at the convention center. These individuals were forced to sleep in rental cars/vehicles and their ability to support the response mission was delayed, in one case for more than 24 hours. For the most part, when assets were assigned to stay on the cruise ship, EMAC personnel were given access to accommodations as arranged. The reason the lodging coordination process worked in some instances and not in others is unclear. In discussions with FEMA, they stated that their personnel also faced similar issues getting past security and that FEMA made a concerted effort to abstain from the use of local hotels, which allowed survivors access to these rooms.

- ***Recommendation:*** NEMA should work with FEMA to identify sound logistical coordination processes.
- ***Recommendation:*** States, as part of their emergency planning efforts, should engage in statewide pre-planning to identify lodging and other logistical support for both local and incoming emergency responders.
- ***Recommendation:*** NEMA, FEMA, and the NGB should develop a task force that examines processes and procedures to support EMAC teams' use of federal base camps when traditional lodging resources are exhausted.

6.2.7 Requesting States lacked joint reception, staging, onward movement, and integration (JRSOI) plans to support arriving resources.

The Requesting States were not readily prepared to receive resources. Local leadership was overwhelmed, which led to significant challenges in ensuring adequate logistical/operational support and direction for missions. Upon arrival, deployed personnel received minimal guidance or information about their assignments (e.g., where to go, what to expect, the point-of-contact, supplies, reporting structure). Safety briefings were performed internally rather than by the Requesting States. One state's EMAC team was stranded at the airport because they could not reach their contacts, and no one knew they had arrived.

- ***Recommendation:*** States should develop staging area procedures including capabilities for staging and in-briefing of mutual-aid resources need to be developed and practiced pre-event. Defined points of entry should have designated processing centers to orient deployed personnel on arrival and streamline the onboarding process (e.g., badging, designation of assignments, cultural awareness training, safety briefing). States can utilize the plans on the EMAC website for EMAC staging and mobilization planning.
- ***Recommendation:*** Requesting States logistics and staging areas should carry out tracking procedures to cross-reference deployed resources against resource requests. During tracking, ensure that each arriving team has a dedicated and contingency point of contact and confirmed logistical support.
- ***Recommendation:*** Each deployed team should consider having a staff member assigned to manage logistics for the team.
- ***Recommendation:*** States should consider requesting EMAC A-Teams and EOC support teams to deploy pre-landfall to help ensure they are well positioned to receive incoming resources.
- ***Recommendation:*** NEMA should provide additional training and education to State EOC staff to help prepare for and manage deployed personnel and their integration into the response structure. That training should include guidance to pre-identify typical resources needed for common hazards and threats and who they will request resources from prior to a disaster.
- ***Recommendation:*** Requesting States should provide accurate details to the EMAC A-Team for inclusion in the request and Mission Order on logistical resources available. Include specific details on the location of lodging, reservation confirmation numbers, and hotel phone numbers.
- ***Recommendation:*** The Requesting States should more clearly identify the specific location assignments on the Mission Order for staging areas and provide full and complete information in the request that can provide guidance for deploying personnel

6.2.8 Deployed personnel faced licensing and reciprocity challenges that prevented or delayed them in supporting the response mission.

A few deployed personnel faced licensing and reciprocity issues. Teams were prevented or delayed in the execution of their mission (e.g., by environmental health teams conducting health inspections). Local organizations were not familiar with EMAC law and did not understand EMAC is a state law that supersedes local licensing board certification requirements. EMAC legislation solves the problems of liability and responsibilities of cost and allows for credentials, licenses, and certifications to be honored across state lines

- ***Recommendation:*** States should educate the licensing authorities in their state on EMAC law and include this concept as part of their pre-deployment briefings.
- ***Recommendation:*** As a Requesting State, Member States should create a process to ensure credentialing of all EMAC personnel upon arrival. This practice should be incorporated into any established in-processing or check-in procedures conducted by the Requesting State. (See *Issue and Recommendation* 6.2.7)

6.2.9 Deployed personnel were denied access to secured locations due to a lack of credentials.

Deployed personnel were unable to access areas that were secured for response personnel only. This caused deployed teams to wait, sometimes several hours, before an appropriately authorized point of contact could be found and gave approval for the individual to access the location.

- ***Recommendation:*** States should educate on the use and function of the EMAC Mission Order Authorization Form (Mission Order) and personnel should take a copy of the Mission Order with them as a printed document or on their mobile device.

6.2.10 Mission assignments did not match the REQ-A.

Deployed Resources were often asked to perform tasks that were not specified on the REQ-A. This often occurred when the REQ-A was written with too much specificity with regard to location and response actions. Performing work outside of the REQ-A may nullify the protections, such as worker's compensation, covered through EMAC.

- ***Recommendation:*** Requesting States should provide a detailed and comprehensive scope of work that covers all potential tasks and activities that deployed assets may assist with while deployed. A balance of specificity and detail will minimize the number of amendments needed and allow for flexibility to meet response needs.
- ***Recommendation:*** NEMA should ensure that EMAC training, at all levels, outlines requirements for occasions when REQ-As must be amended, and the necessity to communicate changes in missions prior to carrying out activities.

6.2.11 Requesting States and deployed personnel used different systems for collecting and managing information.

To help ensure effective deployments, it is critical that the Requesting States consider all aspects of integration of deployed personnel into their local response. This includes integration into command and control structures, communication systems, as well as local data collection

technology. Lack of access to Requesting State information collection systems led to the development of secondary databases and resulted in multiple systems being used to capture and store mission-related data. This issue increases the likelihood of discrepancies in the data captured and incompleteness of information desired by local response.

- ***Recommendation:*** Requesting States should provide deployed personnel with guest access to Requesting State technology systems upon their arrival and provide just-in-time training on systems. If access cannot be granted, utilize common/shared technology systems to capture mission-related data (e.g., SharePoint, secure data sharing system).

6.2.12 Virtual EMAC Personnel encountered challenges with managing competing demands between normal job responsibilities and deployment.

EMAC personnel, especially those providing virtual support (from home offices), were often expected to maintain their normal duties and reporting procedures while supporting the mission. These individuals struggled to support both tasks. In a few instances, an individual had to break away from the important EMAC mission to support day-to-day tasks and/or other personnel were brought in to backfill when it was made clear that both jobs could not be done. By not properly assigning and allocating sufficient resources, there were inefficiencies, delays, and needless stress added to an already challenging situation.

- ***Recommendation:*** Assisting States' EMAC Coordinators should send a notification to the supervisors of deployed personnel explaining the expectations of deployment and the constraints/limitations that will be placed on performing daily work.

7 Response - Demobilization

The *Demobilization* after-action analysis focused on all issues identified while resources were preparing to return, en route, and immediately upon arrival to their home state. The discussion covered logistical considerations and strategies or plans for facilitating more organized transitions during the response.

The following section outlines areas for action identified throughout all breakout group discussions on *Demobilization.* Details from these discussions are organized into "What Worked Well" and "Issues and Recommendations for Improvement."

7.1 What Worked Well

7.1.1 Demobilization plans and procedures developed by Assisting and Requesting States helped facilitate successful transitions of resources.

Deployed personnel that utilized demobilization plans and procedures, whether pre-established or developed ad-hoc, resulted in a more organized and streamlined process for transitioning resources and returning home. Teams that demobilized with a plan in place also allowed for a smoother transition between responding teams—helping to minimize confusion in the transfer of command for the operation and providing clear communication of any unmet needs or issues. States that carried out demobilization plans were also better equipped to provide guidance on the financial aspects of transferring equipment and resources to the Requesting State.

See sections 5.1.3 and 6.1.5 for further detail on how continuity of operations during demobilization may be improved.

7.1.2 Deployed personnel created demobilization briefing documents to convey pertinent information to incoming teams.

Deployed personnel consolidated need-to-know information as a reference for successors through memos, debriefs, and notes. Critical information included lists of key stakeholders and their functions, updates on points of contact in the Mission Order, action items, accomplishments, challenges, and maps to indicate where previous personnel had been deployed. Additionally, during the final days of deployment, deployed and incoming personnel participated in remote coordination calls to help prepare teams for their mission. Planning for the transfer of information provided incoming personnel with situational awareness upon arrival; in some instances, the information was then shared with Requesting States to inform situation reports. Many EMAC responders highlighted how grateful and beneficial this written

documentation and calls were in helping them be better prepared and to quickly get up to speed with what emergency response actions were needed.

7.1.3 Assisting States leveraged partnerships with the private sector to help demobilize deployed personnel.

As described in the *Mobilization* and *Deployment* sections, Assisting States faced challenges in securing resources via public sector channels to support travel logistics for demobilizing personnel. Consequently, states leveraged partnerships with private sector entities (e.g., JetBlue Airways, Southwest Airlines) to bring teams home from their missions. Several states reported during discussions that have developed or are currently fostering relationships with the private sector to support response operations and help secure future logistical support. Discussion groups also suggested engaging non-profit organizations, tribal organizations, ESFs, tourism bureaus, and leveraging relationships established through training and exercising to help secure future logistical support.

See sections 6.2.4 to 6.2.7 for further detail on how logistical considerations during demobilization may be improved.

7.2 Issues and Recommendations

7.2.1 An overall lack of continuity of operations existed during demobilization and deployment.

Assisting and Requesting States that failed to implement a demobilization plan for outgoing and incoming teams faced challenges in successfully transitioning resources in and out of the affected state and providing for continuity of operations. Demobilization was particularly difficult for one medical deployment that encountered significant issues in identifying who would assume responsibility for their patients' care. The lack of a formal demobilization plan also led to the lack of information transfer between exiting and incoming teams, resulting in gaps in information necessary to continue response.

- ***Recommendation:*** States should create and implement demobilization procedures for both in-state and mutual aid resources.
- ***Recommendation:*** The NCS should involve incoming A-Teams (including the Requesting State's A-Team, when transitioning EMAC operations back to the Requesting State) on the EMAC Coordination Calls prior to their deployment to ensure a smooth transition between teams.

- ***Recommendation:*** Requesting States should include a requirement in their mission that outgoing assets conduct a transition briefing (e.g., progress report, a status update on tasks) to incoming deployed teams or Requesting State personnel if response activities are being transferred back to the affected state.
- ***Recommendation:*** Implement information sharing platforms, such as generic email addresses for response teams, to ensure continuous access to information for incoming EMAC personnel.

7.2.2 Mission timelines did not adequately account for demobilization.

Mission specified dates identified when resources were supposed to provide services; however, the demobilization instructions did not allow adequate time to break down equipment, pack up supplies, and ensure continuity of operations. This led to chaotic and stressful demobilization. Often teams were very rushed trying to finalize mission response activities and pack equipment simultaneously leaving no time for transition or exit briefings.

- ***Recommendation:*** States should ensure teams are provided adequate time for breakdown, packaging, transportation of equipment (e.g., vehicles), and travel arrangements as part of demobilization planning.
- ***Recommendation:*** As identified in *What Worked Well* section 5.1.3, states should include transition, or demobilization teams, in the mission.

7.2.3 EMAC lacks a formal process to provide immediate post-deployment feedback.

Deployed personnel do not have an immediate outlet to provide post-deployment feedback and lessons learned for Requesting States, Assisting States, and NEMA. There is not a clear mechanism where deployed personnel can share immediate lessons learned with NEMA during the response.

While the EMAC 2017 Hurricane Season After-Action Conference provided a forum for discussing what worked well and issues and recommendations during EMAC response, not all deployed personnel had the opportunity to share their experiences.

> ***Recommendation:*** Assisting States should collect and provide immediate feedback to NEMA as part of their demobilization briefing. Alternatively, Assisting States could disseminate a post-deployment survey to solicit feedback and identify where reinforcement training may be needed.

Recommendation: NEMA should discuss conducting outreach directly to deployed personnel to collect lessons learned and feedback on concerns or issues they encountered throughout all phases of their EMAC response.

8 Reimbursement

The *Reimbursement* after-action analysis focused on the overall reimbursement process, policies, systems, and documentation requirements. Because deployed personnel, resource providers, and Assisting and Requesting States all share the responsibility for the timely processing of reimbursements, conference participants were prompted to express their knowledge and understanding of the process, as well as their recent experience working within it.

The following section outlines areas for action identified throughout all breakout group discussions on *Reimbursement.* Details from these discussions are organized into two sections: "What Worked Well" and "Issues and Recommendations for Improvement."

8.1 What Worked Well

8.1.1 Utilization of hand receipts allowed personnel to ensure adequate documentation.

Due to hurricane impacts on the power infrastructure in Puerto Rico and the USVI, deployed personnel were unable to obtain electronic and printed receipts for goods and services procured while deployed. Deployed teams who had the foresight to bring blank receipt pads were able to get local vendors to fill out the receipt and thus obtain appropriate documentation to submit as part of their reimbursement package.

8.1.2 Member states developed internal strategies to reduce administrative workload.

Assisting States that established the expectation that deployed personnel should provide copies of their receipts by scanning and emailing copies throughout their deployment had a much easier time of creating and finalizing their reimbursement packages. These expectations were discussed during mobilization and reinforced during demobilization as teams carried out transition processes. The states that utilized this system were able to proactively manage the administrative documentation requirements and complete and submit the reimbursement packages in a timely manner.

One state deployed support personnel as part of the mission to provide administrative support (e.g., an intern) who was able to copy, scan, and upload reimbursement documentation and track expenses throughout the mission.

8.1.3 Offering advanced reimbursement upon receipt of reimbursement packages helped alleviate the financial burden on local jurisdictions, agencies, and resource providers.

To alleviate the financial burden on the Assisting States, Texas has developed a reimbursement model wherein the state offers an advancement of 75 percent of the reimbursement costs when the Assisting States submit their reimbursement packages. This model was utilized for approximately half of the missions. In New Jersey, the state utilized a fund to reimburse their resource providers immediately, alleviating the financial burden on the providers while the state waited for full reimbursement of funds.

8.2 Issues and Recommendations

8.2.1 Finance personnel are not engaged early enough in the EMAC process.

Achieving a streamlined reimbursement process requires significant engagement of the finance department during all phases of the EMAC process, to ensure that (1) documentation is sent to appropriate EMAC personnel; (2) state financial policies are communicated properly and have been agreed upon; and (3) documentation of resources follows both Assisting and Requesting State requirements and EMAC guidelines. As illustrated in subsequent issues of this section, *not* integrating finance personnel early in the EMAC process resulted in insufficient documentation that required personnel to redo and resubmit; potential loss of valid reimbursement cost due to poor documentation and delayed submission of reimbursement packages; and over-requirements of documentation.

- ***Recommendation:*** States should include the finance department earlier in the EMAC process (i.e., during Pre-Event Preparation) to ensure personnel involved in processing reimbursements understand EMAC reimbursement requirements and are able to develop supporting state fiscal policies and procedures to ensure efficient compilation of reimbursement packages. The finance department should also be included in EMAC training and exercises.
- ***Recommendation:*** States should encourage all finance/administration personnel to take the online EMAC eLearning course on reimbursement. Contractors that are hired by the state to review EMAC reimbursement documentation should also be required to take the eLearning course prior to processing EMAC reimbursements.
- ***Recommendation:*** The state EMAC Coordinator should take the lead on EMAC reimbursements and work with the state finance/administration personnel to ensure EMAC reimbursement procedures and documentation requirements are being followed.

8.2.2 *Engaging personnel to collect reimbursement materials and documentation to carry out the reimbursement process was challenging.*

Both Assisting and Requesting States encountered difficulties and delays in directing resource providers and vendors to complete and submit necessary documentation to carry out the reimbursement process. Requesting States did not provide their reimbursement package documentation requirements to the Assisting States prior to deployments; thus, deployed personnel were unaware of the type of documentation to collect and submit. In some cases, deployed personnel did not follow their own state's standard documentation requirements because they were not well trained prior to deployment.

- ***Recommendation:*** States should develop standardized EMAC reimbursement procedures and train deploying personnel on these procedures as part of the standard pre-deployment briefing.
- ***Recommendation:*** NEMA should work with states toward the standardization of forms and processes to streamline the EMAC reimbursement process and develop procedures on how states recoup federal funding through Public Assistance.
- ***Recommendation:*** Requesting States should provide their reimbursement package documentation requirements to the Assisting States as part of the REQ-A process prior to deployment. Assisting States should alternatively request this information from the Requesting State prior to deployment.

8.2.3 *The administrative process associated with resource reimbursement, as well as varied reimbursement standards across Requesting States, caused delays in processing and receiving reimbursements.*

Assisting States and deployed personnel stated that the administrative process associated with resource reimbursement caused bottlenecks in carrying out the reimbursement process. Documentation submitted for resource reimbursement was cumbersome, time-consuming, and caused confusion. Assisting States received multiple follow-up requests for additional documentation and information. Assisting States that conducted pre-event presentations on the EMAC process reported focusing the majority of their time on clarifying reimbursement protocols.

Currently, every Member State has its own financial reporting processes. Assisting States commented that Requesting States incorporated non-traditional reimbursement requirements into the EMAC process that they were not prepared to respond to, as they did not have required information readily available. These requirements were passed through from the FEMA Public Assistance Program for the state to recoup expenses or were imposed by the Requesting State's

EMAC reimbursement policy. However, after NEMA researched the issues, the additional documentation was found to not be required under FEMA public assistance and was not required by State EMAC Law.

The inclusion of these atypical State reimbursement documentation requirements and the lack of consistent guidance from the FEMA Public Assistance Program created issues with submitting reimbursement request packages in a timely and efficient manner, thus causing delays in processing and receiving reimbursements. As of September 2018, an approximate 50% percent of reimbursements packages had been submitted to the Requesting States.

- ***Recommendation***: States need to increase the number of trained personnel that can process reimbursement requests for both Assisting and Requesting States.
- ***Recommendation:*** FEMA should develop clear and consistent guidance for the processing of EMAC reimbursement packages consistent with EMAC procedures as to not make additional requirements burdensome for the states, resource providers, and deploying personnel.
- ***Recommendation:*** NEMA should work with states to develop standardized reimbursement guidelines and forms across EMAC Member States that can be used as the foundation for the reimbursement process.
- ***Recommendation:*** Member States should develop and/or review their EMAC reimbursement guidelines and their state's EMAC law requirements to ensure the policies are necessary and do not add unwarranted requirements on Assisting States. If states must deviate from the standard reimbursement requirements, they should communicate any non-traditional reimbursement requirements prior to deployment. If a state anticipates altering reimbursement guidelines, it should be stated at the time of the resource request. At a minimum, Assisting States need to understand these requirements prior to mobilization to reinforce any procedures to deploying personnel.

8.2.4 Assisting States lacked awareness of a Requesting State's allowable expenses.

Assisting States did not fully understand allowable expenses of a Requesting State and/or made assumptions on allowable costs and did not fully itemize expenses in the REQ-A. For example, Assisting States did not realize that the Requesting State disallowed time spent in staging areas while some states allow these expenses. There was also significant confusion about reimbursement costs surrounding the use of heavy equipment.

- ***Recommendation:*** As outlined above, NEMA should explore the development of standardized reimbursement policies across EMAC Member States and include areas to specific information that can be utilized to consider an offer such as resources are paid

while in staging areas. Member states need to have consistent policies as to what can and cannot be reimbursed.

8.2.5 Changes in federal disaster assistance policy and doctrine have greatly delayed the efficient reimbursement of EMAC missions.

Federal disaster assistance programs provide federal financial assistance to state and local governments impacted by a natural disaster. States rely upon this funding to recover from natural disasters. During the 2017 hurricane season, many states were told the documentation requirements to satisfy audit requirements specific to state reimbursement requests for EMAC expenses through the FEMA Public Assistance program had changed. This change in documentation requirements resulted in the Requesting States asking for more documentation from Assisting States, who in turn must ask for additional documentation from deployed personnel who may or may not have the required documentation because it was not specified as required during the deployment. NEMA's discussions with FEMA indicates the documentation requirements have not changed for EMAC missions.

The process changes and the confusion created has significantly delayed EMAC reimbursements for the 2017 hurricane season and has likely impacted the ability of states to support the 2018 hurricane season. Assisting States that supported the 2017 hurricane season are running large financial budget deficits due to not being reimbursed, impacting a team's ability to respond to 2018 disaster requests for assistance.

- ***Recommendation:*** NEMA should secure a commitment by FEMA that reimbursement policy and doctrine that is in place at the time of the disaster will be followed for reimbursement of EMAC resources. Further, FEMA needs to develop a policy/procedure for the reimbursement of EMAC missions that can be disseminated across all regions for consistent implementation to recoup expenses from EMAC deployments.

9 Conclusion

The 2017 hurricane season tested every aspect of our Nation's emergency management system. It took our combined capabilities to respond to the needs of survivors. Member States stepped in to help each time when called upon, with many deployed personnel leaving one incident to go directly to the next. The scalability of the EMAC system and Member States' ongoing commitment to support each other were the highlights of the past year.

Stakeholders identified the following key successes and best practices:

- The EMAC system was able to meet increasing demand and need for emergency response resources.
- The NCS maintained operational command and control.
- Coordination of the state EMAC response at the national and regional levels helped to anticipate needs, facilitate the allocation of assets, enhance situational awareness, and support logistics for large missions.
- Virtual A-Teams helped provide critical and timely support in situations where there was near zero power or communications capabilities.
- Using pre-deployment and transition teams helped refine the mission request, supported incoming teams with logistics, and aided with continuity during the transition from one team to the next.

Participants also identified the following recommended areas for improvement:

- Member States should improve integration of EMAC into their emergency plans, risk analyses and exercises programs.
- Greater communication and coordination is required to ensure that requests and offers match the true need.
- Joint operational-level training is critical to ensure that States, the NGB, and State-level National Guard understand how to coordinate and communicate regarding EMAC deployments.
- EMAC partners at all levels should identify and implement processes ways to better support EMAC teams that are deploying with logistical and transportation needs.
- All EMAC stakeholders should have well-documented reimbursement procedures that are communicated prior to deployment.

9.1 Moving Forward

The issues identified in this after-action report are similar to those identified in 2004 and 2005 following Hurricanes Charley, Gaston, Frances, Ivan, Jeanne, Katrina, Rita, and Wilma, and again in 2011 following Hurricane Irene. If we are to effect change, these issues require our collective attention. We must all rekindle our day-to-day support for EMAC with a commitment to implement needed process improvement, to include training and exercising. We must view this after-action report as a call to action, for all of us. Real change will not take place unless collectively, we join together and commit to the needed improvements.

These issues include:

- Timeliness of REQ-A paperwork processing;
- Lack of general knowledge about the EMAC process by non-emergency management disciplines (e.g., emergency support functions, National Guard, etc.);
- Confusion over licensure, workers' compensation, and tort liability provisions;
- Confusion over the in-state process for requesting assistance and the resource management process;
- Lack of knowledge about enabling mechanisms and application of law to local resource providers;
- Insufficient ability of jurisdictions to receive EMAC deployed personnel;
- Lack of a pre-deployment briefing;
- Lack of demobilization planning;
- Reimbursement timing and process issues;
- Lack of EMAC integration in ICS functions; and
- Lack of resource accountability in the field.

Member States should show their commitment on an on-going basis; actions should be taken to build EMAC capabilities under "blue skies," not just when a disaster has occurred. Commit to weaving EMAC into the fabric of your daily operational status by conducting the resource analysis, developing EMAC policies and processes, and implement the training necessary to halt the recurring issues identified above.

Additionally, NEMA must review the current division of EMAC responsibilities to identify ways that NEMA can proactively help Member States overcome the challenges outlined in this AAR by assisting with the development of additional materials and providing a methodology whereby states can improve EMAC implementation and training.

EMAC is a team sport! There is no disputing that a strong EMAC system is a key step on the path to achieving the National Preparedness Goal. However, this report amplifies the needed

improvements and calls on all of us to act. EMAC is the backbone of our nation's response system and a robust EMAC system benefits everyone. We ask that you renew, reengage, and recommit to helping EMAC continue to improve and enhance the execution and implementation of EMAC.

Appendix A: Saffir-Simpson Hurricane Wind Scale

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures. In the western North Pacific, the term "super typhoon" is used for tropical cyclones with sustained winds exceeding 150 mph.

Figure 18: Saffir-Simpson Hurricane Scale

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74–95 mph 64–82 kt 119–153 km/h	**Very dangerous winds will produce some damage:** Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96–110 mph 83–95 kt 154–177 km/h	**Extremely dangerous winds will cause extensive damage:** Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111–129 mph 96–112 kt 178–208 km/h	**Devastating damage will occur:** Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130–156 mph 113–136 kt 209–251 km/h	**Catastrophic damage will occur:** Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	**Catastrophic damage will occur:** A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

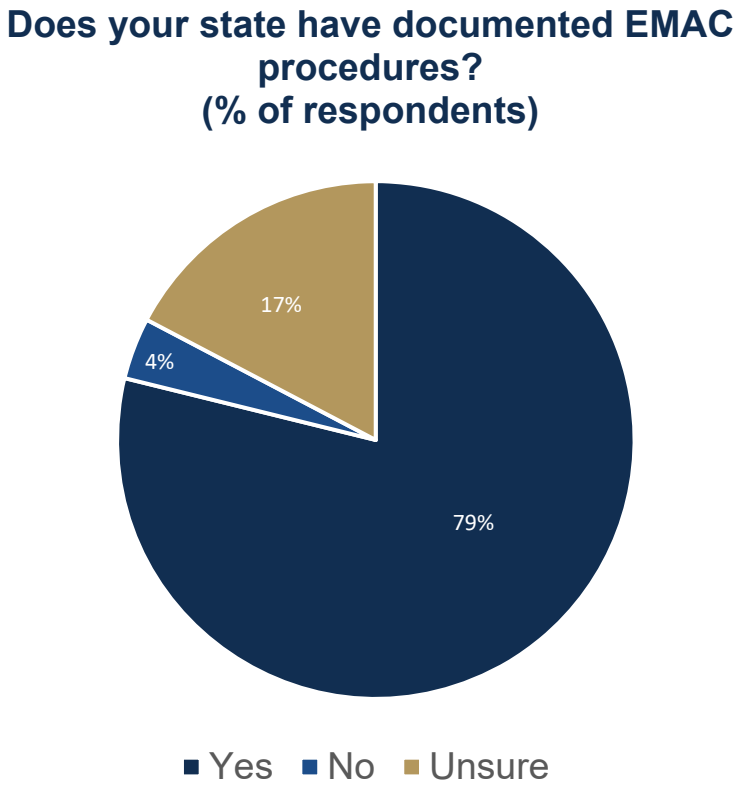
Appendix B – 2017 Hurricane Season Post-Survey Results

In March-April 2018, NEMA distributed a web survey tool to the following six stakeholder groups to gather their perspective on the 2017 hurricane season EMAC response efforts:

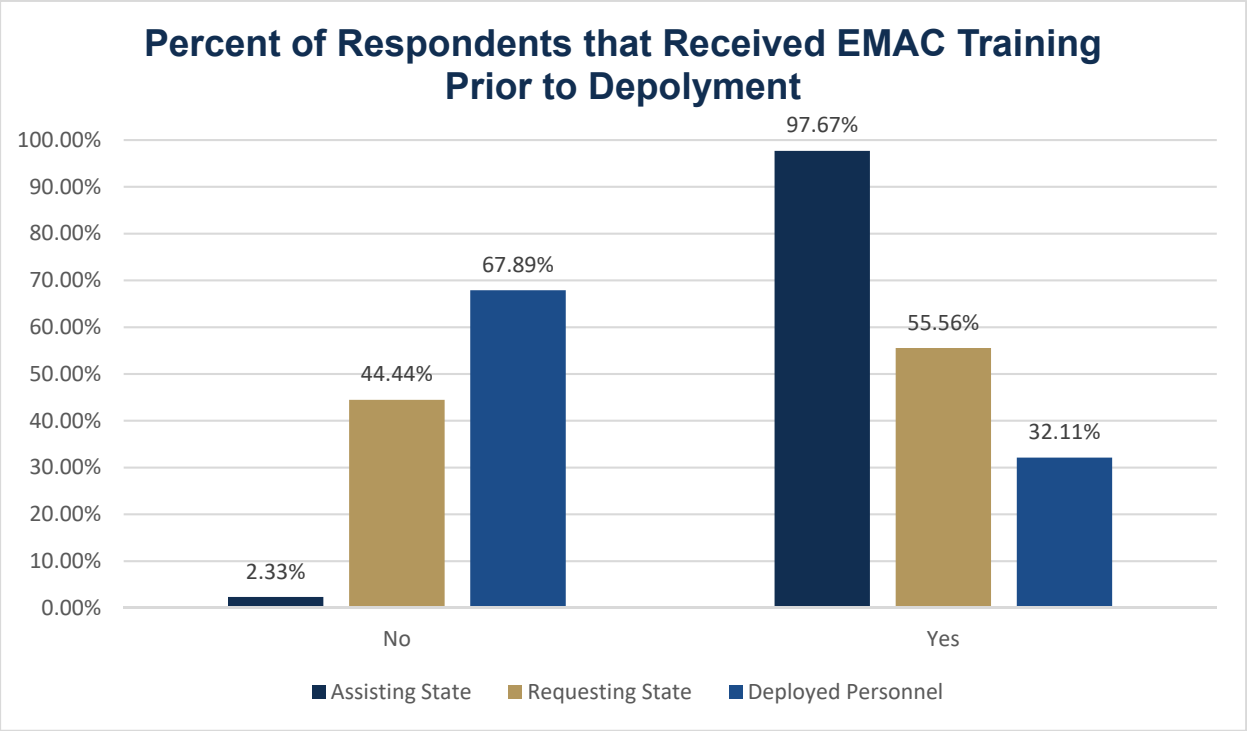
- Requesting States
- Assisting A-Team
- Assisting States
- Deployed Personnel
- NEMA and the National Coordinating State
- National and Regional EMAC Liaison Teams

Results related to key lessons learned are shown below.

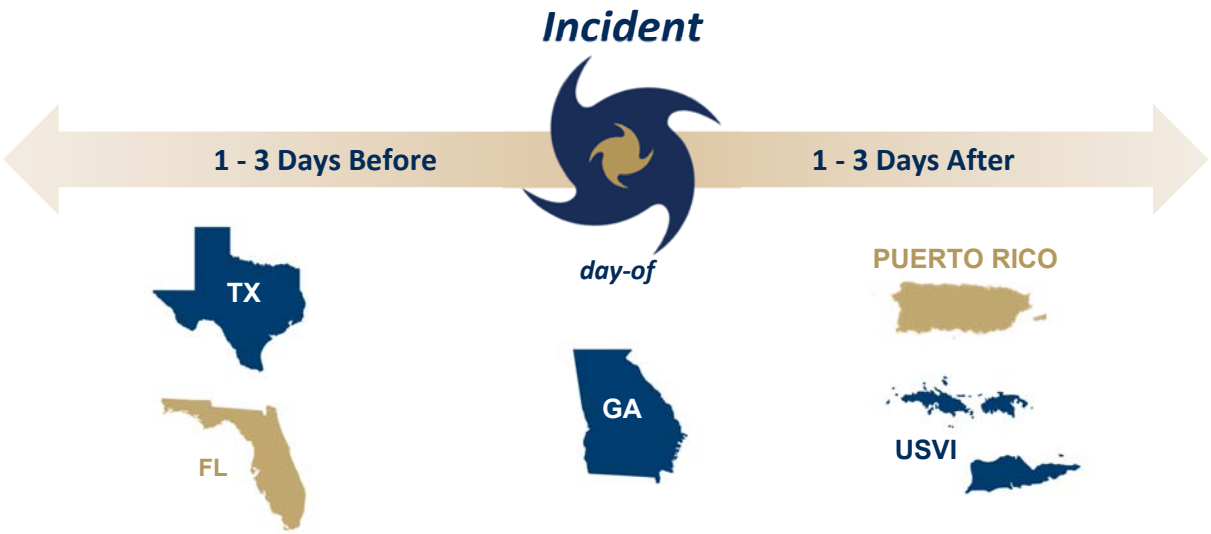
Question: Does your state have documented EMAC procedures?



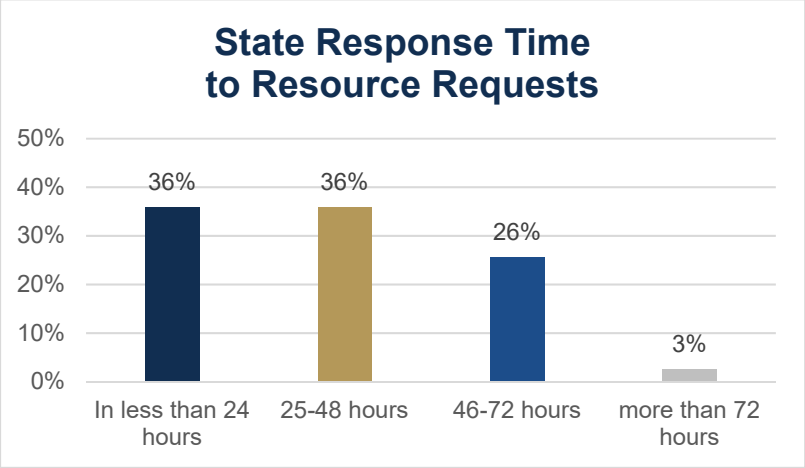
Question: Did you or other members of your agency receive training on EMAC prior to the incident?



Question: How many days prior to or after the onset of the incident did your state first request EMAC assistance?



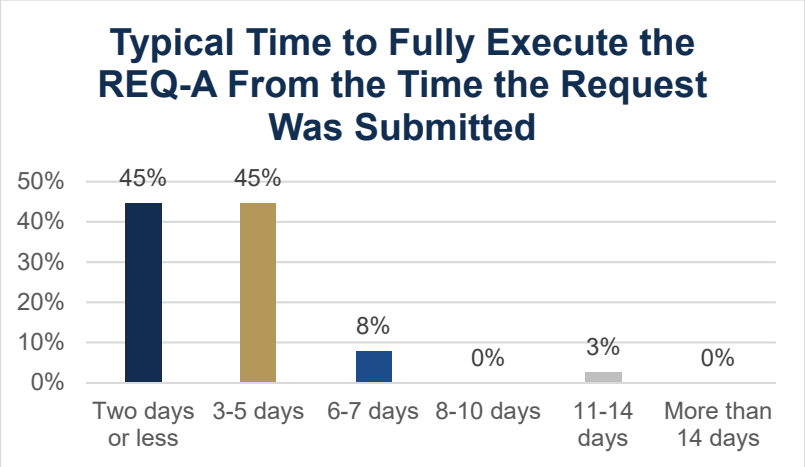
Question: How quickly did your state respond to resource requests?



Reasons the Response to Resource Requests Took Longer than 24 hours

- *Logistical issues associated with identifying availability of resources.*
- *No mission ready package developed. Additional time needed to research the information (most often cost data) required for offer.*
- *Resource request needed more detail to submit offer.*

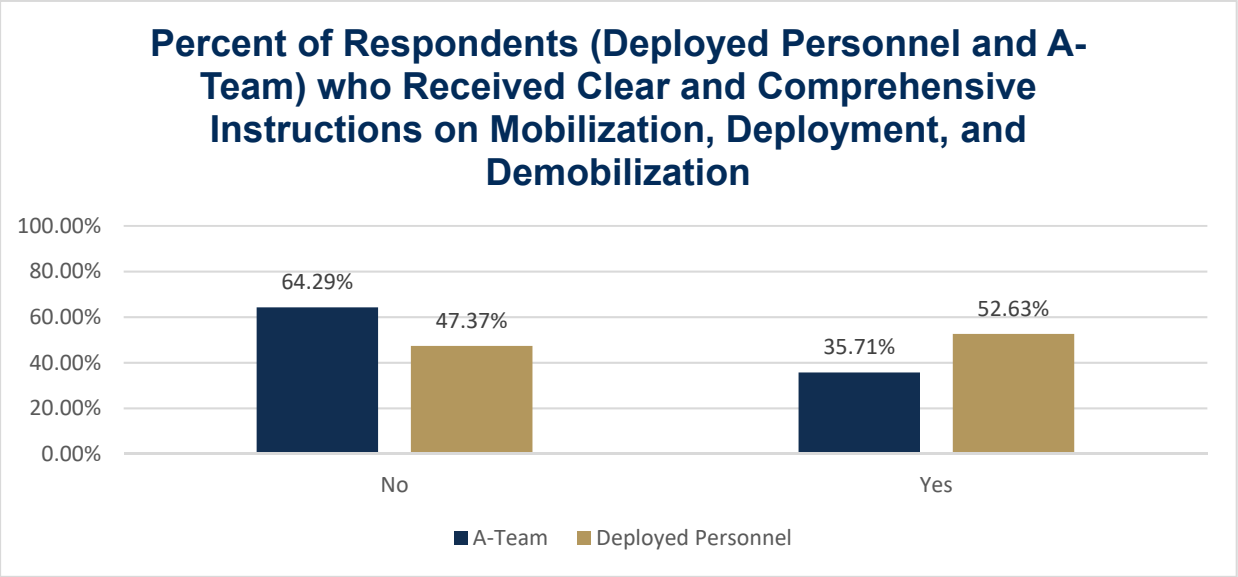
Question: How long did it typically take your agency to fully execute the REQ-A from the time the request was submitted?



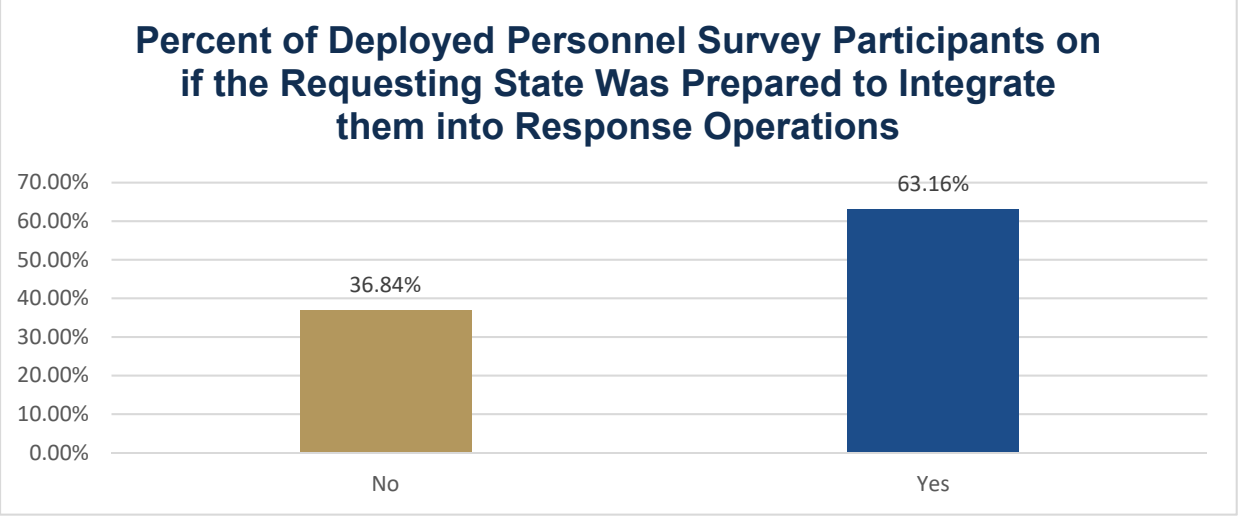
Reasons the Execution of the REQ-A was Delayed

- *The Requesting State was overwhelmed and could not process the REQ-A in a timely manner.*
- *Waiting for approval by an Authorized Representative/individual with signature authority.*
- *Inability to communicate with Requesting State due to communication infrastructure failure (lack of power).*

Question: Did you received clear instructions from the Requesting State on mobilization, deployment, and demobilization?



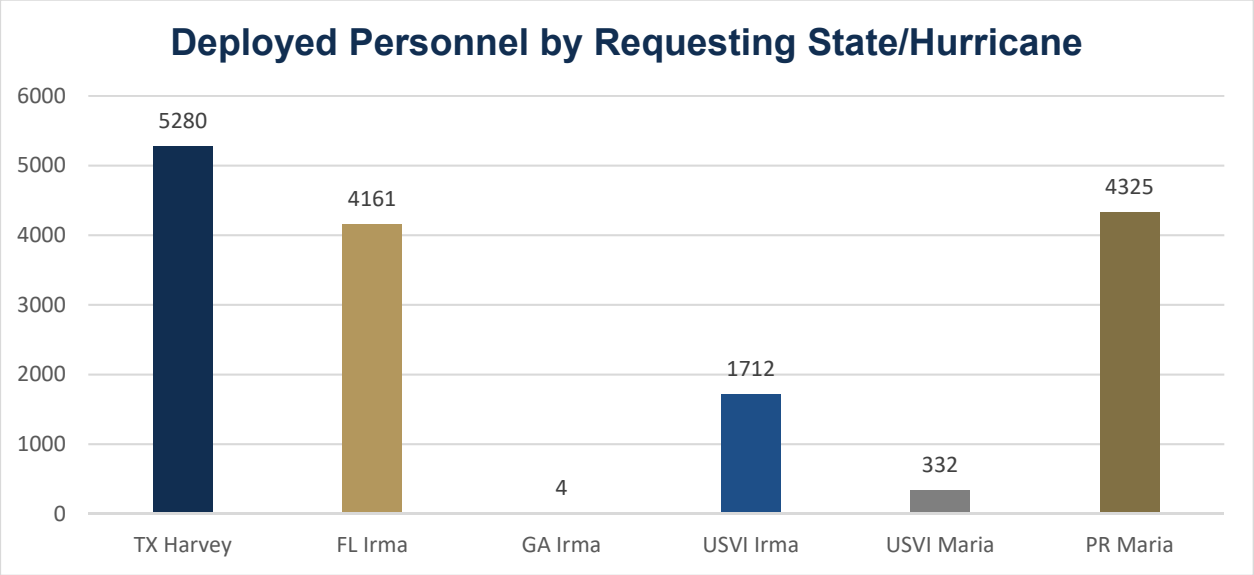
Question: Was the Requesting State prepared to integrate you into the response?

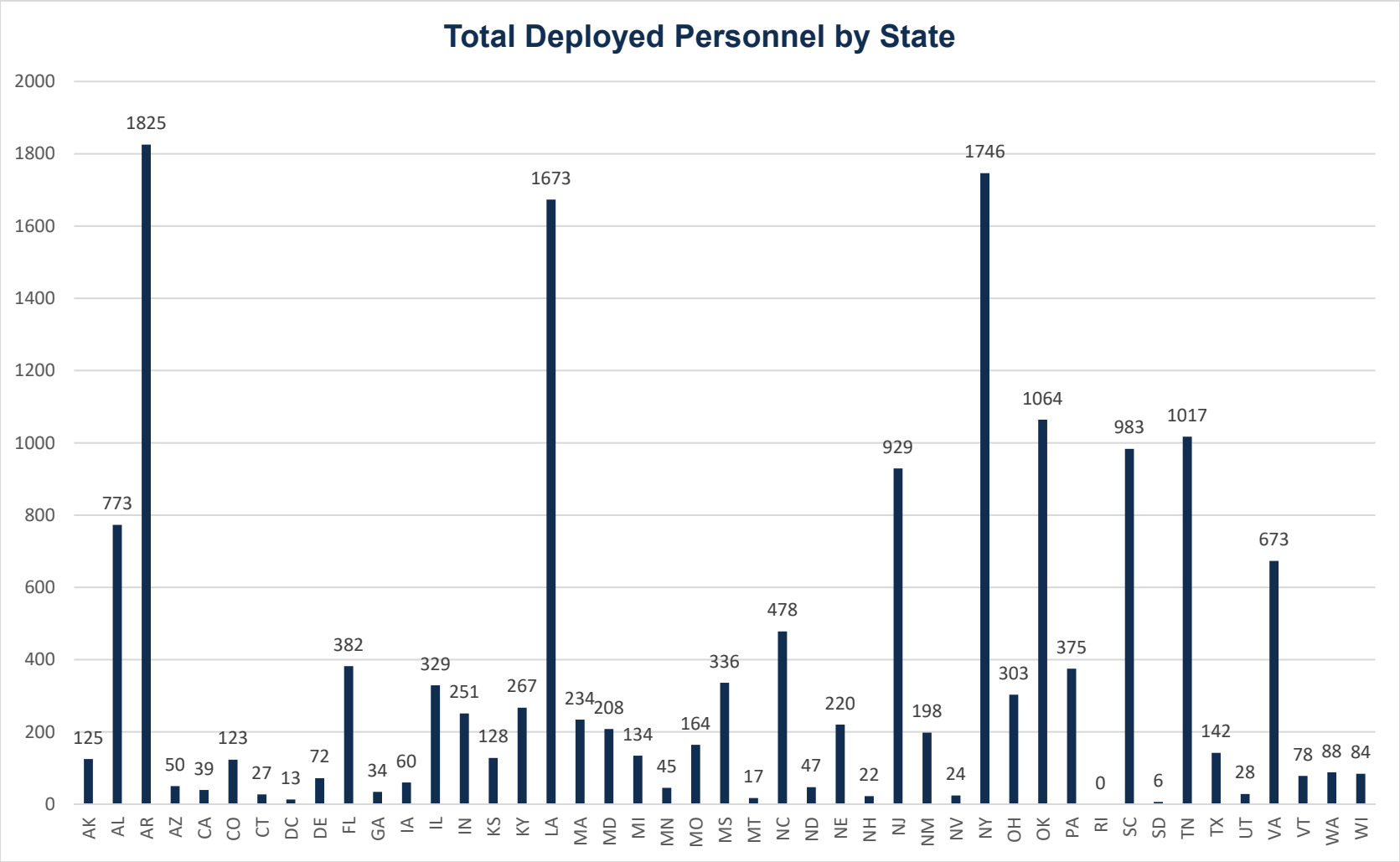


Question: Did you find the EMAC Operating System easy to use?

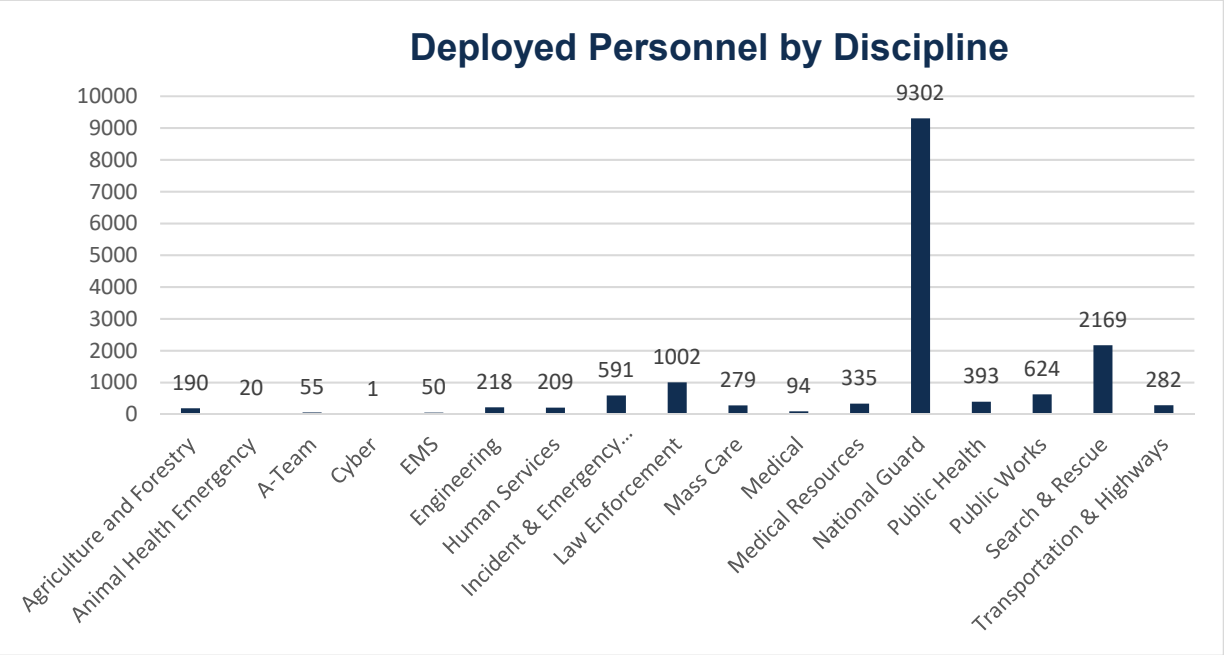
Appendix C: EMAC Utilization Data

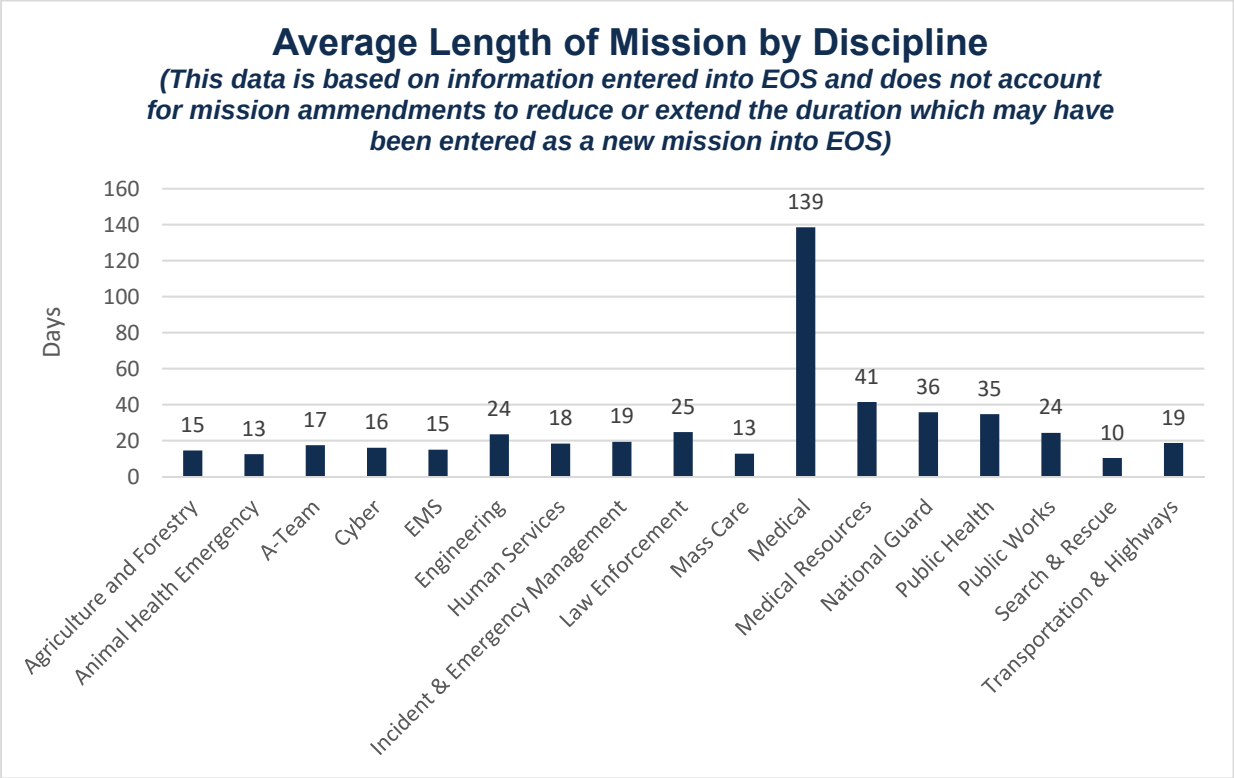
The following data was gathered from the EMAC Operations System.





*Rhode Island provided commodities to support the USVI.


Deployed Personnel by Discipline
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
190
20
55
1
50
218
209
591
1002
279
94
335
9302
393
624
2169
282
Agriculture and Forestry
Animal Health Emergency
A-Team
Cyber
EMS
Engineering
Human Services
Incident & Emergency...
Law Enforcement
Mass Care
Medical
Medical Resources
National Guard
Public Health
Public Works
Search & Rescue
Transportation & Highways


Average Length of Mission by Discipline
(This data is based on information entered into EOS and does not account for mission ammendments to reduce or extend the duration which may have been entered as a new mission into EOS)
Days
160
140
120
100
80
60
40
20
0
15
13
17
16
15
24
18
19
25
13
139
41
36
35
24
10
19
Agriculture and Forestry
Animal Health Emergency
A-Team
Cyber
EMS
Engineering
Human Services
Incident & Emergency Management
Law Enforcement
Mass Care
Medical
Medical Resources
National Guard
Public Health
Public Works
Search & Rescue
Transportation & Highways

EMAC Mission Requests by Discipline

Discipline	TX Harvey	FL Irma	GA Irma	USVI Irma	USVI Maria	PR Maria
Agriculture and Forestry	2	1			1	
Animal Health Emergency	2	2			1	1
A-Team	1	2	1	6	3	15
Cyber	1					
EMS				1		
Engineering					2	3
Human Services	10	14			2	1
Incident & Emergency Management	10	32	2	1	3	17
Law Enforcement	2	1		1		22
Mass Care	1	6			1	1
Medical		10			6	2
National Guard	43	21		21	5	47
Public Health	2	2		2	11	1
Public Works		5			3	7
Search & Rescue	25	24				
Transportation & Highways		5				1

Appendix D: Acronyms

Acronyms	Definitions
AAR	After-Action Report
ANG	Air National Guard
ARNG	Army National Guard
ASTHO	Association for State and Territorial Health Officials
BCEM	Big City Emergency Managers
CUSEC	Central United States Earthquake Consortium
DHS	Department of Homeland Security
DOT	Department of Transportation
EMA	Emergency Management Agency
EMAC	Emergency Management Assistance Compact
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOS	EMAC Operations System
ESF	Emergency Support Function
ETF	EMAC Executive Task Force
FEMA	Federal Emergency Management Agency
FL	Florida
FOIA	Freedom of Information Act
GA	Georgia
GIS	Geographic Information System
ICS	Incident Command System
IERSP	Interstate Emergency Response Support Plan
JET	Joint Enabling Team
JFHQ	Joint Force Headquarters
JIEE	Joint Information Exchange Environment
JRSOI	Joint Reception, Staging, Onward Movement, and Integration
MASS	Mutual Aid Support System
MRP	Mission Ready Package
NCS	National Coordinating State
NELT	National EMAC Liaison Team

Acronyms	Definitions
NEMA	National Emergency Management Agency
NGB	National Guard Bureau
NIMS	National Incident Management System
NRCC	National Response Coordination Center
NY	New York
OCONUS	Outside the Contiguous United States
PR	Puerto Rico
PREMA	Puerto Rico Emergency Management Agency
RELT	Regional EMAC Liaison Team
REQ-A	Request for Assistance
RRCC	Regional Response Coordination Center
SATF	Strategic Assignment Task Force
SMART	Specific, Measurable, Attainable, Realistic and Timely
SOG	Standard Operating Guides
TERT	Telecommunicator Emergency Response Taskforce
TX	Texas
UASI	Urban Area Security Initiative
USDA	United States Department of Agriculture
USVI	United States Virgin Islands
WARN	Water/ Wastewater Agency Response Network