STATEMENT

OF

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U.S. HOUSE OF REPRESENTATIVES

"Using Innovative Technology and Practices to Enhance the Culture of Preparedness"

Submitted
By

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Introduction

Good morning Chairman Donovan, Ranking Member Payne, and members of the subcommittee. My name is Daniel Kaniewski and I am the Deputy Administrator for Resilience at the Federal Emergency Management Agency (FEMA). On behalf of U.S. Department of Homeland Security (DHS) Secretary Nielsen and FEMA Administrator Long, thank you for the opportunity to discuss lessons learned from the 2017 hurricane season, FEMA's new Strategic Plan, and how both of those are driving innovation at FEMA and emergency management at all levels.

2017 Hurricane Season

The 2017 hurricane season was busy for many of us in the emergency management field. I was awaiting Congressional confirmation as I watched Hurricanes Harvey and Irma come ashore and was anxious to join FEMA, worried that I would not be able to contribute to FEMA's efforts during the hurricane season. It turns out the worry was misplaced as I became the FEMA Acting Deputy Administrator the day Maria came ashore in Puerto Rico.

Administrator Long has testified before this Committee and others about the extreme nature of last year's disaster season, so I'd like to take this opportunity to focus on some of the key themes and lessons learned from these experiences.

Key Themes & Lessons Learned
Hurricanes Harvey, Irma, and Maria caused a combined $265 billion in damage and were each, individually, among the top five costliest hurricanes on record. In response, FEMA coordinated large deployments of federal personnel, both before and after the hurricanes' landfalls, to support response and initial recovery efforts across 270,000 square miles. These deployments included more than 17,000 FEMA and federal Surge Capacity Force personnel, and nearly 17,000 personnel from the Department of Defense. FEMA facilitated logistics missions that moved more than $2 billion worth of commodities across several states and territories, using multiple modes of transportation. FEMA Urban Search and Rescue Task Forces, comprised of state and local emergency responders, saved or assisted nearly 9,500 lives across the three hurricanes. In total, the hurricanes and California wildfires affected more than 47 million people—nearly 15 percent of the nation's population. FEMA registered nearly 4.8 million households for assistance.

The unprecedented scale, scope, and impacts of the complex combination of disasters, tested the improved capabilities that were developed and as a result of lessons learned from Hurricanes Katrina and Sandy.

Following the 2017 hurricanes, FEMA thoroughly reviewed preparations for the immediate response to, and initial recovery operations. Some themes that emerged as we identified lessons learned to help the agency, the emergency management community, and the nation in preparation for future events include:

- **Sustained Whole Community Logistics Operations:** The scale and duration of life-saving and sustainment operations showed that FEMA must be ready to support logistics missions that span weeks or months, particularly in remote locations where commodities

and equipment are transported by non-traditional methods. Plans and procedures for resource movement and transportation logistics, including the last mile of delivery, must be effectively coordinated with other government agencies, non-profit organizations, and the private sector supply chain.

- **Federally Supported, State Managed, Locally Executed**: FEMA's ability to provide support in disasters builds on, and is subject to, the capacity of state, local, tribal, and territorial (SLTT) governments. If these governments are well resourced, well trained, and well organized, the effectiveness of FEMA's assistance is enhanced. If the SLTT government's ability to respond--for example, the ability to provide law enforcement, medical support, or commodity distribution—is diminished, then FEMA and its partners must find ways to deliver and support these critical services. FEMA is not traditionally a first responder but had to play a more direct response role following Hurricane Maria.

- **Staffing for Concurrent, Complex Incidents:** When Hurricane Harvey made landfall in Texas, FEMA had staff deployed to 32 presidentially declared disasters across 19 field offices. By the time Maria made landfall, following Harvey and Irma, decisions regarding personnel made in support of one incident had impacts to ongoing disaster operations. FEMA and our federal government partners rapidly surged and deployed personnel to support immediate response operations. FEMA also relied on mission assignments and the Surge Capacity Force to supplement our existing disaster workforce, pulling resources and personnel from across federal government departments and agencies.

- **Survivable and Redundant Communications:** Following Hurricane Maria, Puerto Rico's communications infrastructure was so completely devastated that assessing the needs and the capability of Puerto Rico and its municipalities proved extremely difficult. FEMA provided satellite phones to each of the 78 municipalities in Puerto Rico to gather information on municipality impacts and critical needs. However, this short term solution had limited success in addressing overall communications challenges. The private sector played a key role in restoring communications, including cell towers and allowing open roaming services, and is a critical partner for restoration of communications.

- **Responding during Long-Term Infrastructure Outages:** Too often, we assume the loss of power, communications, and water infrastructure following disasters will be limited in duration. The condition of critical infrastructure in Puerto Rico and the U.S. Virgin Islands, the logistical difficulties of transporting crews and equipment to the islands, as well as a number of other unique factors, created significant challenges. We need to be prepared for long-term outages of these critical systems, while our SLTT and private sector partners work to mitigate future damages to these vital systems.

- **Land Use Planning:** In Texas, we saw the importance of land use planning and local building codes. New development should be built away from high-hazard areas and existing structures should be relocated to safer areas when possible to minimize impacts from hazards. It's both how we build and where we build that affect local and regional risk. Land use regulations are a vital resilience tool for local governments and FEMA

encourages regional coordination to help make decisions that best reduce risk. Codes and standards are also only as good as the mechanisms in place to enforce them.

- **Disaster Sheltering and Housing:** Providing housing for survivors following the 2017 hurricanes was a challenge, especially when a disaster devastates a community that already had limited affordable housing. Regardless of the readiness of an SLTT government, when dealing with the displacement of tens of thousands of survivors from their homes, there is no easy or one-size-fits-all solution. FEMA has authorities to provide sheltering options including the Transitional Sheltering Assistance (TSA) program that provides assistance to SLTT governments for survivors to stay in hotel rooms, as well as a program that provides for basic and temporary home repairs to make a home safe and habitable while the survivor makes arrangements for more permanent repairs.

  Any sheltering option is, by design, a temporary, short-term solution, designed to be a bridge to middle- and longer-term solutions. We have other programs and authorities that assist with housing, including rental assistance, repair assistance, multi-family lease and repair program, and manufactured housing units. With all of these options, we partner with our SLTT stakeholders to identify the sheltering and housing solutions that make the most sense for each state, each event, each community, and each survivor.

  The State of Texas, for example, is taking a very hands-on approach to managing housing solutions for their residents after Hurricane Harvey. States have a much better familiarity with the needs of their residents, the local laws and ordinances that can impact some of the FEMA housing options, and are better situated to design and administer to the survivors in their communities. Regardless of the tools we are able to provide, however, permanent housing solutions and full recovery needs are best addressed by insurance. FEMA assistance programs are not designed to return a survivor's home to its pre-disaster condition. As we know, though, there are too many people in our nation that are underinsured or not insured at all.

FEMA Strategic Plan

We used many of these lessons to inform the goals in our Strategic Plan, which includes: 1) Building a Culture of Preparedness; 2) Readying the Nation for Catastrophic Disasters; and 3) Reducing Complexity of FEMA Programs.

<u>Build a Culture of Preparedness</u>

First, we need to acknowledge that during a disaster, individuals in the impacted communities are the first responders. We need to empower individuals with lifesaving skills to help speed the response and recovery efforts. Do they know how to shut off their water and gas? Do they know to check on their neighbors? Do they know CPR? We also need to encourage individuals to be financially prepared for disasters.

Another key element to fostering a culture of preparedness is closing the insurance gap, which is the difference between what is currently insured and what is insurable. There is no more important or valuable disaster recovery tool than insurance, and we need to dramatically increase coverage to close the gap. This of course includes our country's National Flood Insurance Program.

As we approach the 2018 hurricane season, it is more important than ever that individuals protect themselves with flood insurance. Flood insurance – whether purchased from the National Flood Insurance Program (NFIP) or through private carriers enables insured survivors to recover more quickly and more fully after flood events. It is one of the best ways for individuals to financially protect themselves from losses caused by floods. Without flood insurance, survivors must recover with loans and very limited federal assistance. For example, in Harris County, Texas following Hurricane Harvey the average Individual Assistance grant was $4,200, in comparison to the average insurance claim payment of $113,000.

Following a series of short-term extensions – and two brief lapses in the program's ability to sell and renew policies – Congress must now reauthorize the NFIP to sell and renew flood insurance policies no later than July 31, 2018.

FEMA continues to emphasize the importance of a multi-year reauthorization to promote stability in the real estate and mortgage markets and enable households and businesses to manage their risks through the purchase and renewal of flood insurance policies.

But it's not just flood insurance. All types of insurance have a role to play in reducing financial risk for individuals, communities, and federal taxpayers. We aim to help transfer risks from individuals and governments to private insurance and reinsurance markets, through public education and innovative programs.

Those who are most vulnerable are also less likely to have insurance—making their disaster recovery even more challenging, and in some cases, nearly impossible. FEMA programs were never intended to supplant homeowners' insurance policies. FEMA's average disaster payment to individuals and households is a few thousand dollars. This is far short of what most homeowners would need to rebuild, yet few individuals understand the limited scope of FEMA's individual assistance programs.

We also need to build more resilient communities to reduce risks to people, property, and taxpayer dollars. Developing resilient communities ahead of an incident reduces loss of life and economic disruption. When communities are impacted, they should focus on rebuilding infrastructure smarter and more resilient to reduce risks of damages, protect taxpayer investments and promote economic stability.

Thus, as some are aptly calling our "moonshot," FEMA aims to quadruple national investment in mitigation by 2022. The National Institute of Building Sciences in the U.S. recently released a study that found, on average, $1 spent on federally funded mitigation grants saves the nation $6 in future disaster costs. This is up from a 2005 study that found that $1 spent on mitigation results in $4 in savings.

Reorganization

As you may surmise, many of these objectives under the Culture of Preparedness Goal are closely related and all aimed at making our nation more resilient. In order to ensure our Agency is aligned with this goal, the Administrator recently announced the formation of a new organization in FEMA called *Resilience.*

The new organization includes the National Preparedness Directorate, Grant Programs Directorate, Federal Insurance and Mitigation Administration and National Continuity Programs. I am proud to lead the new Resilience organization as Deputy Administrator, along with Carlos Castillo, who is our Associate Administrator for Resilience.

Ready the Nation for Catastrophic Disasters

Of course, if we are more resilient as a nation, we can focus more of our efforts on readiness for truly catastrophic disasters. As I mentioned earlier, the 2017 disasters challenged many of our planning assumptions for catastrophic disasters. We can't just continue to plan, train, and exercise for what's easy; we need to prepare for catastrophic events that stress our logistics, supply chain, continuity of operations, communications, and staffing capacities – just to name a few.

FEMA's internal focus will be on ensuring that the Agency is ready for catastrophic disasters. Thus for the 75% of presidentially declared disasters that are under $41 million each year, FEMA is looking for state and local governments to play a more significant role. FEMA will continue to fund recovery for these smaller disasters, but will increasingly rely on the state and local governments to manage their own recovery programs.

FEMA aims to have these smaller disasters be federally supported, state-managed, and locally executed. An example of this is in Texas where the State has stepped forward to run the housing mission there rather than it being a federally led endeavor. This allows the State to administer innovative housing solutions with FEMA support. We are also working on embedding more FEMA staff with our State and Territorial partners to help them with readiness for catastrophic disasters.

Reduce Complexity of FEMA

Finally, FEMA is committed to simplifying our recovery process and making FEMA's programs as clear and easy as possible for survivors to navigate. We can't implement any of these goals and strategies without ensuring they meet the needs of survivors. Throughout the federal government, there are a number of programs intended to offer assistance to survivors. We are working with our partners to streamline and consolidate some of these activities to ensure survivors can better navigate our various programs.

Innovation

The Strategic Plan provides us a framework through which we can develop and create innovative solutions to the challenges we faced – and lessons we learned – during the 2017 disasters.

Streamlining Inspection Process

One of the innovations we implemented real time during the 2017 hurricanes was in line with our third strategic priority, reducing the complexity of FEMA. Thanks to some outside the box thinkers in the field, we were able to streamline some of our processes for disaster survivors. One way FEMA supports local communities post-disaster is by providing damage estimates that can validate damage to a survivor's dwelling, when requested. Information collected during damage estimates often duplicates information collected from other inspections, including those for individual assistance and flood insurance. These overlaps can result in unnecessary process delays and wasted resources.

A mitigation team was working in Austin, Texas, to support Hurricane Harvey and wanted to find a way to streamline the process. The mitigation team then piloted a way to collect and analyze individual assistance and National Flood Insurance Program (NFIP) inspection data to create a "damage portfolio" to triage homes that likely were, or were not, damaged substantially by the disaster. This initial information collection negated the need for a second substantial damage inspection.

Thus far, the pilot has been a huge success:
- It reduced damage inspections by 66 percent and already saved $14 million by reducing inspection costs.
- We inspected 29,000 structures damaged by Hurricane Harvey instead of 80,512.
- We reduced the total project completion time from 123 workdays to 51 workdays.

We are exploring ways to use technology to further streamline the inspection process.

Crowdsourcing

FEMA also leveraged crowdsourcing data from digital volunteer networks to enhance situational awareness during the 2017 disasters. Volunteers crowdsourced information from online sources, including social media and other open datasets, to build curated products and maps. They reviewed satellite imagery creating more comprehensive maps and analyzed aerial imagery to assess damage.

Coordination between FEMA and these volunteers created two-way communication to foster unity of effort. FEMA used crowdsourcing to a greater degree than in previous disasters to augment its traditional methods to gain situational awareness on critical infrastructure. Crowdsourcing also aided the Agency in collecting and analyzing images to determine the extent of the damage in Puerto Rico.

<u>IMMERSED</u>

Consistent with our first strategic goal, we are looking at ways to reduce risk through mitigation efforts. Flooding is the most common and costly natural disaster, which is why it's critical for community leaders to be equipped with the information, tools and skills needed to take mitigation action and build resiliency. To help educate community leaders about the value of being prepared for the worst, FEMA created a virtual reality experience about flooding and resilience called IMMERSED.

Using technology to place users at the center of a flood crisis, IMMERSED allows them to assess damage in a community and see the benefits of mitigation first-hand. By working through simple tasks, users experience a major flood event in a realistic manner. After experiencing IMMERSED, users are encouraged to explore additional information about mitigation actions and are provided details on grants and other available programs to support communities.

<u>Modernizing the HURREVAC Application</u>

For years, the HURREVAC application, a storm tracking and decision support tool of the National Hurricane Program, supported emergency managers as they handled the challenge of developing detailed evacuation plans, preparing staff through training exercises, and evaluating real-time forecasts to determine if evacuations were necessary. FEMA created a working group with state, local, and federal partners to provide input into the next generation of HURREVAC. Working in collaboration with the DHS Science and Technology Directorate, the working group focused on how FEMA could enhance the current HURREVAC capabilities, creating an integrated common operating picture for all levels of government.

A new emergency management hurricane decision-support platform is being developed and will be tested during the 2018 Hurricane Season. This modernized application, called HV-X or HURREVAC-eXtended, will enable emergency managers to make timely and accurate evacuation related decisions.

<u>Flood Apex Program</u>

The Flood Apex program at the DHS Science and Technology Directorate is supporting FEMA in driving new innovation for the flood management community. It was created to bring together new and emerging technologies with the sole purpose of increasing community resilience to flood disasters. Flood Apex provides new decision support tools to FEMA, state and local governments, and other stakeholders throughout the emergency management community.

Flood Apex is developing new lightweight, networked flood sensors through the Small Business Innovation Research program that are cheaper than current solutions and easier to deploy in large numbers. These sensors can be deployed in a variety of locations that experience flooding, not just along rivers. Damages to critical infrastructure, such as roads, bridges, dams and levees, make up a significant portion of the costs from flood disasters.

<u>Future Innovations</u>

We are also exploring the use of Unmanned Aerial Systems (aka drones) for aerial imaging in remote, contaminated, hazardous, or dangerous areas that pose significant risks to aircraft crews or ground personnel; as well as tactical search and rescue or victim recovery operations that require dynamic, near-real-time observation systems.

We're looking to harness innovative solutions to advance our other strategic goals as well. For example, FEMA is using what we call PrepTalks to advance our priority on fostering a culture of preparedness and to spur innovation within the emergency management community. PrepTalks are given by subject-matter experts and thought leaders to spread new ideas, spark conversation, and promote innovative leadership for the issues confronting emergency managers now and over the next 20 years.

Lastly, we recognize that good ideas for innovation can come from a diverse range of sources. Administrator Long hosted "Discovery Change Sessions" to engage stakeholders and inform the Strategic Plan. FEMA received 2,300 comments from these sessions, and we conducted a trend analysis that informed the three goals in our Strategic Plan. Additionally, the Administrator initiated Partner Strategy Sessions, welcoming more than 150 members of the public to share thoughts and reactions to our Strategic Plan. From these Sessions, FEMA received 1,100 ideas for implementing the Strategic Plan. We believe that our Strategic Plan is not only applicable to what we do at FEMA, but can be a blueprint for all levels of emergency management.

FEMA also is empowering its own employees at all levels, and promoting a culture of learning, creativity, and innovation within the Agency through our Innov8 initiative. Innov8 is an Agency-wide collaborative process that allows all FEMA employees, including Reservists and IM COREs, to submit proposals for action aligned with the 2018-2022 FEMA Strategic Plan.

Conclusion

Congress, and this Committee in particular, is a crucial partner in this process. I appreciate the active engagement of this committee as we look for ways to more effectively fulfill our mission.

Thank you for this opportunity to testify before this committee, and I welcome any questions you may have.