Hurricane Irma

After-Action Report/Improvement Plan
September 2017

This After-Action Report/Improvement Plan (AAR/IP) comprehensively examines the Florida State Emergency Response Team's (SERT) response to Hurricane Irma in order to validate strengths and identify areas for improvement. A series of nine post-response meetings were facilitated with emergency response team personnel to collect all necessary information. This AAR/IP includes strengths, areas for improvement and recommended correction actions for the various sections and branches within the SERT. The corrective actions are organized in the Improvement Plan found in Appendix A.

ADMINISTRATIVE HANDLING INSTRUCTIONS

1. The title of this document is Hurricane Irma After-Action Report/Improvement Plan (AAR/IP).

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Hurricane Irma was the most intense hurricane to strike the continental United States since Hurricane Katrina in 2005 and presented tremendous response challenges due its size and track. An estimated 6.5 million residents were ordered to evacuate- the largest evacuation in the Florida history. Throughout the state, at least 93 people died in storm-related incidents and almost 6.7 million homes and businesses experienced power outages. The Florida Keys were heavily impacted, with 25% of buildings destroyed and 65% significantly damaged. Due mainly to the widespread loss of power, cell phone service was also significantly impacted after battery backup power for cell phone towers ran out and backup generators ran out of fuel. Irma also produced heavy rainfall that resulted in extensive flooding across much of the Peninsula.

As can be expected, staffing for an event of this magnitude presented major challenges. The sheer size and track of Hurricane Irma resulted in the largest activation of emergency personnel and resources to date in the State of Florida and put significant stress on the SERT. The State Emergency Operations Center (SEOC) activated for a full month. The SERT, through effective leadership and the outstanding performance of its staff, was able to successfully respond to one of the most destructive storms to ever impact Florida. This was accomplished through the leveraging of strong federal, state, regional and local relationships that have been established and maintained over the years through planning, training and exercises.

Major strengths identified in the response included:

- a strong public-private relationship that fostered an efficient and successful response.
- pre-staging of resources along the coastline for combating beach erosion resulting from the storm.
- Florida National Guard Logistics Planners stationed in the SEOC and SLRC.
- SharePoint use by FEIL/SAIL, ESF 12 Fuels, ESF 12 Power, Logistics and Recovery for various tasks during the response.
- critical deployment of the six state All-Hazards Incident Management Teams (AHIMT) for the first time in Florida. The teams supported missions ranging from basecamp to recovery operations.
- planning for potential I-75 closure was effective as there was excellent coordination among Emergency Services, Plans, Infrastructure and other SERT sections.
- the integration of recovery staff earlier into the response process, which helped collaboratively shape the process.

Throughout the response, a variety of opportunities for improvement were identified and are listed in the Improvement Plan matrix. Opportunities for improvement included:

- the examination of Air Operations deployment to improve effectiveness and efficiency.
- sheltering operations.
- the refinement of resource movement and verification processes.
- staffing and location space for the Air Operations Branch throughout the duration of the response.

- streamlining the process for submitting necessary information for IAPs, SitReps and the ESF 14 rollup.

In the successful response to Hurricane Irma, Florida built upon lessons learned from Hurricanes Hermine and Matthew. Corrective actions learned during these recent storms were successfully implemented and improved the efficiency of response operations to Hurricane Irma. Strengths and Areas for Improvement from the response for Hurricane Irma will be used to further enhance the statewide capabilities but will take time and resources to fully implement. Florida has continued to build upon its fundamentally sound organizational structure in the State Emergency Response Team and the State Emergency Operation Center.

EVENT SUMMARY

Hurricane Irma was an extremely powerful hurricane, which became the second strongest Atlantic hurricane on record with peak winds of 185 mph and caused widespread and catastrophic damage throughout its long lifetime in the northeastern Caribbean and the Florida Keys. It was also the most intense hurricane to strike the continental United States since Katrina in 2005, the first major hurricane to make landfall in Florida since Wilma in the same year, and the first Category 4 hurricane to strike the state since Charley in 2004.

Irma developed from a tropical wave near the western coast of Africa and the Cabo Verde Islands on August 30. Favorable conditions allowed Irma to rapidly intensify into a hurricane the next morning and a Category 3 hurricane by late August 31. This was the fastest time for a tropical storm to reach major hurricane status (30 hours) since 2000. On September 5, Irma became a Category 5 hurricane as it approached the Leeward Islands. On September 6, Irma peaked with 185 mph winds and a minimum pressure of 914 mb, making it the strongest worldwide tropical cyclone in 2017 in terms of wind speed and the second most intense tropical cyclone worldwide in 2017 behind only Hurricane Maria in terms of lowest central pressure. Irma maintained these high winds for 37 hours- the longest globally on record.

Irma made landfall on the northern coast of Cuba on September 8 as a Category 5 hurricane. Although land interaction weakened Irma to a Category 3, the system re-intensified to Category 4 as it crossed the warm waters of the Straits of Florida, before making landfall on Cudjoe Key in Florida with winds of 130 mph at 9:10am EDT on September 10. Irma weakened to Category 3 status prior to another landfall in Florida on Marco Island later that day at 3:35pm EDT with winds of 115 mph. Irma fell to Category 2 intensity shortly thereafter, after being at major hurricane status for over a week. The cyclone weakened to a tropical storm over northern Florida, became a tropical depression near Columbus, Georgia late on September 11, and extratropical over Mississippi on September 12.

Preparations began in Florida on September 4, with the SEOC activating and Governor Rick Scott issuing an Executive Order (EO 17-235) declaring a state of emergency for the entire state. Hurricane Watches were issued by the National Hurricane Center for South Florida at 11am on September 7 and were upgraded to warnings later that night. By September 9, Tropical Storm and Hurricane Warnings were in effect for 64 of Florida's 67 Counties, 57 of which were under Hurricane Warnings. In addition, Storm Surge Warnings were issued for the Florida West Coast south and east of the Ochlockonee River as well as for the entire Florida East Coast due to the expectation of life-threatening storm surge as high as 15 feet.

Widespread preparations and evacuations were ordered for extensive areas of South Florida beginning on September 5 and were extended northward and westward, including the Florida Panhandle, in the following days. Due to the anticipated impacts of Irma to South Florida, the Governor requested a Federal Emergency Declaration. The pre-landfall Emergency Declaration (EM-3385) was granted on September 5. A major disaster declaration (FEMA-DR-4337) was granted on September 10.

In Florida, an estimated 6.5 million residents were ordered to evacuate, the largest in the state's history. Use of the left shoulder as a lane for moving traffic was allowed for portions of Interstate

75 and Interstate 4. It was the first time that the Emergency Shoulder-Use plan, which was introduced at the start of the 2017 hurricane season, was implemented by the state for hurricane evacuations. Throughout the state, almost 700 emergency shelters were opened, which collectively housed about 192,000 people.

Irma had a very large wind field as it travelled along the Florida Peninsula, with tropical storm force winds extending up to 415 miles from the center of the storm. The highest wind gusts recorded in Florida include 142 mph at the Naples Municipal Airport, 120 mph at Big Pine Key, 109 mph at North Perry Airport in Ft. Lauderdale, 99 mph at Miami International Airport and St. Lucie Nuclear Power Plant, 94 mph at Cape Canaveral, 91 mph in Key West, 83 mph at Flagler Beach and 79 mph at Clearwater Beach. Winds of 70-90 mph were observed as far north as Orlando and Jacksonville.

Eighteen tornadoes were confirmed by the National Weather Service in Florida, seven of which occurred in Brevard County. Of these tornadoes, 5 were EF-0 strength (65-85 mph), 10 EF-1 strength (86-110 mph) and 3 EF-2 strength (136-165 mph peak winds).

The impacts of the storm were widespread. An estimated 10-14-foot storm surge occurred at Cudjoe Key. Strong winds and storm surge flooding caused major damage to buildings, trailer parks, boats, roads, the electrical supply, mobile phone coverage, internet access, sanitation, the water supply and the fuel supply throughout the island chain. A 6.5-foot storm surge occurred in Collier County, and in Key West peaked at 3.3 feet. Storm surge inundation of 2-4' occurred along the Southeast Coast of Florida and northern Florida Keys, as well as areas of the Gulf Coast between Ft. Myers and Cedar Key, including Tampa Bay. Storm surge values of 4-8 feet occurred along the northeastern coast of Florida near and north of Cape Canaveral, including along the St. Johns River. This surge and accompanying large waves resulted in additional major and extensive beach erosion in an area still recovering from the effects of Hurricane Matthew in 2016.

Irma also produced heavy rainfall which resulted in extensive flooding across much of the Peninsula. 24 counties received at least 10 inches of rainfall from Irma, with the highest rainfall total of 21.66" occurring in Ft. Pierce (St. Lucie County).

In the days after the hurricane, due to the heavy rainfall, numerous rivers flooded their surrounding land, including residential areas. Major river flooding occurred on the St. Johns River and its associated tributaries, St. Mary's River, Santa Fe River, Black Creek, Ocklawaha River, Withlacoochee River, Anclote River, Hillsborough River, Alafia River, Peace River, Imperial River, and Myakka River. Record flooding occurred along the lower portion of the St. Johns River near Jacksonville as well as the upper portions of the Santa Fe River. Because of the unprecedented flooding, numerous roads were closed and there was the concern for potential impacts to Interstate 75 over the Santa Fe River.

Throughout Florida, at least 93 people died in storm-related incidents and almost 6.7 million homes and businesses were without power. The Florida Keys were heavily impacted, as 25% of buildings were destroyed while 65% were significantly damaged. Due mainly to the widespread loss of power, cell phone service was also significantly impacted after battery backup power for cell phone towers ran out and backup generators ran out of fuel. Total estimated losses in Florida are estimated to exceed $50 billion, with more than 877,000 residential and commercial property insurance claims already exceeding $7.2 billion. Hurricane Irma's path also coincided with some

of Florida's most productive agricultural landscapes, and consequently it caused major losses to all segments of production agriculture with crop losses estimated at over $2 billion.

Table 1: Event Summary (All times are EDT)

Date	Time	Action
9/4/2017	1115	SEOC activated to a Level II
9/4/2017		State of Emergency Declared EO-17-234
9/5/2017	0700	SEOC activated to a Level I
9/5/2017		Conference calls with counties conducted daily at 1115 and 1715
9/5/2017		Emergency Declaration EM-3385 signed
9/10/2017	0910	Hurricane Irma made landfall at Cudjoe Key as a Category 4 hurricane.
9/10/2017		Disaster Declaration DR-4337 signed
9/11/2017	0830	The SEOC deployed an advance team to Camp Blanding
9/11/2017		Hurricane Irma was downgraded to Tropical Storm Irma
9/12/2017		Irma moved out of Florida and watches and warnings ended
9/20/2017		A Joint Field Office established in Orlando
9/21/2018	1800	SEOC returned to a Level II
10/1/2018	1115	Recovery Conference calls with counties conducted at 1115 daily
10/2/2018		SERT Recovery Operations transitioned to the Joint Field Office in Orlando
10/5/2018	0700	SEOC returned to a Level III

COMMAND STAFF

Strengths

The response to Hurricane Irma validated the following strengths:

Strength 1: Coordination between the state resources and the National Guard was helpful and worked exceptionally well.

Strength 2: A strong public-private relationship fostered an efficient and successful response.

Strength 3: Team members were able to resolve unique situations quickly and creatively.

Areas for Improvement

The following areas for improvement were identified:

Area for Improvement 1: Sheltering Operations

Analysis: Sheltering operations need to be improved. Perceived sheltering expectations and responsibilities differed significantly between the state and counties.

Area for Improvement 2: Resource Movement and Verification

Analysis: Resource movement and verification processes need to be refined. While overall resource tracking was successful, there were cases identified where resources were not being properly requested, tracked or verified.

EMERGENCY SERVICES BRANCH

Strengths
The response to Hurricane Irma revealed the following strengths:

Strength 1: Pre-staging of resources along the coastline proved to be a best practice for combating beach erosion from the storms. Due to the impacts of Hurricane Harvey, Federal involvement was willing and quick to assist with this process which helped the state stay focused on other issues that came from the storm knowing the beaches were taken care of.

Strength 2: The process for issuing and closing boil water notices was timely and the notices were updated in an efficient manner. The Florida Department of Environmental Protection and the Florida Department of Health now have a consolidated procedure for handling this process rather than handling them independently. This proved to be a best practice because both agencies were aware and up-to-date on the status of the notices throughout the state.

Strength 3: The creation of a debris management task force early in the activation proved to be a best practice when managing the many resources associated with this task. Additionally, the state requested federal assistance earlier than usual which also served to be an extremely beneficial move in the debris management process. These two actions combined allowed for a proactive approach to debris management rather than being reactive.

Strength 4: An urban search and rescue task force was developed and deployed into heavily affected areas along with State IMTs. The task force developed an SOG that implemented the State IMTs which proved beneficial when identifying the resources and responsibilities of each entity during response periods. Additionally, this identified all the various capabilities of the state which allowed for a robust response.

Areas for Improvement
The following areas for improvement were identified:

Area for Improvement 1: Debris Management Branch Integration

Analysis: The SEOC was able to successfully adapt to the challenges of the operations by creating an ad-hoc Debris Management Branch. The challenges and successes of this branch should be documented for future branch development. Additionally, the roles, responsibilities and how the branch interacts with other SERT functions should be further developed to ensure full integration of the new branch.

FINANCE & ADMINISTRATION SECTION

Strengths
The response to Hurricane Irma revealed the following strengths:

Strength 1: Finance & Administration's performance was an overall improvement from Matthew in 2016. Purchases of large-ticket items such as food and water were arranged prior to the incident; communication between Logistics and Finance & Administration was clearer; and the food provided at the SEOC was superior.

Strength 2: Collaboration with Department of Management Services produced better outcomes in areas such as cleaning the facility and arranging car rentals. Having an Enterprise car rental contract manager present at the SEOC was key.

Strength 3: Coordination with the Logistics Section was improved. Logistics provided quotes to Finance at the time of the Purchase Order's placement in EM Constellation and were responsive to Finance feedback.

Strength 4: Areas for Improvement identified post-Matthew regarding propane purchase and overnight reheated meals were performed without challenges during the Hurricane Irma response.

Areas for Improvement
The following areas for improvement were identified:

Area for Improvement 1: EMC/WebEOC Training

Analysis: IMTs submitted incomplete TARs (e.g. insufficient detail on Mission Tasking, Rental Car pickup location city) on EM Constellation. Problem may have included creation of a mission before full details needed for EMC TAR were obtained- The WebEOC work group should explore creating a comprehensive form outlining all necessary information which should be housed in the system.

Area for Improvement 2: P-Card Deployment Issues

Analysis: State Purchasing Cards were unavailable to IMT members in the field. The inflexibility of Purchasing Card rules regarding P-Card possession added burden to Mission Processing at SEOC. Purchases that could occur in the field were instead routed through SEOC. Revisions to the P-Card procedures should be made to give p-card authority to the Regional Coordinators to assist the IMT teams in the field.

Area for Improvement 3: SEOC F&A Staff Assignments

Analysis: Clerical/Administrative activities and EM Constellation work could not be successfully handled by a single Finance and Administration team member. Finance and Administration team members were called upon to perform tasks such as meal clean-up and gap-filling for Logistics while simultaneously taking requisitions and doing purchasing. Creating a position to handle kitchen duties should be explored.

Area for Improvement 4: My Florida Marketplace Vendor Registration Issues.

Analysis: Vendors in My Florida Marketplace without a valid W-9 created more legwork for F&A. Staff should work with DMS to reach out to vendors to update their W-9 status in MFMP.

HUMAN SERVICES BRANCH

Strengths

The response to Hurricane Irma revealed the following strengths:

Strength 1: ESF 6 was proactive in working with counties to report open pet friendly shelters and there was strong collaboration and coordination between ESF 17 and ESF 6 to share information regarding pet friendly shelters, which was a concern of importance to the Office of the Governor.

Strength 2: ESF 11 successfully implemented its new food, water and ice estimation tool. The information provided was critical for internal planning prior to hurricane landfall and was used on a daily basis to gauge the impact of the storm and the feeding need.

Strength 3: The Florida Integrated Rapid Response Team (FLIRRT) successfully activated multiple state and federal agencies under a Multi-Agency Coordination system and established an area command to conduct more than 25,000 assessments of retail and wholesale providers of food.

Strength 4: SharePoint was a significant resource and was used for mission tracking and continuity across shift changes.

Strength 5: The activation of the ESF15 Volunteer and Donations Hotline and Crisis Clean Up and usage of the new online volunteer match and donation software, as well as furthering partnerships with ESF18 and the use of AmeriCorps and CERT teams provided amazing support with managing donation requests.

Strength 6: Uploading support capabilities as in Information Message within EMC before, during and after the disaster proved invaluable.

Areas for Improvement

The following areas for improvement were identified:

Area for Improvement 1: Resource Request Form (RRF) Process

Analysis: Once an RRF was submitted, the process for determining status in the review and approval procedure was inconsistent. A system for monitoring the status of the RRFs that are submitted to FEMA for approval needs to be developed and implemented.

Area for Improvement 2: Discharge Planning Process for Special Needs Shelters

Analysis: The Discharge Planning Process for Special Needs Shelters needs to be updated and training on the process needs to be conducted for staff working in the shelters as well as other state agencies supporting special needs shelters.

Area for Improvement 3: Coordination with ESF15

Analysis: Based off Hurricane Irma, improvement of the communication with local ESF15, identification of the volunteer housing pre-landfall, and improved tracking of Federal requests would only enhance the Branch as a whole. To include the refining of the volunteer and donations hotline process, procedures and tracking, tracking and reporting expense.

INFRASTRUCTURE BRANCH

Strengths

The response to Hurricane Irma revealed the following strengths:

Strength 1: EMAC's ability to bring in staffing to support the Infrastructure Branch was very beneficial.

Strength 2: Infrastructure branch coordination between ESF 1&3 and ESF 16 (especially FDOT and FHP) worked well and led to an estimated 6.3 million evacuees with zero fatalities during the evacuation process, the largest evacuation in Florida history. Furthermore, checkpoint coordination with ESF 16, in and out of the Florida Keys worked well as did the mobilization of trailers to checkpoints after traffic cameras went down.

Strength 3: The use of the Virtual Response by ESF 2 proved very successful. It kept non-essential personal out of the crowded office space and offsite working in office to accomplish missions. The Virtual Response proved very effective and could be used by other ESFs.

Strength 4: Private/Public Partnerships were strong throughout the activation and the self-sufficiency of contractors or providers proved paramount in the days immediately following landfall.

Strength 5: Having only the winter blend of fuel available helped as everyone was on the same fuel type. Furthermore, partnering with GasBuddy to change the application within 24 hours to show diesel fuel locations was paramount in moving convoys around the state.

Strength 6: Corrective actions from Hurricane's Hermine and Matthew that were implemented in advance of this hurricane season were successful during this activation.

Strength 7: The new ESF 12-Power reporting program in SharePoint worked very well for information sharing.

Areas for Improvement

The following area for improvement was identified:

Area for Improvement 1: Air Ops/Infrastructure Branch Coordination

Analysis: Air Operations should work to continue its coordination with the other Operational Branches, and specifically with Infrastructure to address specific technical expertise and planning needs that can improve the effectiveness of both branches.

INFORMATION TECHNOLOGY

Strengths

The response to Hurricane Irma revealed the following strengths:

Strength 1: Technical Services was successfully re-organized "on-the-fly" to include Information Technology services. This re-alignment included establishing more space on the EOC floor for Technical Services staff, allowing for centralization of services, better communication between staff, and better assessment and tasking of technical issues identified.

Strength 2: Building on previous efforts, the Situational Map and App Gallery using ArcGIS Online was expanded. This tool augments GATOR as an interactive mapping tool for both the public and SERT.

Strength 3: Help Desk staff were deployed to the SLRC to support Logistics. This is the first time that IT support staff were sent to the SLRC during the first days of an activation. Logistics reported this deployment to be very helpful.

Strength 4: SharePoint was successfully used by FEIL/SAIL, ESF 12 Fuels, ESF 12 Power, Logistics, and Recovery for various tasks during the response. Use of the SharePoint provided better security, improved ease of use, remained free of problematic reporting, and provided better reporting and archiving.

Strength 5: The web team built upon the success of the "Info" pages, eventually creating three event info pages (Irma, Maria, and Nate) and one business recovery info page.

Strength 6: Valuable partnerships forged during the response with NICB and ESRI resulted in the availability of 20,000 square miles of high resolution aerial photography as well as crucial on-site assistance on the Situational Awareness Map and App gallery.

Strength 7: GIS used both EMAC and in-state mutual aid to effectively staff their function and provide services. Twenty-six additional GIS staff worked the response greatly improving capabilities.

Strength 8: Network and Help Desk successfully boosted connectivity, improved bandwidth and enhanced wireless to meet the growing demand of the SERT. Cradle points were used for the first time by several teams, including the SERT IMT and at the JFO.

Strength 9: The use of a variety of critical information technology tools by Servers and Help Desk including VMWare Horizon Virtual Desktop Infrastructure (thin clients), Desktop Central, Electronic File Transfer, PrinterOn, and Virtual Servers proved to be essential in adapting and resolving multiple IT issues during the response.

Strength 10: Due to unprecedented use of the Open Shelters page on FloridaDisaster.org, successful changes were implemented to prevent the page from being overloaded which was

previously causing delays to users of FloridaDisaster.org and GIS. Open Shelters map had over 24,000 views on 9/08/17.

Strength 11: GIS continued to be integral in remote sensing coordination which involved requirements gathering and tasking of assets for post-event aerial photos. This resulted in reducing duplication of efforts and providing photos to meet tactical needs of county, state agency, and water management district partners.

Strength 12: GIS made a critical decision to migrate high-demand GIS layers including evacuation zones, evacuation routes, and storm surge zones to the ArcGIS Online cloud. As evidenced by the over 28 million map requests made of the evacuation zones map service during one 24-period, this move proved absolutely necessary to have this load carried outside of Division/SERT information technology resources.

Strength 13: In cooperation with ESF1/3, during the activation Port status was moved from an old .NET ASP website application to a board in WebEOC. This is one of the first production boards for the Division/SERT's WebEOC implementation and was completed quickly and effectively, streamlining information management processes.

Areas for Improvement
The following areas for improvement were identified:

Area for Improvement 1: Identity Management

Analysis: Within the SERT, there are many information management resources provided by the Division. These include: EMC/WebEOC credentials, thin clients on the EOC floor, email addresses for some ESFs and deployed teams, SharePoint, and GIS. Currently, there is not much synergy between identities nor governance. Picture an ESF using thin clients provided by the Division on the both the EOC floor and in their breakout room – when logging on to the thin client, with those credentials, users should have access to a file share secured to members of the ESF, access to an email account, access EMC/WebEOC, access to specific GIS resources, and/or access to a SharePoint site, as needed.

This is both a technical issue (configuring applications) as well as governance issue (i.e., policy & procedures). Note that some ESFs choose not to use Division issued computers and/or emails.

Area for Improvement 2: Thin Clients

Analysis: Thin clients deployed in the SEOC continue to be a success from an information technology standpoint – cheaper than laptops, easier to maintain than laptops, and ensured backup of information. However, there also continue to be challenges with deployment of the thin clients, including: reliance on webmail only with no email clients, printing attachments, and browser issues. Servers will continue to explore opportunities and implement solutions to improve functionality of thin clients deployed in the SEOC.

Area for Improvement 3: Facility Status Updating

Analysis: Multiple tools are now available to update the status of facilities like shelters, points of distribution, logistic staging areas, base camps, feeding kitchens, human services, and disaster recovery centers. These tools include: GIS, WebEOC, and SharePoint. Each tool has advantages and disadvantages. GIS, Application Development, and SharePoint will work with branches and ESFs to determine requirements and deploy solutions.

Area for Improvement 4: ESF 6 Meal Reporting

Analysis: A SharePoint site was built for ESF6 meal reporting. However, this tool was not used during this response. SharePoint will work with ESF6 to review the site functionality, provide training if needed, and decide if this site shall be supported or discontinued.

Area for Improvement 5: Virtual Server Farm

Analysis: Four areas for improvement were identified regarding connectivity issues.
1.) Single-server systems not only failed to provide for redundancy when troubleshooting or maintenance was required, they also served as single points of failure, as there were no clustered systems to perform load-balancing when needed. Many single-server systems such as web servers and database servers were under too much load to function normally, if at all. Building clustered servers for web, SQL, SharePoint, and GIS will provide better performance when under stress and eliminate single point-of-failures.

2.) Older servers are very restricted on the amount of virtual resources that can be utilized. In addition to performance issues, these servers also pose security risks. Servers and Application Development are working together to migrate all apps and content to newer servers.

3.) The extraordinary load on our infrastructure highlighted multiple hardware issues as well. One SQL server was utilizing so much CPU that it had to be isolated to its own ESX host. This increased the load across all our other ESX hosts to the point where some of them were beginning to struggle. Many non-critical VMs had to be shut down to free up resources. Additional ESX hosts and possibly more RAM and processing power are needed to support large-scale operations.

4.) Additionally, high I/O read and write latency issues were identified with our enterprise storage area network. Servers is working on NSX enhancements for the virtual server farm and Network is working on NEXUS to improve this situation.

Area for Improvement 6: Connectivity Issues

Analysis: Three areas for improvement were identified regarding connectivity issues.

At Camp Blanding, the Division has been renting a router capable of higher bandwidths than we typically use. The idea being that when needed, we could request higher bandwidth. Unfortunately, when we went to request this higher bandwidth, we were informed that the infrastructure was not built out to support that request. 1.) As new circuits are ordered for MFN2, Network must verify that infrastructures are built to support our requirements.

Wireless in the EOC and Sadowski Building was initially set to 5GHz. However, during the activation, many stakeholders showed up with devices incapable of using this new wireless standard, and to serve these stakeholders, we turned on 2.4GHz as well. However, this adversely impacts 5GHz users, introducing more interference and degrading service. Network has already taken steps to alleviate these concerns – updating and tripling wireless access points (WAP) in the EOC, as well as improving WAP configurations to ensure devices capable of both connect at 5 GHz and not revert to slower 2.4GHz. 2.) Additionally, Help Desk will closer monitor those who show up with only 2.4GHz devices, recommending alternatives like Division-issued 5GHz capable devices and/or mi-fis.

Lastly, some non-Division stakeholders had "power-user" connectivity needs. For example, NICB, Civil Air Patrol, and FWC partners needed high-speed internet access to facilitate upload and download of aerial photos. When this need arises, for specific network ports, Network can designate VLANs, allowing non-Division computers to connect to higher-speed, cabled internet access. However, this takes time and is inflexible, especially as stakeholder may move around within the buildings. 3.) To alleviate, Network has already installed updated switches which allow more ports to be active and is in the process of implementing Cisco Identify Services Engine, which would allow both Division-issued and non-Division computers to more freely move around and connect to available ports, with "on-the-fly" VLAN assignment, ensuring high-speed connectivity for SERT stakeholders.

Area for Improvement 7: Damage Assessments

Analysis: With this activation, the SERT was largely spared the rigors and challenges of joint individual assistance and public assistance preliminary damage assessments. However, should in-the-field damage assessments have been required to obtain declarations, GIS is aware of challenges with supporting technology. GIS continues to work with Recovery and Mitigation evaluating devices as well as has identified the need to migrate current ArcGIS Collector templates to Survey123.

Area for Improvement 8: Automated Archiving of Dynamic Data

Analysis: During the activation, GIS acknowledged the opportunity to improve automated, point-in-time archiving of dynamic data like power outage status and shelter populations. However, "live" data is kept just that – live, reflecting current conditions. To better enable trend reporting and temporal conditions exploration, GIS is working on scripts to automate database "snapshots".

Area for Improvement 9: RECON Reporting Application to Migrate to WebEOC

Analysis: The current RECON Reporting application is aged and does not support offline use with mobile devices. Application Development has already met with RECON and Plans and is working on re-factoring RECON Reports using WebEOC to improve use on offline, mobile devices.

Area for Improvement 10: Requests for Assistance

Analysis: Requests for assistance from Technical Services can currently come through numerous channels – missions in EMC, EMC help tab, FOCUS Help Desk (for Division staff), phone calls, and emails to individuals and/or easily discovered list serves. Additionally, SharePoint is working on deploying a new help desk SharePoint site. As the SharePoint help desk and WebEOC come online, Technical Services needs to work to streamline requesting assistance and ensure that no matter what channel the request may come through, it is effectively received and tasked.

LOGISTICS SECTION

Strengths

The response to Hurricane Irma revealed the following strengths:

Strength 1: The FLNG provided Logistics Planners to the SEOC and SLRC for this operation. Their support was invaluable to the success of carrying out the requirements of the Section and the direction of the State Logistics Chief and Deputy Logistics Chief. The units developed Battle Books and Work Plan documents, charts and training aids for future FLNG or other personnel working in those positions.

Strength 2: The SLRC pre-landfall heavy equipment package was ordered early and was critical to rapid deployment of equipment (generators, pumps, forklifts etc.) and equipment support packages to State LSA's, County POD's and County Staging Areas.

Strength 3: The SLRC warehouse being already pre-stocked with commodities, supplies and equipment was critical to mission success.

Strength 4: Pre-landfall deployment of EMAC A-Teams for Mutual Aid and ordering AHIMTs and other resources under EMAC early greatly enabled us to rapidly process Request for Assistance (REQ-A), Statewide Mutual Aid Agreement Mutual Aid Plan (SMAA) and Resource Requests Forms (RRF).

Strength 5: The FLARNG rapidly staged forces pre-landfall to support the State EOC, State Logistics Response Center (SLRC), County POD's and State LSAs.

Strength 6: Early ordering of the four Base Camp systems through contractors to support emergency workers in the field.

Strength 7: The Florida Forest Service rapidly staged forces pre-landfall to support staffing State Logistics Staging Areas.

Strength 8: Logistics successfully adapted and established a Logistics Operations Planning Cell Center at the State EOC to provide planning and administrative support to all Logistics Branches and field sites.

Strength 9: Successful FLNG Rotary Wing Mission-Air Land Bridge Operations supporting Logistics Air Lifts.

Strength 10: Designated a single lead for Logistics support such as Prime Power and Water Pumps missions coordinated with Infrastructure Branch, ESF 1, 8, 12 (Power) and USACE.

Strength 11: Coordination with ESF 1/3 (FDOT) to ensure route clearance from the State Logistics Response Center (SLRC) and Intermediate Staging Base (ISB) to Logistics Staging Areas (LSA) and the Florida Keys.

Strength 12: Utilization of EMAC to bring in support personnel and teams was invaluable in supporting operations.

Areas for Improvement

The following areas for improvement were identified:

Area for Improvement 1: Regional Logistics Representatives

Analysis: Logistics needs to establish Regional Logistics Representatives pre-landfall, to support counties with planning of PODs, County Staging Areas and tracking of Prime Power. Many counties without a comprehensive Logistics Section need direct on-site support for many logistics functions. These need to come from non-impacted counties, much like an AHIMT, but focused strictly on Logistics support.

Area for Improvement 2: POD Coordination & Communication

Analysis: Improve County POD coordination and communication. Work closer with ESF 13 to get all on-site POC information in WebEOC. POD Lists have been uploaded onto WebEOC, but further validation is needed.

Area for Improvement 3: Heavy Equipment Package

Analysis: Add specialized forklifts (Cat C-7 Low Profile) and spare 463L air pallets for fixed-wing aircraft loading to the Heavy Equipment Package forklifts along with qualified operators.

Area for Improvement 4: ESF-15 and Logistics Integration

Analysis: Closer integration of donated offers with ESF-15 and Logistics Section. Need to have ESF-15 submit requirements for donated goods warehouses and support assets early in an operation. ESF-15 should review, accept and work all corporate donations of commodities that can be integrated into our supply chain.

OPERATIONS SECTION

Strengths

The response to Hurricane Irma revealed the following strengths:

Strength 1: The Air Operations Branch contribution to the response was tremendous despite the significant staffing deficit and magnitude of the event. Hurricane Irma resulted in the most robust aviation response in state history.

Strength 2: The use of a fulltime All-Hazards Incident Management Team (AHIMT) planner was instrumental in the coordination of the AHIMTs.

Strength 3: The deployment of the six (6) state AHIMT, a first, was critical to the success of the state response. The teams supported missions from Basecamp Operations to Recovery Operations, rising to the challenge and supporting the state.

Strength 4: The use of the AHIMT Position Specific task books, both in the field and in the State Emergency Operations Center, was a precedent and proved to be beneficial.

Strength 5: The use of the first ever AHIMT Coordination Branch, acting as an overhead team to support the AHIMT Planner to help coordinate activities and providing structure to the deployments.

Strength 6: Coordination with the Region 7 Regional Domestic Security Task Force was advantageous as state agencies were able to leverage their personnel to help with missions because of existing relationships.

Strength 7: The deployment of the SERT AHIMT allowed for section specific liaisons to be embedded with the impacted counties. AHIMT members had knowledge of the state ESF contacts and how SERT functions operationally. This resulted in improved communications and avoidance of duplication of efforts.

Strength 8: The SERT Liaison Officers were an improved asset to the counties during this response due to training received after Hurricane Matthew. As there are only seven regional coordinators for the entire state, they were in high demand during the response. The use of fifty SERT LNOs helped to alleviate that pressure.

Areas for Improvement

The following areas for improvement were identified:

Area for Improvement 1: SERT LNOs

Analysis: SERT LNOs (liaison officers) are staffed by National Guard and performed well throughout the response. However, the SERT LNOs that arrive to assist are often not the same staff that has been trained over the past several years. At a minimum, all SERT LNOs should be well versed in EMC/WebEOC as on the job training puts a strain on existing limited resources.

Area for Improvement 2: Air Operations Branch Staffing Location

Analysis: With Hurricane Irma resulting in the most robust aviation response in state history, the Air Operations Branch grew larger than the staffed location allowed. During the height of the response, the Branch was staffed by approximately fifty-five. To better support the need, there should be a plan in place to ensure adequate space and staffing is available for the event.

Area for Improvement 3: FEMA Image Uploader

Analysis: Image data collection software varies among the agencies capturing the data, including CAP, National Guard and FWC. Each system has its strengths and weaknesses, but it would be more efficient to adopt one system to use as the standard. One idea would be to use the FEMA Image Uploader, which is available upon request. CAP, under federal mission, uses FEMA Image Uploader and FSU has successfully used the program while taking images with drones.

Area for Improvement 4: Air Coordination with Partners

Analysis: With Hurricane Irma being the state's most robust aviation response in its history, the need to strengthen the already existent partners and coordination groups had shown itself. Strengthening partnerships with ESF 4/9 and their Search & Rescue planning cell, DOD Coordination regarding Title 10 assets, Logistics Section and other internal partners will only strengthen the Air Operations Branch as a whole moving forward.

PLANNING SECTION

Strengths

The response to Hurricane Irma revealed the following strengths:

Strength 1: Night shift personnel were instrumental in performing analysis of information messages and missions as well as situation report clean-up activities. The shift-change briefings in the morning consisted of their overnight analysis which could be passed along to the larger SERT group.

Strength 2: Coordination with the FL National Guard prior to the activation ensured that relationships and standard operating procedures were current – this proved to be exceptionally beneficial as it allowed the FLNG to rapidly spin up after arrival.

Strength 3: State Planning Section and Federal partners were able to coordinate and develop a Joint State/Federal Common Operating picture, a document that clearly and concisely highlighted critical information.

Strength 4: Planning for potential I-75 closure was very effective as there was excellent coordination among Emergency Services, Plans, Infrastructure and others.

Strength 5: The placement of a hydrologist in the SEOC during the event proved to be a worthy best practice as it provided a means to access excellent subject matter experts.

Strength 6: The Planning Section was able to quickly adjust to meet the needs of the operation, especially in regard to the entry planning for the Keys.
- Had to coordinate with Air Ops intensively.
- With assisting in entry planning by air, the section had to consider "non-traditional" assets given the storm track (e.g., use of tiltrotors as opposed to just transport aircraft which may be limited in austere conditions and helicopters which have limited range due to fuel and lack of open airfields) enroute to the Keys.

Areas for Improvement

The following areas for improvement were identified:

Area for Improvement 1: FEMA-State Planning Concept of Operations

Analysis: While the State and FEMA Planning Sections successfully coordinated during the Operation, it became clear that both partners should coordinate more closely during non-disaster timeframes to ensure there is an understanding of their respective Concept of Operations. Continuing to develop relationships and planning expectations prior to an event would promote more efficient coordination during all stages of the activation.

Area for Improvement 2: Planning Section Coordination

Analysis: There is further potential for the Planning Section to increase its direct coordination with the SERT and its partners. While the focus of the section is the production of planning products, having planners directly interact throughout the day with branches and ESFs will help

ensure a regular information flow, create better situational awareness, and can act as a SEOC-Wide Information Coordination element.

Area for Improvement 3: Refocus SEOC Briefings

Analysis: In an effort to increase the value of the briefings, the Planning Section should work directly with SERT Partners to ensure that critical information is being highlighted, and that more thorough information packets are available after the briefings. This will ensure that the daily briefings remain useful and manageable in length, while also ensuring that statistics and other information is readily available.

RECOVERY

Strengths
The response to Hurricane Irma revealed the following strengths:

Strength 1: The integration of Recovery staff earlier into the response process helped shape the process collaboratively and more effectively.

Strength 2: The personnel associated with EMAC requests that arrived from Florida counties and South Carolina were very beneficial.

Strength 3: Innovative thinking was used to resolve housing issues without having to roll out trailers. This may have been partially attributed to all staff that support housing recovery working on the same floor and able to engage in direct conversation and coordination.

Strength 4: A very effective working relationship with FEMA in Recovery was evident. The relationship helped to facilitate a clear understanding of the issues.

Strength 5: Pat Live taking over the FEIL/SAIL relieved personnel was helpful and allowed staff to focus on unmet need calls.

Strength 6: Virtual applicant briefings were much more efficient.

Strength 7: Tasking of deployment to Finance was much improved over Hurricane Matthew.

Strength 8: The SEOC remained active with ESF support moving into Recovery before the JFO was active.

Areas for Improvement
The following areas for improvement were identified:

Area for Improvement 1: Cross-Training

Analysis: As all Recovery staff were committed to the SEOC, day-to-day grants were not able to be fully managed. The staff then moved fully into Recovery without an opportunity to complete other duties. Cross training with other teams such as Mitigation could help alleviate some strain.

Area for Improvement 2: Info Messages

Analysis: Staff may benefit by establishing pre-approved informational messages and EMAC resource which allows for staff to continue to move grants forward and direct funding to the counties. This also facilitates the avoidance of duplicated informational messages for public assistance through individual channels. Personnel should consider messaging more than just the county Emergency Management directors with critical information. Critical information could

also be directed to cities and perhaps other county administrative staff. This could be accomplished with information in Info messages in EMC with an email about the message. Further, a clearinghouse of other information ought to be established so program staff can continue to focus on programmatic work.

Area for Improvement 3: Coordination

Analysis: Recovery personnel should be embedded into both Plans and Operations. External Affairs presences at JFO would be tremendously helpful. Additionally, Recovery personnel should stay abreast of mission assignments.

CONCLUSION

Hurricane Irma was the most intense hurricane to strike the continental United States since Katrina in 2005 and presented tremendous response challenges due its size and track. An estimated 6.5 million residents were ordered to evacuate, the largest in the state's history. Throughout Florida, at least 93 people died in storm-related incidents and almost 6.7 million homes and businesses were without power. The Florida Keys were heavily impacted, as 25% of buildings were destroyed while 65% were significantly damaged. Due mainly to the widespread loss of power, cell phone service was also significantly impacted after battery backup power for cell phone towers ran out and backup generators ran out of fuel. Irma also produced heavy rainfall which resulted in extensive flooding across much of the Peninsula.

As can be expected, staffing for an event of this magnitude presented major challenges. The sheer size and track of Irma resulted in the largest activation of emergency personnel and resources in the State of Florida and put momentous stress on the State Emergency Response Team. The State Emergency Operations Center was activated for a full month and through the outstanding performance of its leadership and personnel, was able to successfully respond to the most destructive storms to impact the state. This was accomplished through strong federal, state, regional and local relationships that have been established and maintained over the years through planning, training and exercises.

In this successful response to Hurricane Irma, the State of Florida has built upon its recent lessons learned from Hurricanes Hermine and Matthew.   Corrective actions that were implemented from these recent storms were successfully implemented which improve response efficiencies during the response to Hurricane Irma. Strengths and Areas for Improvement from the response for Hurricane Irma will be used to further enhance the statewide capabilities but will take time and resources to fully implement. Florida has continued to build upon its fundamentally sound organizational structure in the State Emergency Response Team and the State Emergency Operation Center.

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for the Florida Division of Emergency Management as a result of Hurricane Irma. This section combines the previous sections' Areas for Improvement and provides Corrective Actions and corresponding assignments.

Command Staff

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. Sheltering Operations	1. Provide training regarding the expectations and responsibilities of sheltering.	Training	FDEM	Preparedness/Human Services	June 30, 2019
2. Resource Movement and Verification	1. Provide training at the county level on how to request resources.	Training	FDEM	IT	June 30, 2018
	2. Provide training at the state level to verify if resources being deployed are being requested by county EM, and if the resources are a valid resource.	Training	FDEM	Operations/Ops Support	Complete
	3. Provide training at the state level to establish better resource tracking.	Training	FDEM	IT	June 30, 2018

Emergency Services Branch

Issue/Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Completion Date
1. Debris Management Branch Integration	1. Develop SOG and Job Aids based on best practices developed during incidents.	Training	FDEM	Recovery	On-going

Finance and Administration Section

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. EMC/WebEOC Training	1. Coordinate with ITM Staff to ensure that sufficient training on message requirements is provided.	Training	DEM Finance and IT	Dawna Johnson	June 30, 2018
2. P-Card Problem with IMTs	1. Revise the P-Card procedures to give p-card authority to the Regional Coordinators to assist the IMT teams in the field.	Planning	DEM Finance	Toni Milazzo	June 30, 2018
3. SEOC F&A Staff Assignments	1. Hire an OPS employee to handle kitchen duty during activations to allow Finance staff to perform their Missions assignments and continue to meet blue sky deadlines.	Planning	DEM Finance	Tara Walters	June 30, 2018
4. Better Communication between Separate F&A Systems	1. Develop Training for MFMP Vendors that illustrates importance of W-9 and administer to all Vendors	Training	DEM Finance	DEM Finance	On-Going
	2. Request that DMS reach out to vendors to update their registration and W-9 status in MFMP.	Equipment	DMS	Tara Walters	June, 2018

Human Services Branch

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. Resource Request Form (RRF) Process	1. Develop and implement a system for monitoring the status of RRFs once submitted to FEMA.	Planning	FDEM	Alonna Vinson, EMAC Coordinator	September 30, 2018
2. Discharge Process for Special Needs Shelters	1. Update the discharge process for the Special Needs Shelters. Include updating the invoice used to discharge individuals to long-term care facilities.	Planning	Special Needs Coordinator	Andrew Sussman	November 30, 2018
3. Coordination with ESF15	1. Continue coordination with ESF15 partners to better enhance Branch Operations	Planning	ESF 15	Ken Skalitzky	November 30, 2018

Infrastructure Branch

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. Air Ops/ Branch Coordination	1. Additional training with Air Ops to help identify areas where coordination needs to occur.	Training	Air Branch (Operations)	Air Branch ECO / FWC Cara Cain	On-going

Information Technology

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. Identity Management	1. Determine the responsibility of the Division to ensure SERT information is adequately protected and archived when non-Division computers and/or emails are used.	Planning	Technical Services	Richard Butgereit	December 1, 2018
	2. Establish an email account creation process and account deletion process.	Planning	Technical Services	Richard Butgereit	May 30, 2018
2. Thin Clients	1. Explore opportunities and implement solutions to improve functionality of thin clients deployed in the SEOC.	Organization	Servers	Darren Headrick	December 1, 2018
3. Facility Status Updating	1. Work with branches and ESFs to determine requirements and deploy appropriate GIS, WebEOC and SharePoint solutions.	Organization	Servers	Richard Butgereit	December 1, 2018
4. ESF 6 Meal Reporting	1. Work with ESF6 to review the site functionality, provide training if needed, and decide if this site shall be supported or discontinued.	Planning	SharePoint	April Hammons	June 15, 2018
5. Virtual Server Farm	1. Build clustered servers for web, SQL, SharePoint, and GIS will provide better performance when under stress and eliminate single point-of-failures.	Equipment	Servers	Darren Headrick	December 1, 2018

	2. Migrate all apps and content to newer servers.	Organization	Servers & Application Development	Richard Butgereit	May 30, 208
	3. Acquire additional ESX hosts and possibly more RAM and processing power to support large-scale operations.	Equipment	Servers	Darren Headrick	December 1, 2018
	4. Complete NSX enhancements for the virtual server farm and finalize efforts on NEXUS improvements.	Organization	Servers & Network	Darren Headrick	December 1, 2018
6. Connectivity Issues	1. As new circuits are ordered for MFN2, verify that infrastructures are built to support our requirements.	Planning	Network	David Clark	July 1, 2018
	2. More closely monitor stakeholders who show up with only 2.4GHz devices, recommending alternatives like Division-issued 5GHz capable devices and/or Mi-Fis.	Planning	Help Desk	Larry Hancock	April 30, 2018
	3. Install updated switches which allow more ports to be active and implement Cisco Identify Services Engine, which would allow both Division-issued and non-Division computers to more freely move around and connect to available ports, with "on-the-fly" VLAN assignment, ensuring high-speed connectivity for SERT stakeholders.	Equipment	Network	David Clark	December 1, 2018
7. Damage Assessments	1. Continue working with Recovery and Mitigation evaluating devices as well as	Organization	GIS	Jason Ray	May 30, 2018

	has identified the need to migrate current ArcGIS Collector templates to Survey123.				
8. Automated Archiving of Dynamic Data	1. Continue working on scripts to automate database "snapshots".	Organization	GIS	Jason Ray	May 30, 2018
9. RECON Reporting Application to Migrate WebEOC	1. Continue working with RECON and Plan to complete re-factoring RECON Reports using WebEOC to improve use on offline, mobile devices.	Planning	Application Development	Colby Maxwell	April 30, 2018
10. Requests for Assistance	1. Work to streamline requesting assistance and ensure that no matter what channel the request may come through, it is effectively received and tasked.	Organization	Technical Services	Richard Butgereit	May 15, 2018

Logistics Section

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. Regional Logistics Reps	1. Establish Regional Logistics Reps pre-landfall, to support Counties with planning of POD's, County Staging Areas and tracking of Prime Power.	Planning	FDEM	Charles Hagan, Logistics Section Chief	June 30, 2018
2. POD Coordination & Communication	1. Work Closer with ESF 13 to get all on-site POC information in EM Constellation for improved County POD coordination and communication.	Planning	FDEM/ FLNG	FNLG and Logistics	June 1. 2018
3. Heavy Equipment Package	1. Add specialized forklifts (Cat C-7 Low Profile) and spare 463L air pallets for fixed-wing aircraft loading to the Heavy Equipment Package forklifts along with qualified operators.	Equipment	FDEM	Charles Hagan, Logistics Section Chief and Connie Nunn, Deputy Logistics Section Chief	June 1, 2018
4. ESF 15 and Logistics Integration	1. A reference list of available Mission Ready Packages (MRPs) for commonly requested resources.	Planning	FDEM	Alonna Vinson, EMAC Coordinator and Charles Hagan, Logistics Section Chief	June 30, 2018

Operations Section

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. SERT LNOs	1. Explore opportunities with additional state agencies to strengthen SERT LNO staffing.	Planning	FDEM	Regional Coordination Team	December 31, 2019
2. Air Operations Branch Staffing Location	1. Explore options for additional Air Ops working space.	Organization	FDEM	Facilities	Completed
	2. Identify and train additional personnel from partner state agencies (e.g., Forestry, DOT, etc.) to augment Air Ops support.	Planning/ Training	FDEM	Air Operations/Operations	Completed
3. FEMA Image Uploader	1. Examine the feasibility of using FEMA ImageUploader as the standard image data collection software across all agencies.	Planning	FDEM	Air Operations/Operations/IT	July 1, 2018
4. Air Coordination with Partners	1. Examine potential opportunities to further pre-plan, pre-coordinate and pre-establish partnerships with Air Operations Branch partners	Planning	FDEM	Air Operations/Operations	Completed

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Planning Section

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. FEMA-State Concept of Operations	1. Develop information briefings or packets to ensure that the FEMA Planning Section and State Planning Section are aware of each other's policies and procedures.	Training	FDEM	Ryan Lock, Planning Section Chief	August 30, 2018
2. Planning Section Coordination	1. Develop procedures for Planning Section Staff to interact more regularly with other branches, ESFs, and Sections for the purpose of increasing situational awareness and ensuring regular flow of information.	Organization	FDEM	Ryan Lock, Planning Section Chief	August 31, 2018
3. Refocus SEOC Briefings	1. Ensure Planning Section coordinate directly with branch and ESF staff on feedback and priorities for briefings	Training	FDEM	Ryan Lock, Planning Section Chief	May 31, 2018

Recovery

Area for Improvement	Corrective Action	Capability Element	Primary Responsible Organization	Organization POC	Expected Completion Date
1. Cross-Training	1. Cross-training with other branches such as mitigation could facilitate a more effective completion of duties.	Training	Plans and Admin, IA	Melissa Shirah, Amanda Campen, Jennifer Stallings, Jason Pettus	2017 Declared Disasters, still on-going
2. Information Distribution	1. Establish pre-approved information messages.	Planning	Plans, IA, PA	Melissa Shirah, Carter Mack, Jason Pettus, Amanda Campen	May 3, 2018
	2. Establish pre-approved EMAC resource requests.	Planning	IA, PA	Carter Mack, Jason Pettus	June 1, 2018
	3. Share critical information with EM directors, cities and administrative staff as appropriate.	Planning	IA, PA, Plans and Admin	Melissa Shirah, Carter Mack, Jason Pettus	On-going
	4. Maintain an information clearinghouse.	Planning	Plans and Admin	Melissa Shirah, Jennifer Stallings, Amanda Campen,	On-going
3. Coordination	1. Embed staff in both Plans and Operations.	Organization	Plans and Admin	Jennifer Stallings	April 30, 2018
	2. Integrate External Affairs at the JFO.	Organization	ESF 14/ Bureau Chief	Caroline Edwards	On-going
	3. Ensure staff is informed on current mission assignments.	Training	Recovery Bureau Chief	Jennifer Stallings, Melissa Shirah, Jason Pettus, Amanda Campen	On-going