HARRIS COUNTY
HOMELAND SECURITY
& EMERGENCY MANAGEMENT
TEXAS

COUNTY JUDGE ED EMMETT
DIRECTOR

A A R

Hurricane Harvey
After-Action Report

HARRIS COUNTY
OFFICE OF HOMELAND SECURITY
& EMERGENCY MANAGEMENT

APRIL
2018

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Harris County Emergency Management Partners,

The goal of Harris County's Office of Homeland Security & Emergency Management (OHSEM) is to be a national model of best practices in emergency planning, preparation, response, and recovery. Working toward that goal is a team of dedicated emergency management professionals and county employees who improve our region's emergency management capabilities when it makes the greatest difference — when our lives are free from disaster. They are creating a culture of preparedness within government and in the community. Preparation and planning are constant. Seeking out ways to do their jobs better is part of the daily routine.

Planning and practice pays off, but real events test how ready we truly are. Hurricane Harvey, a powerful Category 4 hurricane, was the second most costly tropical storm in our nation's history. It was also the nation's most devastating flood event. This historic storm yielded unprecedented flooding across southeast Texas with various agencies coordinating relief efforts for the public and for their own employees and volunteers. Hurricane Harvey's test of our flood response plans highlighted remarkable successes and areas for improvement. Applying those lessons learned will certainly make us better prepared for the next disaster.

This Hurricane Harvey After Action Report (AAR), while representing a substantial effort by both the county and its partners, is only one of many tools to be used by Harris County in striving to better serve its residents. Many of the lessons outlined here are already in place, and the process for identifying next steps continues.

Harris County is proud of its community, heroic first responders, emergency management officials and dedicated employees who were a shining example of public service. As director of our county's office of emergency management, I am thankful for the unwavering commitment of our partners, the countless volunteers who served wherever needed and the neighbor-helping-neighbor spirit that jump-started the recovery immediately after the storm passed.

While Harris County works to improve its response to future disasters, it continues to focus on the long road to recovery facing our most devastated communities.

Sincerely,

Ed Emmett
County Judge

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This document, entitled *Harris County Hurricane Harvey After Action Report and Improvement Plan (AAR/IP)*, is For Official Use Only (FOUO) and should be handled as sensitive information not to be disclosed. This document should be safeguarded, handled, transmitted, and stored in accordance with appropriate security directives. Reproduction of this document, in whole or in part, without prior approval from the Harris County Office of Homeland Security and Emergency Management (HCOHSEM) is prohibited.

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Harris County OHSEM
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EXECUTIVE SUMMARY

The Harris County Office of Homeland Security and Emergency Management (HCOHSEM) initiated the effort to develop the *Harris County Hurricane Harvey After Action Report and Improvement Plan* to identify strengths and areas for improvement observed during response and recovery activities. The strengths and areas for improvement identified in this AAR affect the ability of the county, as a whole, to respond to and recover from a disaster and are not specific to any one organization. As such, the responsibility for identifying and implementing solutions to ensure strengths are repeatable and areas for improvement are remedied is shared by all Harris County departments, other government agencies, nongovernmental organizations, and private sector partners. The resulting improvement plan serves as a roadmap to enhance the outcome of emergency management efforts and potentially guide funding decisions. This roadmap is applicable to all County organizations involved in a broad array of emergency response and recovery activities.

While this process is focused on the events surrounding Hurricane Harvey, it is designed to strengthen our capacity to effectively respond as a region to any catastrophic incident in a highly coordinated way.

The AAR is organized as follows:

- Command and Control
  - Federal, State, and Local (County and City) Coordination
  - Emergency Operations Center Operations
  - Human Resources
  - Public Information
  - Coordination with Private Sector Partners (Including Utilities)
- Operations
  - Communications Interoperability
  - Rescue Operations and Coordination
  - Debris Management
  - Transition to Recovery
- Mass Care and Sheltering
  - Shelter Establishment and Operation
  - Housing
  - County Staging Areas (Ice, Water, Food, etc.)
  - Volunteer and Donations Management

The AAR is composed of the following sections:

- The Introduction and Hurricane Harvey Timeline (Exhibit 1) describe the impetus for this AAR along with important events and impacts of Hurricane Harvey.
- The After Action Report Methodology and Development Process describes the process used to develop this AAR.

- The Analysis of Strengths and Areas for Improvement includes a comprehensive summary of the strengths and challenges observed by those involved in the Hurricane Harvey emergency response and recovery activities.

- The Improvement Plan can serve as a stand-alone document and provides a roadmap for County organizations to improve overall emergency response and recovery capabilities.

- The Conclusion provides a summary of the overall AAR.

- Appendices A through D include documents that were used during the development of this AAR.

INTRODUCTION

The Harris County Office of Homeland Security and Emergency Management (HCOHSEM) strives to be a national model of best practices in emergency planning, preparation, response, and recovery. Its core function is to help prepare, safeguard, and protect the residents of Harris County and their property from disaster. During times of crisis, HCOHSEM is the lead coordinating agency for regional response. HCOHSEM activates the County Emergency Operations Center (EOC) and Regional Joint Information Center (JIC) to support the efforts of its emergency management partners. HCOHSEM initiated the development of the Hurricane Harvey AAR in an effort to improve the county's ability to respond to future disasters.

HURRICANE HARVEY EVENTS

Harvey was the costliest hurricane since Hurricane Katrina.[1] For Harris County, Harvey was a flooding event rather than a hurricane. As the seventh named storm of the extremely active 2017 hurricane season, Hurricane Harvey made landfall near Rockport, Texas, on Friday, August 25, 2017, as a Category 4 storm. With top wind gusts reported at 132 miles per hour (mph), Hurricane Harvey caused catastrophic, record-breaking flooding.[2]

Harvey was extremely slow-moving from August 26, 2017 to August 30, 2017. Harvey set a record for the most rainfall from a single tropical storm in the continental United States, at 60.58 inches near Nederland, Texas.[1] Over the 6-day period, Harvey dumped approximately 27 trillion gallons of rain over Texas and Louisiana.[3] For a more detailed timeline of events, refer to Exhibit 1 below.

Exhibit 1

Hurricane Harvey Timeline	
August 13, 2017	A tropical wave emerges off the west coast of Africa.
August 17, 2017	The National Hurricane Center reports that Tropical Storm Harvey has formed in the Atlantic Ocean. Tropical Storm Harvey has maximum winds around 40 mph and is moving west at 18 mph.
August 18, 2017	Tropical Storm Harvey enters the Eastern Caribbean Seas as a minimal tropical storm.

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[1] Blake, Eric S.; Zelinsky, David A.. *Tropical Cyclone Report: Hurricane Harvey (AL092017) 17 August–1 September 2017*. National Hurricane Center, 2018. Accessed February 4, 2018. https://www.nhc.noaa.gov/data/tcr/AL092017_Harvey.pdf.
[2] *Major Hurricane Harvey – August 25-29, 2017*. National Weather Service, 2018. Accessed February 9. 2018. http://www.weather.gov/crp/hurricane_harvey
[3] *After the Storm: The Environmental Impacts of Natural Disasters,* Sound Science. Creative Solutions., November, 2017. Accessed February 9, 2018. https://www.swca.com/news/2017/11/after-the-storm-the-environmental-impacts-of-natural-disasters

Hurricane Harvey Timeline	
August 19, 2017	Tropical Storm Harvey weakens to a tropical wave.
August 23, 2017	At 10:00 a.m. CDT Tropical Depression Harvey reforms 535 miles southeast of Port O'Connor, Texas, with maximum sustained winds of 35 mph. Intensifying quickly, Harvey was forecast to make landfall as a hurricane over the Texas Coast.
August 24, 2017	Harvey becomes a hurricane with maximum sustained winds of 85 mph approximately 325 miles southeast of Port O'Connor at 1 p.m. By midnight, the storm is upgraded to a Category 2 hurricane with maximum sustained winds of 100 mph.
August 25, 2017	Hurricane Harvey is a Category 3 hurricane with sustained maximum winds of 120 mph and is 75 miles southeast of Corpus Christi.
August 25, 2017	Hurricane Harvey increases to a Category 4 storm and is 45 miles from the City of Rockport with maximum sustained winds of 130 mph.
August 25, 2017	Hurricane Harvey makes landfall as a Category 4 hurricane. The eye of the storm comes ashore between Port Aransas and Port O'Connor, Texas.
August 25, 2017	The eye of Hurricane Harvey moves over Aransas Bay.
August 26, 2017	Hurricane Harvey makes a second landfall on northeastern shore of Copano Bay.
August 26, 2017	Hurricane Harvey's eye is 15 miles inland and is downgraded to a Category 3 hurricane with maximum sustained winds of 115 mph.
August 26, 2017	Hurricane Harvey is downgraded to a Category 2.
August 26, 2017	Hurricane Harvey is downgraded to a Category 1.
August 26, 2017	Tropical Storm Harvey stalls inland dropping heavy rainfall and causing widespread flooding.
August 27, 2017	Tropical Storm Harvey continues to stall inland dropping heavy rainfall and causing widespread flooding.
August 28, 2017	Tropical Storm Harvey drifts back out into the Gulf of Mexico.
August 29, 2017	Tropical Storm Harvey makes its third landfall west of Cameron, LA.
August 31, 2017	The National Hurricane Center ceases tracking Harvey's remnants.

[1] Blake, Eric S.; Zelinsky, David A.. *Tropical Cyclone Report: Hurricane Harvey (AL092017) 17 August–1 September 2017*. National Hurricane Center, 2018. Accessed February 4, 2018. https://www.nhc.noaa.gov/data/tcr/AL092017_Harvey.pdf.
[2] Metz, John. *Major Hurricane Harvey – August 25-29, 2017*. National Weather Service, 2018. Accessed February 9. 2018. http://www.weather.gov/crp/hurricane_harvey
[3] *After the Storm: The Environmental Impacts of Natural Disasters,* Sound Science. Creative Solutions., November, 2017. Accessed February 9, 2018. https://www.swca.com/news/2017/11/after-the-storm-the-environmental-impacts-of-natural-disasters

HARVEY STRIKES HARRIS COUNTY

Harvey made landfall on the evening of August 25, 2017, between Port Aransas and Port O'Connor, Texas, as a Category 4 hurricane with sustained winds of 130 mph.[2] High, strong pressure systems over the southeast and the southwest of the United States left Harvey hovering over the area for the next two days, picking up moisture from the Gulf of Mexico and generating rainfall that inundated Harris County. Hurricane Harvey retreated out to the Gulf of Mexico, and then made landfall again on August 30, 2017, over Louisiana.[2]

Harvey's severity and the extent of the extreme rainfall was unprecedented in United States history. Rainfall was measured at a record-breaking 60.58 inches.[1] This exceeded the previous record of 48 inches of rainfall caused by Tropical Storm Amelia in Texas in 1978.[1]

Devastating flooding resulted from Harvey. One trillion gallons of water fell across Harris County during a 4-day period. The unprecedented storm affected the residents of each of Harris County's 22 watersheds, and it is estimated over 120,000 structures were flooded in Harris County.[4] Thirty-six flood related deaths were reported in Harris County.[3]

The overall response and recovery efforts by HCOHSEM and its partners demonstrated professional and well-practiced levels of planning, coordination, and collaboration.

[1] Blake, Eric S.; Zelinsky, David A.. *Tropical Cyclone Report: Hurricane Harvey (AL092017) 17 August–1 September 2017*. National Hurricane Center, 2018. Accessed February 4, 2018. https://www.nhc.noaa.gov/data/tcr/AL092017_Harvey.pdf.
[2] *Major Hurricane Harvey – August 25-29, 2017*. National Weather Service, 2018. Accessed February 9. 2018. http://www.weather.gov/crp/hurricane_harvey
[3] Sanchez, Luis A. *Storm-Related Deaths: Hurricane Harvey*. Harris County Institute of Forensic Science, 2017. Accessed February 9, 2018. https://ifs.harriscountytx.gov/Documents/HarrisCountyHarvey-RelatedDeaths.pdf
[4] *Hurricane Harvey: Harris County Has Never Seen A Storm Like Harvey*. Harris County Flood Control District, 2018. Accessed February 9, 2018. https://www.hcfcd.org/hurricane-harvey

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AFTER ACTION REPORT METHODOLOGY AND DEVELOPMENT PROCESS

This After Action Report (AAR) was developed in four steps over a three month period following Hurricane Harvey.

STEP I — Identify Project Goals and Engage Stakeholders

STEP II — Review Incident Documentation and Conduct AAR Interviews

STEP III — Host Improvement Planning Meeting

STEP IV — Draft AAR and Submit for Comments and Approval to Stakeholders

One of the key goals for this project was to ensure the process used to create this AAR followed national best practices and could be replicated in the future not only by HCOHSEM, but by other jurisdictions as well. The AAR development methodology described below was time-intensive and corresponded to the magnitude of the event. However, for less significant events or for jurisdictions with less time and resources, this methodology can be scaled down. All communications, including the interview tool, meeting agendas, and other documents, are included as appendices and can serve as a template for other entities wishing to follow the same methodology.

STEP I – IDENTIFY PROJECT GOALS AND ENGAGE STAKEHOLDERS

HCOHSEM personnel met to discuss the issues the AAR should cover and the timeline for completing the AAR, and to review the major activities and meetings required to develop the AAR successfully. Two members of the HCOHSEM planning team were identified to lead the project and work with a contractor to complete the AAR. The results of this meeting were documented in a project work plan.

The key to the successful development and completion of this AAR was the active participation of stakeholder groups. Throughout this project, significant effort was dedicated to stakeholder engagement. To ensure the resulting AAR accurately reflected the observations of all stakeholders and included specific recommendations they would implement, it was essential to engage them throughout the AAR development process.

The project sponsor identified a list of over 40 organizations that participated in Harvey response and recovery efforts. At the start of the AAR development, the lead coordinator for HCOHSEM distributed a letter to identified stakeholders describing the process and requesting their support and participation. The stakeholders in the region are accustomed to receiving all correspondence from HCOHSEM through the Public Information Officer (PIO), so using this strategy helped ensure the letter would be delivered, read, and internalized by the stakeholders. A copy of the letter is included in Appendix A.

STEP II – REVIEW INCIDENT DOCUMENTATION AND CONDUCT AAR INTERVIEWS

The Tetra Tech AAR team reviewed incident documentation, emergency operation plans, and previous AARs (from Hurricane Ike; 2015 Flooding Event; and Hurricanes Rita, Edouard, and Gustav) to gain an understanding of County roles and responsibilities as well as emergency management capabilities and processes. This review served as the foundation for identifying strengths and areas for improvement in the overall emergency management process.

Using the information learned during the documentation review, the AAR Team developed an interview tool. A copy of this interview tool can be found in Appendix B. The interview tool asked a series of questions focusing on the following areas, which were identified by the HCOHSEM senior staff during the project kickoff meeting:

- Command Structure (Incident Command System and National Incident Management System)
- Federal, State, and Local (County and City) Coordination
- EOC Operations
- Human Resources
- Public Information
- Coordination with Private Sector Partners (including utilities)
- Communication Interoperability
- Rescue Operations and Coordination
- Debris Management
- Shelter Operations
- Housing
- County Staging Areas (ice, water, food, etc.)
- Volunteer and Donations Management

One-hour interviews were conducted with more than 40 different stakeholder organizations, which included elected officials, traditional emergency management agencies, other county departments, representatives of industry, and nonprofit organizations. These interviews were conducted from November 13, 2017 to January 12, 2018.

STEP III – HOST AFTER ACTION MEETING

HCOHSEM hosted an after action meeting on January 19, 2018 from 9:00 a.m.–2:00 p.m. at the NRG Center. The after action meeting was attended by 101 county personnel and agency representatives involved in response to Harvey. The purpose of the after action meeting was to gather input regarding the issues identified, the corrective actions needed to address the issues, the identification of departments and agencies to be tasked with the corrective actions, and the establishment of timelines for accomplishing the corrective actions.

Copies of the after action meeting invitation and agenda, are included in Appendices C and D.

STEP IV – DRAFT AAR AND SUBMIT FOR COMMENTS AND APPROVAL TO STAKEHOLDERS

The purpose of this AAR is to identify strengths and areas of improvement and to present a roadmap for any additional assessments and improvements that may need to be made.

The AAR consists of these sections:

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ANALYSIS OF BEST PRACTICES, STRENGTHS, AND AREAS FOR IMPROVEMENT

BEST PRACTICES

- Identified partners within the rescue operations served as subject matter experts (SMEs) during the rescues. SETRAC collaborated with the Coast Guard and helped with water rescues. (SETRAC)

- Communication via GroupMe (a mobile group messaging application) is a trackable way to connect with coworkers. Houston SPCA used GroupMe and it allowed for situational awareness, information dissemination, and employee feedback among all stakeholders and first responders. (Houston SPCA)

- Operation Reunite placed displaced animals into foster care, allowing for human interaction while locating owners. After 45 days, the animals were eligible for rehoming. Using Operation Reunite helped free-up space in the shelters. (Houston SPCA)

- Finding Rover was instrumental in connecting displaced pets with their owners. Finding Rover is a facial recognition system. Owners missing pets could log onto the system and search for their pet. (Houston SPCA)

- By pre-positioning county, state, and federal assets – A Type 1 Command Team from FEMA, the response to the high floodwaters was immediate. Need to pre-position more assets for all future events. (HCOHSEM)

- The Harris County Juvenile Probation Center used Facebook to communicate with employees and parents regarding the status of the juveniles and the facilities. (Juvenile Probation)

- The Harris County Juvenile Probation Center evaluated release dates and allowed early release of juveniles with impending release dates. (Juvenile Probation Center)

- Government officials performed damage assessments while handing out water to the community after the hurricane had passed utilizing the First Contact program. (Commissioner PCT 4)

- The Fire Marshal's Office paired civilian personnel and resources with skilled professionals to assist with the rescue operations, which improved the efficiency of rescue operations. (Fire Marshal's Desk)

- Community Services conducted door-to-door canvassing to reach vulnerable populations. In collaboration, Public Health conducted canvassing operations in the Pasadena area, and Community Services conducted canvassing operations in the south Harris County area.

- Daily briefings conducted at the NRG Center in the morning and afternoon with all stakeholders were well-received and provided critical situational awareness. (NRG Center)

- The Regional Joint Information Center (JIC) was operational from August 22nd to September 15th for Hurricane Harvey. The Regional JIC was the coordinating point for emergency public information coming from the greater Harris County region and was responsible for keeping the public and media informed around the clock during the activation. (HCOHSEM)

COMMAND AND CONTROL

FEDERAL, STATE AND LOCAL COORDINATION

STRENGTHS

- Pre-positioning of county, state, and federal assets proved beneficial during the initial response operations. The assets were able to quickly deploy and support operations.

AREAS FOR IMPROVEMENT

Area for Improvement 1

- There needs to be a training and adherence to state guidelines for the ordering of resources. Training should cover; all agencies need to adhere and follow guidelines in reference to resource requests and the order of the processing of resource requests.

  Analysis: The STAR system allows for resource requests to be made by local authorities in WebEOC and for the requests to be processed locally at the county level and/or passed to the State and Federal level for approval and fulfillment. The WebEOC system is in place to help coordinate requests so resources are not double-tasked and to ensure resources have a mission number before being sent to the field.

  Recommendation 1: Following and understanding Texas Administrative Code and Texas Government Code 418.

  Recommendation 2: Provide training on coordination of resources during a disaster.

Area for Improvement 2

- The Command Center established at the NRG Center was overwhelmed with contributions of support from area organizations and partners at the local, state, and federal level.

  Analysis: The communication of agency activity was not always clear. The NRG Center lacked notification of the intended arrival and/or departure of agencies. Agencies would arrive to the NRG Center without prior notification requesting space and accommodations the NRG Center could not always guarantee. Prior notification before arrival would benefit the agencies and the NRG Center because it would allow time to prepare in advance of arrival. Several of the agencies that demobilized left equipment and supplies at the NRG Center. It was difficult to identify the owners of the abandoned equipment and supplies when resources were demobilized.

  Recommendation 1: Create a plan to coordinate all activities at the NRG Center. This plan should address the following:

  - Agency roles and responsibilities
  - Chain of command
  - Communications protocols
  - Agency and resource check-in/check-out and/or accountability procedures

Area for Improvement 3

■ Harris County needs to address the framework of their COOP.

Analysis: Due to the immense flooding, numerous of Harris County's departments were unable to access and operate from their normal locations. Most of these departments do not currently have a COOP Plan that outlines their mission essential functions, identifies essential personnel, and establishes an alternate work location should the primary location be uninhabitable. Without a COOP Plan, many of these departments had difficulties locating an alternate work location and were delayed in providing vital services to the community. At this time, Harris County does not have a countywide COOP program. Departments are not required to have a COOP Plan, nor are departments required to update any plans they may have on a regular basis. A COOP framework would better prepare county departments to provide essential services to the community during disruptions to normal operations.

Recommendation 1: Harris County should develop an overarching framework that requires all departments to create a COOP.

EOC OPERATIONS

STRENGTHS

■ County agencies require employees to undergo both National Incident Management System (NIMS) training and Incident Command System (ICS) training. Having this training made it easier for departments to transition from daily operations to disaster operations and to understand their roles and responsibilities.

■ The EOC conducted twice daily briefings that allowed departments to provide an update on their current operations and on the overall response operations. These briefings allowed EOC staff to report back to their departments and organizations and provide the most up-to-date information to support decision making.

■ Maintaining a consistent EOC battle rhythm allowed staff to prepare for planning and operational meetings and briefings. Catering services in the EOC successfully provided meals for up to 500 people on a daily basis. Having on-site caterers allowed for meals to be served around the clock (every 6 hours) allowing for all shift schedules to be fed.

AREAS FOR IMPROVEMENT

Area for Improvement 1

■ County personnel not previously utilized in a major disaster response do not have a working knowledge of their individual roles and responsibilities within the ICS structure when activated for disaster response operations.

Analysis: While all applicable Harris County employees are required to take NIMS and ICS training, many have not been required to implement the doctrines outside of the training environment. Their basic working knowledge was beneficial; however, when required to complete disaster operations-related tasks, support personnel report that they were unsure of their roles and responsibilities because they had never applied these skills. Employees noted the initial ICS-100, ICS-200, IS-700, and IS-800 courses were useful, but that they needed follow-up opportunities to include real application experience, similar to what is provided in a no-fault exercise environment. The primary concern expressed by employees was correctly completing the necessary documentation for operations and reimbursement.

Recommendation 1: Provide additional and follow-up NIMS/ICS training to county employees who may be involved in disaster response operations. Training may include but not be limited to the following:

- A refresher course after a specific period of employment (i.e., a minimum of every 3 years) to ensure personnel remain current with NIMS/ICS training.

- County employees who will operate in the Finance Section should take the FEMA All Hazards Finance Section Chief course and/or the E975 All Hazards Position Specific Finance/Administration Unit Leader course.

- All county employees who may be involved in disaster response operations, should be trained in ICS-100, ICS-200, IS-700, and IS-800 courses.

Area for Improvement 2

■ Due to flooded roadways limiting transit, personnel in both the EOC and the field were required to fill multiple roles; however, most had not been adequately trained on the additional responsibilities for the job function they were expected to fulfill.

Analysis: The flooding across Harris County hampered the ability for personnel to reach not only the EOC but also the field operations. This delay caused personnel who were already in place to have to fill multiple roles in the EOC and the field, and caused novice personnel to be sent to the EOC or various staging areas. Some personnel were asked to fill roles that they had not been trained to fill in addition to their assigned disaster role. Filling multiple roles caused some personnel to feel overwhelmed by the workload and unsure of what was required of them.

Recommendation 1: Conduct tactical level exercises and training to transition into normal operations and to allow personnel to practice operating in multiple roles in the EOC and the field. Functional exercises provide a no-fault learning environment where employees can become familiar the functions they may be asked to fill.

Recommendation 2: Cross-train multiple personnel in each position vital to emergency operations to allow backups for unforeseen circumstances and to appropriately staff multi-day, 24-hour operations.

Area for Improvement 3

■ The EOC staff included limited personnel who were dispatched from agencies not well-versed in roles and responsibilities in an EOC environment.

■ **Analysis:** Due to travel constraints and the length of the operations, agency representatives who had never operated in an EOC environment were used to staff the EOC. Some staff, particularly from outside and partner agencies, had not been provided introductory NIMS and ICS training before reporting to the EOC. This created an environment where some staff were unsure of what their particular roles and responsibilities entailed. Staff who had previously worked in the EOC offered assistance to the best of their abilities while also trying to fulfill their own responsibilities. HCOHEM provides a welcome packet and resource binder to all incoming EOC staff that could be enhanced or expanded.

Recommendation 1: Develop an EOC orientation course that can be provided either in-person or via online training module to give staff an introduction to EOC operations.

Recommendation 2: Provide additional time orienting staff to the EOC Guidebook that includes information regarding:

- Roles and responsibilities of EOC staff

- Building information

- A listing of the departments and agencies regularly represented in the EOC and their primary roles

Recommendation 3: Provide printed copies at each workstation and store electronic copies in an accessible online location.

Recommendation 4: Add training for the new elected official's orientation book.

Area for Improvement 4

■ EOC representatives were not clearly identifiable by department/agency or by their assigned command function.

Analysis: Upon their arrival, staff in the Harris County EOC were not provided name badges or other forms of identification notating their name, department/agency, or job function. Staff who had not previously operated in the EOC were not able to easily identify EOC representatives from partner agencies. In addition, command staff did not wear vests identifying their role, which made them difficult to identify.

Recommendation 1: The EOC should identify all workstations clearly so that EOC staff can easily locate individual/group workstations.

Recommendation 2: All command and general staff should wear high visibility vests that clearly show their assigned role on both the front and back of the vest.

Recommendation 3: Provide an information technology solution to identify what workstation and job each individual is assigned to in the EOC.

Area for Improvement 5

■ All department personnel need to keep an activity log to ensure reimbursement for the event.

Analysis: The county utilizes WebEOC to capture important information relating to EOC and field operations. The system, however, is not set up to track individual department decisions and interactions while in the EOC. While this information may not seem important to the staff member at the time, it can be vital during shift changes to brief the incoming staff or when recreating the operational records for after action reporting, reimbursement requests, and plan updates following a disaster. To capture information, all department personnel working the disaster need to maintain a log of their activities during their operational shift utilizing a common form that can be collected and logged as a part of the EOC documentation.

Recommendation 1: All personnel should maintain a record of their activities utilizing the ICS-214 Activity Log.

Area for Improvement 6

■ Some departments were not aware of how the county's disaster procurement policy works.

Analysis: When a disaster occurs, a line is opened for emergency purchases, and departments are expected to make their own emergency purchases. They may consult HCOHSEM or Logistics for assistance with identifying resources as necessary, but ultimately the requesting department is responsible for the purchases.

Recommendation 1: Harris County departments should review existing procedures on the county's disaster procurement policy and making disaster-related purchases.

HUMAN RESOURCES

STRENGTHS

■ Central Technology Services (CTS) operators were able to work remotely to support county operations.

AREAS FOR IMPROVEMENT

Area for Improvement 1

■ Human Resources and Risk Management can assist departments with reassigning employees when their normal functions are suspended due to a disaster, but many departments were not aware of this capability.

Analysis: Human Resources can support departments whose employees must be temporarily reassigned because their normal functions have been suspended. Conversely, Human Resources can support departments that require surge staffing to support disaster response operations. In effect, Human Resources can function as a centralized staffing agency to help departments manage staffing challenges during disaster response operations; however, many departments were not aware of this capability.

Recommendation 1: Procedures regarding employee reassignment should be integrated into countywide continuity of operations/continuity of government planning.

Recommendation 2: Human Resources and HCOHSEM should collaborate on developing a procedure for matching the employees to areas of need based on skillset.

Area for Improvement 2

■ A standardized emergency timekeeping system is not established.

Analysis: Currently, multiple time-keeping systems are used throughout the county, and not all departments have established emergency timekeeping procedures. It is noted that the planned transition to PeopleSoft may help, but a standardized offline/manual backup procedure should be established.

Recommendation 1: Harris County should establish a standardized emergency timekeeping system and offline/manual backup procedure.

PUBLIC INFORMATION

STRENGTHS

■ The Regional Joint Information Center (JIC) defined predetermined times to release information and maintained this schedule throughout operations.

■ The JIC conducted rumor control operations by monitoring social media and traditional media outlets and releasing information to clarify any identified false information.

■ The daily JIC Conference Calls provided an opportunity for other partners to provide updates on their activities and receive key information. Response partners and JIC staff found that the daily call was a key element in keeping partners informed.

■ The Gulf Coast Emergency Communications Network (GECN) worked with Clear Channel Outdoor to provide critical information on digital billboards throughout the region during Harvey. This partnership is offered at no cost to cities and counties that have signed on to the partnership and offers an alternative to provide information to residents moving throughout the region.

- Resource requesting procedures already in place for the JIC made asking for additional PIOs easy. A STAR Request for additional PIOs from the North Texas PIO Group resulted in a well-trained strike team to come to the JIC to relieve staff.

- County agencies successfully utilized social media outlets (particularly Facebook, Twitter and NextDoor) to provide information to both employees and the public. Noted example:
  - Parents of juveniles housed in the Juvenile Detention Center were able to check the status of the buildings where their children were housed.

- GroupMe, a smartphone application, was used by multiple organizations to update employees. The application allowed organization to track and log their communication.

AREAS FOR IMPROVEMENT

Areas for Improvement 1

- The overwhelming participation in the JIC Conference Calls overwhelmed the conference bridge system being used at TranStar.

  Analysis: Critical information was conveyed on these calls, so the ability to have numerous partners participate was critical. The announcements for the JIC Conference Calls were done via a subscriber distribution list, which allowed more participants to sign up as they became involved in the Harvey response.

  Recommendation 1: Invest in an enhanced and larger capacity conference bridge system.

Areas for Improvement 2

- The JIC is staffed by representatives from across county departments that are trained to fill the assigned duties. The number of members in the JIC Strike Team needs to increase to meet the demand of a large incident like Harvey.

  Analysis: As the region continues to grow, the capacity of the JIC must also grow. What made the JIC Strike Team so successful during Harvey is that every member went through a vetting process so there was an "inventory" of the skills that were on the team. This was followed up with Just In Time Training (JITT) on the skills they needed to know to fill various JIC roles during Harvey.

  Recommendation 1: The JIC strike team should look at including representatives from all county departments to help prevent burnout of staff during an incident. Additional strike team members could also serve as liaisons to the EOC, legislative affairs, neighborhoods, etc.

  Recommendation 2: Rolls and responsibilities for the JIC must be documented and JIC strike team members must be cross-trained on these different technologies, tasks and roles.

Areas for Improvement 3

- Critical and complex information from partner agencies that needed to be shared immediately with the public was sometimes slow to come out, creating confusion and a delayed response.

  Analysis: While the JIC tried to coordinate the flow of information on Harvey, some partners and external organizations key messaging conflicted that of others based on the broad scope of the event. This happened both knowingly and unknowingly. In the case of Harvey, the U.S. Army Corps of Engineers (USACE) faced a difficult and complex situation with the release of water out of the

Barker and Addicks Reservoirs. Briefing of partner agencies and peer-review of key information did not always occur, causing some confusion and conflicting messaging.

■ **Recommendation 1:** Have PIOs from outside partners like USACE who are familiar with the complexities of reservoir operations and able to provide accurate and timely information.

■ **Recommendation 2:** Ensure that partner messages undergo the same thorough and expedient peer-review process that all JIC messages use before going to the public.

Areas for Improvement 4

■ The JIC handled message coordination before, during and after Harvey, but recovery messaging was difficult to organize and ensure timely posting.

Analysis: While the JIC provided information on response and recovery, coordinating efforts for recovery activities sometimes fell to the JIC Strike Team and other HCOHSEM teams during Harvey. These teams are meant to support and help inform on recovery activities, but they cannot lead recovery activities. Despite the appearance of a well-oiled machine from preparation to response to recovery, HCOHSEM staff and resources were pulled in too many directions over the course of Harvey.

Recommendation 1: PIOs from key county departments handling recovery efforts such as Community Services and Engineering should lead recovery communication efforts in the JIC.

Recommendation 2: Volunteer organizations (i.e. VOADs), non-profit groups, and local government partners must step up to coordinate and lead recovery activities.

COORDINATION WITH PRIVATE SECTOR PARTNERS (INCLUDING UTILITIES)

STRENGTHS

■ Private partners provided representatives in the EOC to support the Harris County EOC Logistics Section.

■ CTS was able to remotely track fuel status at gas stations and report that fuel status 3–4 times a day so that law enforcement could see when fuel was available and where it was located. CTS staff were able to keep shops open to access fuel.

OPERATIONS

COMMUNICATIONS INTEROPERABILITY

STRENGTHS

■ Both internal and external partners attended operational conference calls, which helped to coordinate operations and facilitated the sharing of situational updates.

■ Harris County CTS distributed more than 1,000 functioning radios during the incident.

AREAS FOR IMPROVEMENT

Areas for Improvement 1

■ Additional training on regional radios prior to an incident and just-in-time training is needed during an incident.

Analysis: The large number of users attempting to access the radio system at the same time quickly took up the majority of Harris County's radio frequencies and caused lapses in communication. Agencies were required to share frequencies with responders out in the field who needed to stay in constant contact. Many users who were provided radios had never used them before and were unfamiliar with the concept of radio discipline. This led to communications taking place over the radio that could have been handled via other communications methods, which delayed important communications between partners.

Recommendation 1: Review regional communications interoperability plans and assign agencies to frequencies based upon their disaster response and recovery role.

Recommendation 2: Implement training officers for each department and develop the just-in-time training.

Recommendation 3: Check into alternatives for radio and communications.

RESCUE OPERATIONS AND COORDINATION

STRENGTHS

■ Harris County first responders have previous experience responding to flooding incidents (Memorial Day 2015 and/or Tax Day) and understood the importance of accurately responding to and documenting their operations.

■ First responders integrated Southeast Texas Regional Advisory Council (SETRAC) and Society for the Prevention of Cruelty to Animals (SPCA) personnel into the rescue teams, which enabled them to provide SMEs to support the operations.

AREAS FOR IMPROVEMENT

Area for Improvement 1

■ Some county employees used to conduct water rescues had not previously been provided with any training.

Analysis: County employees, especially in the precincts, were utilized to conduct water rescues due to the number of people stranded by the rapid onset of the flooding. While all employees recognized the need to assist with life safety efforts, many had never completed any water safety, boat safety, or water

rescue course. Water safety, boat safety and water rescue courses would have provided employees with a working knowledge of how to enact rescues, how to operate boats in debris-filled waters, and general water safety principles.

Recommendation 1: Identify the agencies/departments that support ESF 9 - Search and Rescue and provide the following rescue training:

- Floodwater Response Training
- Swift Water Rescue Training

Recommendation 2: Identify and provide training on equipment and personnel to departments/agencies that coordinate all response efforts and integrate into all Harris County response training.

DEBRIS MANAGEMENT

STRENGTHS

- HCOHSEM and Harris County Engineering effectively coordinated debris management efforts.
- Recovery teams were mobilized efficiently due to preplanning efforts.
- Pre-existing contracts were in place, which aided in timely deployment.
- Harris County Engineering had just completed their pre-planning for debris management, which aided in the timely mobilization of assets/resources.
- The use of the permitting automation process allowed the county to issue approximately 29,000 permits in a short amount of time.

AREAS FOR IMPROVEMENT

Area for Improvement 1

- Debris hauler contract needs more clarity and options provided within the pre-event contract to allow for more flexibility.

  Analysis: The county had a primary contractor that did not honor their debris management contract because the rates in the contract were too low, and they could not afford to operate under the rates identified in the contract. There is also a need for clarity on line items (i.e., what line items used hauling to a landfill or debris management sites as well as debris reduction).

  Recommendation 1: The county should revise/update the current debris hauler contract. The updated contract should allow contractor to respond/operate under flood and wind conditions and allow for secondary and tertiary contractors in the contract.

  Recommendation 2: The county should revise/update the current debris hauler contract to provide clarity on line items used for hauling to a landfill or debris management site as well as debris reduction.

Area for Improvement 2

- There was a lack of identification and sourcing of debris management sites by a contractor.

  Analysis: A county contractor should have identified and sourced debris management sites for the county but failed to do so. This caused the county to have to identify and source debris management sites, which took time and resources away from other critical tasks.

Recommendation 1: Update and revise the current debris management contract to include incentives and disciplinary actions for contractors.

TRANSITION TO RECOVERY

STRENGTH

■ Coordinated Assistance Network (CAN), a partnership between Red Cross and nonprofit disaster relief organizations, provided services by inputting data into the CAN system to support information sharing among stakeholders. The data inputted into CAN consisted of client records to provide real-time access to the client records by all stakeholders.

AREAS FOR IMPROVEMENT

Area for Improvement 1

■ Harris County should augment and increase communication on all of the recovery plans.

Analysis: For recovery operations to be successful, transition planning must begin shortly after response operations start. Decisions made during the response phase will have a direct bearing on the recovery operations and should be coordinated accordingly. In order to coordinate these phases, staff must be assigned to both response and recovery, which can be taxing when personnel resources are limited. Harris County's plans currently do not include a section on how the EOC transitions from response to recovery and who takes the lead on this effort. This leaves the county without a formally defined way to transition as response operations begin to subside and move into short-term and long-term recovery begins.

Recommendation 1: Update the Harris County Emergency Operations Plan, Annex J - Recovery to address how the EOC will transition from response to recovery in a more formalized manner.

Recommendation 2: Identify general staff from county departments to work in the EOC. Create new positons and build a team with the appropriate supporting agencies.

Area for Improvement 2

■ FEMA recently changed the requirements for Public Assistance (PA) and implemented the new FEMA PA Portal, resulting in challenges for the Harris County staff.

Analysis: With the changing FEMA requirements, staff tried to be proactive learning the changes, but felt like they needed additional training on the new requirements, as well as training on the FEMA PA Portal.

Recommendation 1: Provide additional training and work on the integration earlier in the Public Assistance process.

Recommendation 2: All new personnel identified to assist with PA Program functions should take an initial FEMA background and reimbursement course to understand the process.

MASS CARE

SHELTER OPERATIONS

STRENGTHS

- The NRG Center was set up as a shelter in a timely and efficient manner, and with the support of Baker Ripley, provided sheltering to more than 74,000 individuals from across southeast Texas. The shelter was operational within 6 hours of notification.

- The shelter operations at the NRG Center were very well organized, and the intake process was conducted in a way that set the calm tone for the shelter and the operation as a whole. The shelter checked-in people using 16 different languages with no issues.

- The NRG Shelter provided behavioral health and medical services, as well as recovery services onsite.

- The Red Cross used GIS tracking of feeding locations used to coordinate with partners on feeding operations locations, which provided a real-time tracking of feeding status.

HOUSING

STRENGTHS

- Harris County was able to quickly work with federal partners to secure monetary assistance for affected residents.

- Interfaith Ministries did very well resuming meal delivery and meeting the needs of the seniors.

- CTS was able to track a large number of permit requests for housing flood-related issues.

COUNTY STAGING AREAS (ICE, FOOD, WATER, ETC.)

STRENGTHS

- The CSA team did exceptionally well transitioning from the existing County Staging Area (CSA)/ Regional Staging Area (RSA) Points of Distribution (POD) Plan that was designed and established by HCOHSEM to a Shelter and Camp Plan based on the same requirements and guidelines. The modification of the plan enabled staff to work efficiently and effectively to meet the needs of private shelters, NRG Center Shelter, Harris County Maintenance Camps, as well as other County departments.

AREAS FOR IMPROVEMENT

Area for Improvement 1

- The County Staging Area/Points of Distribution Plan needs to be amended to address First Contact.

  Analysis: Harris County Community Services/County Staging Area successfully implemented a First Contact approach to distribute emergency resources to communities via first responders (Fire, Emergency Medical Services [EMS], Constables). The approach was effective, but it should be codified in the County Staging Area/Points of Distribution Plans so that it can be easily applied to future response operations.

  Recommendation 1: Harris County should update their County Staging Area/Points of Distribution plans to include First Contact approach.

Area for Improvement 2

■ Regional Staging Area and County Staging Area should establish a way to track trailers carrying resources.

Analysis: In many cases, truck drivers carrying resources from the RSA would drop off trailers of supplies but would have to leave before the trailer could be unloaded. This resulted in many trailers being left behind with no driver to return them to the original source. There was not a clear information exchanged from the RSA to the CSA on the trailer requirements for the offloading and storage of resources.

Recommendation 1: Ensure that resource check-in documentation properly identifies the owner of the resource and provides a resource tag for the item that includes a resource number and agency information.

Recommendation 2: RSA should clearly define shipper's requirements for the delivery, storage and offloading of resources and convey each upon transfer to the CSA.

VOLUNTEER AND DONATIONS MANAGEMENT

STRENGTHS

■ The Fire Marshal, in coordination with one of the CERT volunteers, organized the resources and support of spontaneous volunteers to aid in the water rescue operations.

■ The Cajun Navy was an effective spontaneous volunteer resource. The Cajun Navy was self-sufficient and had their own resource/mission tracking system so they could track the missions they conducted for water rescues. This was coordinated with Harris County EOC and other partners to ensure no duplication of services for resources.

■ Fire, Police, and EMS agencies found ways to use the spontaneous volunteers effectively.

AREAS FOR IMPROVEMENT

Area for Improvement 1

■ HCOHSEM recognized the need to develop an updated process for handling spontaneous volunteers.

Analysis: Spontaneous volunteers arrived to Harris County in large numbers and contacted the Fire Marshal's desk in the EOC. Some of the volunteers required food and accommodations. The Fire Marshal assigned the volunteers to various rescue operation areas and within the areas they housed and fed the volunteers without accommodations. The volunteers were unplanned and their needs of fuel, food, and lodging strained the current plans in place for the rescue operation areas.

Recommendation 1: Update the current Volunteer Reception Center Plan and thoroughly identify how to handle spontaneous volunteers.

Area for Improvement 2

■ HCOHSEM recognized the need to revise the Donations Management Plan to identify a new process to coordinate donations management with an external partner.

Analysis: Many of the agencies operating during Hurricane Harvey fielded donations on an individual basis. Most of the agencies fielding the donations lacked the physical space and resources to manage the donations. HCOHSEM created the Harris County Emergency Operations Plan, Annex T - Donations Management in July 2016 that outlines how to field donations in the community and how to communicate to the community the current needs.

Recommendation 1: Re-identify an external partner to execute the Donations Management Plan.

Recommendation 2: Review and revise the Donations Management Plan to address the following:

- Identification of one agency to coordinate all donations management needs throughout Harris County.

- Better integration among all donations efforts.

- Communications and inventory management of all donated goods.

IMPROVEMENT PLAN

This improvement plan was developed for Harris County following Hurricane Harvey. The recommended solutions, the lead and supporting agencies identified, the suggested resources, and proposed timeline were identified by County stakeholders during the January 19, 2018 After Action Meeting. The recommendations are based on findings detailed in the Analysis of Strengths and Areas for Improvement section of this AAR. This improvement plan is intended to be a stand-alone document and can be excerpted from the rest of this AAR.

The recommended solutions described in this improvement plan represent the best thinking of regional stakeholders at the time. Lead and supporting organizations may choose another path upon further investigation and reflection on the issue. HCOHSEM will periodically update this improvement plan and provide an update to the HCOHSEM Emergency Management Coordinator on a quarterly basis.

All lead and supporting agencies are encouraged and empowered to initiate the recommendations offered in this improvement plan immediately. A large majority of the solutions listed are to be completed immediately (prior to Hurricane Season 2018) or in the short-term (next 6 to 12 months).

The lead coordinating agencies are simply coordinating entities that are responsible for bringing stakeholders together to develop and implement the recommended solutions. In many cases, HCOHSEM has been identified as the lead coordinating agency, which matches the Office's role as the lead coordinating entity for emergency response. However, the support from all County departments, precincts, nonprofit agencies, and private sector stakeholders is important for the successful implementation of these solutions.

Timeframe represents when the activity or solutions should be *completed*. All activities should be initiated immediately as appropriate.

- Immediate (High) – next 6 months (before the next hurricane season)
- Short-term (Medium) – next 12 months
- Medium-term (Medium) – next 13–24 months
- Long-term (Low) – more than 24 months

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IMPROVEMENT PLAN MATRIX

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
Finance, Administration and Logistics						
There needs to be a training and adherence to state guidelines for the ordering of resources. All agencies need to adhere and follow the guidelines in reference to resource requests and the order of the processing of resource requests.	Following and understanding Texas Administrative Code and Texas Government Code 418.	Harris County Judges Office	HCOHSEM		Ongoing	High
	Provide training on coordination of resources during a disaster.	Human Resources/ Purchasing	All County Departments		2 years-Ongoing	High
Human Resources and Risk Management can assist departments with reassigning employees when their normal functions are suspended due to a disaster, but many departments were not aware of this capability.	Procedures regarding employee reassignment should be integrated into countywide continuity of operations/continuity of government planning.	Human Resources	HCOHSEM		3 years	High
	Human Resources and HCOHSEM should collaborate on developing a procedure for matching the employees to areas of need based on skillset.					
A standardized emergency timekeeping system is not established.	Harris County should establish a standardized emergency timekeeping system and offline/manual backup procedure.	Human Resources			3 years	Medium
Some departments were not aware of how the county's disaster procurement policy works.	Harris County departments should review procedures on the county's disaster procurement policy and making disaster-related purchases.	Purchasing			6 -12 months	High

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
The County Staging Area/Points of Distribution Plan needs to be amended to address First Contact.	Harris County should update their County Staging Area/Points of Distribution plans to include First Contact approach.	HCOHSEM CSA	TBD		1 year	Medium
The Regional Staging Area and County Staging Area should establish a way to track trailers carrying resources.	Ensure resource check-in documentation properly identifies the owner of the resource. Provide a resource tag for the item that includes a resource number and agency information.	HCOHSEM	TBD		1-2 years	High
	RSA should clearly define shipper's requirements for the delivery, storage and offloading of resources and convey each upon transfer to the CSA.	HCOHSEM	TBD		6 -12 months	High
JIC, Planning and Public Outreach						
Harris County needs to address the framework of their COOP.	Harris County should develop an overarching framework that requires all departments to create a COOP.	Human Resources	CTS HCOHSEM FPM		2 Year Harris County/ 3-4 Years Dep. Specific	Medium
The overwhelming participation in the JIC Conference Calls taxed the conference bridge system used at TranStar.	Invest in an enhanced and larger capacity conference bridge system.	HCOHSEM	CTS		1-2 years	High

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
The JIC is staffed by representatives from across county departments that are trained to fill the assigned duties. The number of members in the JIC Strike Team needs to increase to meet the demand of a large incident like Harvey.	The JIC strike team should look at including representatives from all county departments to help prevent burnout of staff during an incident. Additional strike team members could also serve as liaisons to the EOC, legislative affairs, neighborhoods, etc.	HRRM	HCOHSEM		2 years	High
	Rolls and responsibilities for the JIC must be documented and JIC strike team members must be cross-trained on these different technologies, tasks and roles.	HCOHSEM	HRRM		1-2 years	High
Critical and complex information from partner agencies that needed to be shared immediately with the public was sometimes slow to come out, creating confusion and a delayed response.	Have PIO from outside partners like USACE who are familiar with the complexities of reservoir operations and able to provide accurate and timely information.	HCOHSEM	USACE		2-3 years	Medium
	Ensure that partner messages undergo the same thorough and expedient peer-review process that all JIC messages use before going to the public.	HCOHSEM			1-2 years	Medium
The JIC handled message coordination before, during and after Harvey, but recovery messaging was difficult to organize and ensure timely posting.	PIOs from key county departments handling recovery efforts such as Community Services and Engineering should lead recovery communication efforts in the JIC.	HCOHSEM			1-2 years	High
	Volunteer organizations (i.e. VOADs), non-profit groups, and local government partners must step up to coordinate and lead recovery activities.	HCOHSEM	CSD		1-2 years	High

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
Additional training on regional radios prior to an incident and just-in-time training is needed during an incident.	Review regional communications interoperability plans and assign agencies to frequencies based upon their disaster response and recovery role.	CTS in coordination with State Wide Interoperability Coordinator	HCOHSEM		1 year	High
	Implement training officers for each department and develop the just-in-time training.	CTS	HCOHSEM		1 year	High
	Check into alternatives for radio and communications.	CTS	HCOHSEM		2 Years	Medium
There is a need for fire prevention plans at all debris management sites.	Harris County should implement contractual and tighter contract changes.	Engineering	Fire Marshal		3-9 Months	High
Harris County should augment and increase communication on all of the recovery plans.	Update the Harris County Emergency Operations Plan, Annex J - Recovery to address how the EOC will transition from response to recovery in a more formalized manner.	HCOHSEM	All county departments as applicable to recovery.		2-3 Years	Medium
	Identify general staff from county departments to work in the EOC. Create new positons and build a team with the appropriate supporting agencies.					
FEMA recently changed the requirements for Public Assistance (PA) and implemented the new FEMA PA Portal, resulting in challenges for the Harris County staff.	Provide additional training and work on the integration earlier in the Public Assistance process.	Human Resources	HCOHSEM		1-2 Years	Medium
	All new personnel identified to assist with PA Program functions should take an initial FEMA backgrounds and reimbursement course to understand the process.					

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
HCOHSEM needs more storage space for resources.	Invest in a larger warehouse facility, 10,000 ft. or more for storage, staging, and reallocation before an incident.	HCOHSEM	County Budgeting Engineering FPM		3 Months	High
HCOHSEM recognized the need to develop an updated process for handling spontaneous volunteers.	Update the current Volunteer Reception Center Plan and thoroughly identify how to handle spontaneous volunteers.	HCOHSEM	VOAD Supporting Agencies		3-5 Years	Low
HCOHSEM recognized the need to facilitate a revision to the current Donations Management plan to identify a new process to coordinate donations management with an external partner.	Re-identify an external partner to execute the Donations Management Plan	HCOHSEM	County Partners		6 -12 Months	High
	Review and revise the Donations Management Plan. - Identification of one agency to coordinate all donations management needs throughout Harris County - Better integration among all donations efforts. - Communications and inventory management of all donated goods.	HCOHSEM	VOAD All Applicable Partners		2-3 years	Low
Operations and General						
The Command Center established at the NRG Center was overwhelmed with contributions of support from area organizations and partners at the local, state, and federal level.	Create a plan to coordinate all activities at the NRG Center. This plan should address the following: - Agency roles and responsibilities - Chain of command - Communications protocols - Agency and resource check-in/check-out and/or accountability procedures	NRG Center HCOHSEM	CSD SETRAC CTS State of TX Law Enforcement		2-3 years	High

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
County support personnel do not have a working knowledge of their individual roles and responsibilities within the ICS structure when activated for disaster response operations.	Provide additional and follow-up NIMS/ICS training to County employees who may be involved in disaster response operations. Training may include, but not be limited to: - A refresher course after a specific period of employment (i.e., a minimum of every 3 years) to ensure personnel remain current with NIMS/ICS training. - County employees who will operate in the Finance Section should take the FEMA All Hazards Finance Section Chief course and/or the E975 All Hazards Position Specific Finance/Administration Unit Leader course. - All county employees who may be involved in disaster response operations should have training in NIMS 100, 200, 700, and 800 courses.	HCOHSEM	Human Resources		2-3 years	High

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
Due to travel constraints, personnel in both the EOC and the field were required to fill multiple roles; however, most had not been trained on the responsibilities for the job function they were expected to fulfill.	Conduct tactical level exercises and training to transition into normal operations and to allow personnel to practice operating in multiple roles in the EOC and the field. Functional exercises provide a no-fault learning environment where employees can become familiar the functions they may be asked to fill.	HCOHSEM	All County Agencies		2-3 years	High
	Cross-train multiple personnel in each position vital to emergency operations to allow backups for unforeseen circumstances and to appropriately staff multi-day, 24-hour operations.	Individual County Departments	Harris County Departments		2-3 years	Medium
The EOC staff included personnel who had never operated in the EOC and who were unaware of their additional roles and responsibilities.	Develop an EOC orientation course that can be provided either in-person or via online training module to give staff an introduction to EOC operations.	HCOHSEM	All County Departments in EOC		2-3 years	Medium
	Provide additional time orienting staff to the EOC Guidebook that includes information regarding: - Roles and responsibilities of the EOC staff - Building information - A listing of the departments and agencies regularly represented in the EOC and their primary roles.	HCOHSEM	TBD		3-6 months	Medium
	Provide printed copies at each workstation and store electronic copies in an accessible online location.	HCOHSEM	TBD		6-12 months	Medium

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
	Add training for the new elected official's orientation book.	HCOHSEM	TBD		6-12 months	Medium
EOC representatives were not clearly identifiable by department/agency or by their assigned command function.	The EOC should identify all workstations clearly so that EOC staff can easily locate individual/group workstations.	HCOHSEM	TBD		3 months	Medium
	All command staff should wear high visibility vests that clearly show their assigned role on both the front and back of the vest.					
	Provide an information technology solution to identify what workstation and job each individual is assigned to in the EOC.					
All department personnel need to keep an activity log to ensure reimbursement for the event.	All personnel should maintain a record of their activities utilizing the ICS-214 Activity Log.	Human Resources	All County Departments		ongoing	High
Some county employees used to conduct water rescues had not previously been provided with any training.	Identify the agencies/departments that support ESF 9 - Search and Rescue and provide the following rescue training: - Floodwater Response Training - Swift Water Rescue Training	TBD	Agencies with a Role in Water Rescues		3-5 years	Medium
	Identify and provide training on equipment and personnel to departments/agencies that coordinate all response efforts and integrate into all Harris County response training.	TBD	Agencies with a Role in Water Rescues		3-5 years	Medium

Issue	Recommended solution(s)	Lead Coordinating Agency(ies)	Supporting Agency(ies)	Potential Resources Needed	Suggested Timeline	Priority
Debris hauler needs more clarity and options provided within the pre-event contract to allow for more flexibility.	The County should revise/update the current debris hauler contract. The updated contract should allow contractor to respond/operate under flood and wind conditions and allow for secondary and tertiary contractors in the contract.	County Engineering	Purchasing Legal		2-3 years	Medium
	The County should revise/update the current debris hauler contract to provide clarity on line items used for hauling to a landfill or debris management site as well as debris reduction.					
There was a lack of identification and sourcing of debris management sites by a contractor.	Update and revise the current debris management contract to include incentives and disciplinary actions for contractors.	County Engineering	Purchasing Legal Pollution Control		2-3 years	Medium

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CONCLUSION

The Harris County Hurricane Harvey After Action Report is intended to provide a path forward for improving the County's emergency response and recovery capabilities. The action items and next steps listed in this report will be implemented and require the full support of all County departments and elected officials. Some of the items listed are quick and easy fixes, while others require a major long-term investment of time and money. However, emergencies do not wait for us to be ready. They can happen at any time, and interim solutions may need to be implemented prior to next hurricane season. As public servants, it is our duty to be as innovative as possible to address these challenges during difficult economic times.

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The following is a copy of the letter that was sent to all stakeholders inviting them to participate in the AAR development process. This letter was electronically distributed.

COUNTY JUDGE ED EMMETT
DIRECTOR

The Harris County Office of Homeland Security and Emergency Management (Harris County OHSEM) has contracted with Tetra Tech to develop an After-Action Report/Improvement Plan (AAR/IP) for Hurricane Harvey.

After this unprecedented catastrophic disaster, it is prudent for our county to reflect upon the event and our ability to plan, respond, and recover effectively. Together we will develop an AAR/IP that identifies the strengths and areas of improvement.

Tetra Tech will set up conference call interviews with those agencies and departments that had primary and support roles during Hurricane Harvey. Please help us identify key personnel from your agency and department to be interviewed. These conference call interviews will be conducted over a three-week period and will focus on assessing critical capabilities. They will be scheduling one hour blocks of time for each of your agencies and departments via conference calls. We hope to begin the interviewing process on Monday, November 13, 2017. The interview will provide an opportunity to focus on specific areas that require in-depth discussion and to discuss overarching successes and gaps in the planning, response and recovery activities.

It is our goal to produce an AAR/IP that will validate strengths, identify areas of improvement and present a "roadmap" for any additional assessments and improvements that need to be made. This AAR/IP is an essential tool in helping Harris County in our continual effort to strengthen our response for the next disaster.
Please contact Jennifer Suter at jennifer.suter@oem.hctx.net or 713-426-9544, should you have any questions.

Respectfully,

Mark Sloan, Coordinator
Harris County Homeland Security Emergency Management

6922 Katy Road, Houston, Texas 77024   Phone (713) 881-3100   Fax (713) 881-3077   www.readyharris.org

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APPENDIX B – AAR DATA COLLECTION INTERVIEW TOOL

The following questions were used during the interviews with stakeholders to obtain their observations of the County strengths and weaknesses demonstrated during the Hurricane Harvey response and recovery efforts. These questions were not asked verbatim but rather served as a general tool to ensure each interview was sufficiently comprehensive.

Harris County AAR Data Collection Interview Tool

Purpose: This document contains a list of questions that will be used by the interviewer (Tetra Tech) during one-on-one conference call interviews with emergency management organizations (federal, state, local, nonprofit, and private) that participated in the Harris County Emergency Management Hurricane Harvey response and recovery efforts.

Directions: A brief description on the background of the project and how the individuals' interview responses will be utilized for the development of the Harris County AAR/IP will be provided at the beginning of each interview. The format for the meeting will be explained. The first set of questions focuses on their individual *organization's* response and recovery efforts and then move on to overall *countywide* response and recovery efforts with a focus on the following areas as appropriate and relevant:

1. Command Structure (use of ICS and NIMS)
2. Federal, State, and Local (County and City) Coordination
3. Public Information
4. EOC Operations
5. Shelter Establishment and Operation
6. Volunteer Coordination
7. Housing
8. Rescue Operations and Coordination
9. County Staging Area (ice, water, food, etc.)
10. Debris Management
11. Communication Interoperability
12. Coordination with Utilities (water, power, etc.)
13. Donations Management

Organization Specific Questions

1. Please describe your organization's role during Hurricane Harvey?

2. Please describe your role during Hurricane Harvey?

3. What are the areas your organization did well?

4. What are the areas your organization could improve upon?

5. Were there any short-term or immediate fixes your organization put in place to remedy any challenges?

6. Does your organization have any long-term and future plans to address the areas of concern?

7. What type of support would your organization need from Harris County OHSEM or other organizations?

8. Are there any practices, protocols, or systems your organization has in place you think are worthy of being suggested as a best practice?

(Follow-up questions to clarify or delve deeper into an area will be asked as needed.)

Countywide Questions

1. How did the County respond to and recover from Hurricane Harvey? In what areas did the County perform well? What are some of the areas you think the County could do better? Briefly describe some examples of what you saw?

2. Did you participate in the response and recovery from Hurricane Ike? Are any of these challenges/areas for improvement the same as what you observed during the response and recovery from Hurricane Harvey? Have you seen improvements since the response to Hurricane Ike? (As we go through the remaining questions, please call upon your experience with past events to identify long-standing challenges.)

3. Do you have any suggestions for addressing these challenges?

4. What organizations should will play a role in addressing areas needing improvement?

Command Structure

1. How well was NIMS and ICS employed during the response and recovery efforts?

2. What do you think is the root cause of any NIMS and ICS effectiveness issues?

3. What do you think it will take to fix this problem?

4. What level of NIMS and ICS training has your agency/department had?

5. Do you think most of the emergency management representatives in the County have taken the required NIMS and ICS courses? ICS-100, 200, 300, 400, IS 700, and 800?

6. Were there any issues in identifying and utilizing essential personnel when transitioning from normal operations to disaster response?

Federal, State, and Local Communication and Coordination

1. Did communication and coordination between your organization and other emergency response organizations go as planned? (Note: Requests for state resources should be made to the disaster district committee (DDC) 2A at the Texas Department of Public Safety District Office. Requests for state resources begin at the DDC level. The request must be approved by the County Judge or a Mayor.)

2. Were Federal, State, and local plans consistent with each other?

3. Based on your experience in past events, are the issues you saw similar to what has previously occurred?

4. In your opinion, what is the root cause of the problem?

5. How would you fix the issues?

Public Information

1. Was the flooding threat effectively communicated to the public?

2. What went well in regard to public information?

3. What could have been done better?

4. What suggestions do you have for improving public information?

5. Does your organization have a PIO?

6. Was a Joint Information Center (JIC) set up? If so, answer questions 18 – 23.

7. If so, was your agency's PIO integrated in the JIC?

8. Do you feel there was a regional response partner missing/not participating in the regional JIC?

9. Do you have any observations on how the JIC operated during Hurricane Harvey?

10. Did the JIC communicate well with the EOC and other emergency response organizations to obtain information? Was this information disseminated to the public effectively? (Ask if the person was deeply involved in JIC operations.)

11. What measures or standards are being used to assess the effectiveness of emergency warning and notification? (Ask if the person was deeply involved in JIC operations.)

12. Do you think the JIC had enough resources at their disposal? How efficient do you think the JIC operated during response and recovery operations?

13. What type of communication protocols and infrastructure is needed at the JIC? (Ask if the person was deeply involved in JIC operations.)

14. Do you think the County's public outreach and education efforts met the demands of the rapidly growing population of Harris County?

EOC Functionality and Capabilities

1. Does your organization have an EOC? Does it effectively meet the needs of the organization?

2. Do you have access to all documents needed to operate the EOC (i.e., plans, SOGs, policies, etc.)?

3. Is your organization's EOC a dedicated space or multi-use? Is there sufficient space for emergency management and EOC staff? Is it equipped and staffed to conduct 24/7 operations?

4. Is the EOC vulnerable to any major hazards or threats (e.g., flood plain, near chemical or hazmat facility)?

5. Does the EOC have backup power?

6. Did you have a representative in the Harris County OHSEM EOC?

7. How well did the County EOC at TranStar function? What sort of functionality or capability is needed and why?

8. Was there sufficient space for staff to conduct EOC operations?

9. Is the County's current list of vendors comprehensive enough?

10. How current is the County's resource database? Were there any issues with the database?

11. Do you think the process of submitting, tracking, and closing out resource requests was efficient?

12. Were there any issues in fulfilling resource requests?

13. Did County employees responding to Hurricane Harvey have any issues in getting fuel?

14. Were there any issues in restoring County services? (i.e., loss of power, availability of generators, access to fuel).

15. Did the County use any subject matter experts? If yes, were there any issues?

16. Were there any demobilization issues?

17. What issues (if any) were encountered in implementing the Displaced Employee Program?

Responsibility Specific Questions

The following set of questions will be asked to organizations that were engaged in the various response areas. Only organizations that were involved in the following tasks/activities will be asked the questions listed under that activity.

Shelter Establishment and Operation

1. Describe what role, if any, your organization played in sheltering?

2. Describe your overall impressions on how the County provided shelter and mass care support for the populations, specifically focusing on the following

    a. Decision process to open shelters?

    b. Communication and coordination with ARC to open shelters?

    c. Process for opening and staffing shelters?

    d. Providing the necessary services, resources, and support for shelters, such as shelter kits, feeding, emergency first aid, and other basic life support needs for those occupying temporary shelters?

    e. Communication and coordination with other groups (social service groups, Salvation Army, or faith-based organizations) to provide services?

    f. Registering those occupying public shelters?

    g. Location, safety, capacity, and infrastructure at shelters?

    h. Providing shelters for those with access and functional needs and pets?

    i. Decision process to close shelters?

    j. Did the disaster welfare inquiry system work? Was it effective?

    k. Providing long-term shelter assistance or housing assistance?

3. Compared with past events, how do you think the County has improved its shelter planning, response, and coordination efforts?

Volunteer Coordination

1. Were Citizen Corps and CERT teams utilized during emergency response and recovery efforts?

2. How did volunteer opportunities get communicated to Citizen Corps or CERT team members?

3. How well did the County utilize spontaneous volunteers?

4. What issues (if any) were encountered in managing spontaneous volunteers?

5. What issues (if any) were encountered in dealing with spontaneous volunteers?

6. Were volunteers (both spontaneous and volunteer groups) effectively utilized before, during, and after the response?

7. Did you see any direct improvement in overall community preparedness due to citizen outreach programs?

Housing

1. Were there any issues with providing of transitional housing for displaced residents in response to Hurricane Harvey? Describe some of the major concerns.

2. What could have been done to improve the situation?

3. Who has the responsibility to coordinate these efforts?

4. What planning should occur to better coordinate and provide housing resources?

5. What are long-term solutions to the problem? (e.g., change in building codes) What types of mitigation strategies should be implemented?

6. How were housing efforts coordinated with public information efforts during the recovery phase?

Rescue Operations and Coordination

1. How efficiently were rescue operations conducted?

2. Were there any issues in coordinating rescue operations? If so, what were the issue?

3. How were spontaneous volunteer groups coordinated with established rescue groups for rescue operations?

4. Were there enough resources available to handle rescue efforts?

County Staging Area (Ice, Water, and Food)

1. What were the problems surrounding the distribution of commodities to commodity partners (ice, water, food, etc.) in the County?

2. What are the root causes of these problems?

3. What are suggestions to fix these problems?

4. Was the County able to provide relief resources (e.g., ice, water, food, etc.) using other mechanisms?

5. How well do you think emergency procurement procedures were understood by personnel?

6. Did the EOC and commodity partners communicate well with each other to coordinate response and resumption of service?

7. What type of coordination issues occurred?

Damage Assessment and Debris Management

1. Were the damage assessments done quickly? Accurately? Did the paperwork completed reflect the amount of support needed?

2. Did the debris removal phase process go as planned?

3. How was communication to the public about debris removal? (e.g., media press releases, call center hotlines)

4. Were the contractors available and ready to go?

5. How can communication and coordination with FEMA in regard to the debris removal reimbursement process be improved?

Communication Interoperability/Resiliency

1. What went well in regard to communications interoperability and resiliency?

2. What types of communication (technology) failures occurred (e.g., 911 call centers, radios, etc.)?

3. Were any of these systems/protocols/procedures put in to place as a result of the lessons learned from Ike or past events?

4. What do you think should be improved? How would you improve upon the system?

5. Were handheld radios used in the EOC at TranStar? If yes, were there any issues?

Coordination with Utilities

1. Was there any loss of power to critical facilities? If so, did the loss of power affect emergency response and recovery activities? If yes, how?

2. Did the EOC and the utilities communicate well with each other to address power outages?

3. Was there coordination between utilities and emergency management for:

    a. Rendering downed or damaged electric lines safe to facilitate debris removal from roadways?

    b. Cutting off utilities to facilitate the emergency response to fires, explosions, building collapses, and other emergency situations?

    c. Facilitating search and rescue operations by cutting off electrical power, gas, and water to areas to be searched?

    d. Establishing temporary utility hookups to facilitate response activities?

4. How did this response compare with previous events?

5. In general, how often does your organization participate in emergency planning activities such as exercises and drills with local emergency management?

6. Did your organization follow ICS/NIMS principles?

7. What do you think could be done to improve the coordination between your organization and emergency management?

Donations Management

1. Were there any issues in implementing the Harris County/City of Houston Donations Management plan?

2. What are the root causes of these issues?

3. Do you have any suggestions to address these issues?

4. How well did responding agencies coordinate response and recovery efforts?

General Summary Questions

1. Out of the all of the items discussed today, what do you think are the top three strengths and areas of improvement in the overall County response and recovery efforts? Which are the most important to address?

2. Do you consider any of these strengths a best practice?

3. What are the next steps for your organization to improve overall emergency response and recovery capabilities?

4. What do you think are the next steps for Harris County OHSEM?

5. Will you participate in the improvement planning meeting on December 15th? Who do you think should attend?

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APPENDIX C – AFTER ACTION MEETING INVITATION

The following document was the invitation distributed to all stakeholders inviting them to participate in the after action meeting.

HARRIS COUNTY OFFICE OF HOMELAND SECURITY & EMERGENCY MANAGEMENT
6922 Old Katy Road ● Houston, Texas 77024
Phone (713) 881-3100 ● Fax (713) 881-3077
http://www.hcoem.org

Working Together to Improve Harris County's Response and Recovery Capabilities

On January 19, 2018, Harris County's Office of Homeland Security and Emergency Management will be hosting an after action planning meeting to identify working solutions and answers to help resolve the issues observed during Hurricane Harvey.

We thank all of you who have participated in the one-on-one interviews to identify our emergency management strengths and challenges. But our work is not done; we now need to find answers to these challenges and ensure our strengths are repeatable. On January 19th we will collect the best minds together to identify potential solutions, assign lead and supporting agency (ies) and create a timeline for resolving the issue(s). You play a key role in helping identify solutions to and solving our emergency management issues. We ask that two to three representatives from each organization participate in this after action planning meeting on January 19th. These representatives should be able to speak on behalf of their organization and be able to commit the organization to working on specific activities.

We know this meeting comes at a time when professional and personal commitments are high. If we do not take this opportunity to learn and solve our shortfalls, we will not improve and next time the consequences could be devastating. We ask that you participate in this meeting and we promise you we will make it an effective, efficient use of your time.

Date and Time: January 19th, 2018 from 0900-1400 (lunch on your own from 12:00 pm – 1:00 pm)
Location: NRG Center – Room 206
8400 Kirby Drive
Houston, Texas 77054

For more information contact Jennifer Suter at (713) 426-9544 or at jennifer.suter@oem.hctx.net.

Harris County Judge Ed Emmett
Director

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APPENDIX D – AFTER ACTION MEETING AGENDA

The following is the agenda followed during the after action meeting held on January 19, 2018.

HARRIS COUNTY OFFICE OF HOMELAND SECURITY & EMERGENCY MANAGEMENT
6922 Old Katy Road   Houston, Texas 77024
Phone (713) 881-3100 ◆ Fax (713) 881-3077
http://www.hcoem.org

Working Together to Improve Harris County's Response and Recovery Capabilities

Hurricane Harvey After-Action Meeting

Agenda

I.	Introductions	9:00 am – 9:15 am
II.	Ground Rules – Setting the Stage for the Day	9:15 am – 9:30 am
	▪ Review of Findings	9:30 am – 10:45 am
	a. Strengths	
	b. Areas of Improvement	
III.	Identify Improvement Plan for Common Issues	10:45 am – 11:00 am
	▪ For each issue identify:	
	1. Recommended Solution(s)	
	2. Lead Agency(ies)	
	3. Supporting Agency(ies)	
	4. Potential Resources Needed	
	5. Suggested Timeline	
	6. Priority	
IV.	Provide Directions on Breakouts and Lunch On Your Own	11:00 am – 12:15 pm
V.	Breakout Sessions	12:15 pm – 1:15 pm
VI.	Breakout Session Report Back to Group	1:15 pm – 1:45 pm
VII.	Next Steps and Conclusion	1:45 pm – 2:00 pm

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APPENDIX E – ACRONYMS

Acronym	Definition
AAR	After Action Report
AAM	After Action Meeting
ARC	American Red Cross
CAN	Coordinated Assistance Network
CERT	Community Emergency Response Team
COOP	Continuity of Operations Plan
CSA	County Staging Area
CSD	Community Services Department
CTS	County Technology Services
DRC	Disaster Recovery Center
EOC	Emergency Operations Center
ESC	Education Service Center
ESF	Emergency Support Function
FPM	Facilities & Property Management
FEMA	Federal Emergency Management Agency
FOUO	For Official Use Only
GIS	Geographic Information Systems
HCOHSEM	Harris County Office of Homeland Security Emergency Management
IAP	Incident Action Plan
IC	Incident Command
ICS	Incident Command System
ISD	Independent School District
IP	Improvement Plan

Acronym	Definition
JIC	Joint Information Center
LOFR	Liaison Officer
METRO	Metropolitan Transit Authority of Harris County
MPH	Miles Per Hour
MRC	Medical Reserve Corps
MRE	Meals Ready to Eat
NIMS	National Incident Management System
PA	Public Assistance
PCT	Precinct
PD	Police Department
PIO	Public Information Officer
PO	Purchase Order
POD	Points of Distribution
RSA	Regional Staging Area
SETRAC	Southeast Texas Regional Advisory Council
SME	Subject Matter Expert
SOC	State Operations Center
SPCA	Society for the Prevention of Cruelty to Animals
STAR	State of Texas Assistance Request
TBD	To Be Decided
VOAD	Volunteer Organizations Active in Disasters

APPENDIX F – AGENCIES AND ORGANIZATIONS INTERVIEWED

Agencies and Organizations Interviewed
American Red Cross
BakerRipley
Harris County Budget Management
Harris County Central Technology
Harris County Commissioner Pct. 1
Harris County Commissioner Pct. 2
Harris County Commissioner Pct. 3
Harris County Commissioner Pct. 4
Harris County Community Services
Harris County Community Services – County Staging Area
Harris County District Courts
Harris County Engineering
Harris County Fire Marshal's Office
Harris County Flood District
Harris County Human Resources
Harris County Judge's Office
Harris County Juvenile Probation
Harris County Office of Homeland Security and Emergency Management
Harris County Public Health
Harris County Public Library
Harris County Sheriff's Office
Harris County Toll Road Authority/Harris County Constable Pct. 5
HC Constable Pct. 1
HC Constable Pct. 2
HC Constable Pct. 3
HC Constable Pct. 4
HC Constable Pct. 6
HC Constable Pct. 7
HC Constable Pct. 8
Houston ISD
Houston SPCA

Agencies and Organizations Interviewed
Interfaith Ministries (Volunteers)
METRO Transit
NRG Center
Region 4 Education Service Center (schools)
Salvation Army
SETRAC
TX Department of Public Safety / DDC
TX Department of Transportation
US Coast Guard
VOAD Chair
Walmart