



Colorado River Flooding

After Action Report

Austin Homeland Security and Emergency Management
Travis County Office of Emergency Management

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HSEM
City of Austin Office of Homeland Security
and Emergency Management



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Executive Summary

Overview

The Colorado River flooding and subsequent boil water notice response was initiated as widespread rainfall occurred throughout the central Texas region in early October 2018. The Lake LBJ and Lake Buchanan watershed basins received heavy rainfall causing significant damage to surrounding areas. Much of this rainfall drained to the Colorado River through Lake Travis from the Llano River. As a result, the Lower Colorado River Authority (LCRA) commenced flood response operations for the Buchanan Dam, Mansfield Dam, and Tom Miller Dam on Tuesday, October 16, 2018. Concurrently, Austin Water commenced flood operations on the Longhorn Dam in coordination with the LCRA.

On this same day, the City of Austin Office of Homeland Security and Emergency Management (HSEM) stationed a Situation Assessment Team in the Emergency Operations Center (EOC) to support the Travis County Office of Emergency Management (OEM) flood response operation. On Wednesday, October 17, 2018, LCRA anticipated the need to open four additional gates at Mansfield Dam, which would result in flooding along Lake Austin, Lady Bird Lake, and areas downstream of Longhorn Dam because of the volume of water released. On Thursday, October 18, 2018, the joint Austin-Travis County EOC was activated to prepare for the anticipated effects of the additional flood gates opening.

As the EOC was activated, Austin Water placed its Departmental Operations Center (DOC) to standby mode. The water draining through the Colorado River was fed by water from the Llano River which had a significant amount of silt, dirt, and debris as a result of the extremely dry summer conditions in the area. On Friday, October 19, 2018, water treatment plants (WTPs) were still operating as normal; however, Austin Water noticed increased turbidity levels at raw water intakes. By Saturday, October 20, 2018, the increased water turbidity began to impact WTP operations and water production fell as clogged filtration systems were addressed. On Sunday, October 21, 2018, the Austin Water DOC was activated as WTP capacity was diminished as Austin Water was challenged to maintain output water turbidity. Austin Water called for the community to reduce water consumption. By 8:00 p.m. the night of Sunday, October 21, 2018, the Austin Water Director recommended the Austin City Manager initiate a boil water notice preemptively.

Austin HSEM and Travis County OEM staff worked overnight to notify key stakeholders of the situation, identify a communication strategy, and identify sources of water to provide to the community. At 6:00 a.m. on Monday, October 22, 2018, a press conference was held at Austin City Hall to announce the boil water notice. At 5:25 p.m. the same day the Reverse 9-1-1 system was used to send out water conservation and boil water notices to all Austin Water customers. On Tuesday, October 23, 2018, the turbidity levels leaving the filters at one of the WTPs triggered a mandatory boil water notice by the Texas Commission on Environmental Quality (TCEQ).

The impact of the boil water notice was felt throughout the city and county. Restaurants, schools, and hospitals were all impacted. Many restaurants did not open, especially initially, and many of those that did open could not offer all of their normal services. Schools remained open, but Austin Independent School District (AISD) worked tirelessly to ensure operations could continue as normal. Parents were requested to boil water for their children to bring to school. Hospitals were heavily impacted – Austin HSEM and Travis County OEM were able to provide hospitals with adequate water supply, but surgeries requiring sterile equipment were initially put on hold prior to when equipment manufacturers could be contacted to ensure the safety of the equipment. Austin HSEM and Travis County OEM provided potable water to the community through seven water points of distribution (PODs) which distributed bottled or bulk drinking water. Five of these PODs were run by the City of Austin, one of the PODs was run by Travis County, and one POD was run by Williamson County.

The boil water notice lasted for seven days. On Sunday, October 28, 2018, TCEQ informed Austin Water that all the criteria required to lift the boil water notice had been met. At 3:30 p.m. that Sunday, Austin Water released a press release to inform the public that the boil water notice was over. At 4:15 p.m., a press conference was held at City Hall to officially announce the boil water notice's end.

After-Action Report Development

Methodology

Austin HSEM and Travis County OEM, in partnership with Hagerty Consulting¹, coordinated to form a Project Management Team. The Project Management Team identified eight unique focus areas of response within the joint Austin and Travis County response to the Colorado River flooding and subsequent boil water notice incident. The Project Management Team worked with the City, County, and regional partners, including other departments and responding organizations to identify one to two representatives per focus area to serve as Focus Area Leads. These Leads were tasked with providing guidance for the after-action process and for the after-action report (AAR) itself.

The first step in the AAR process was to invite relevant employees and stakeholders to participate in an online survey. This survey solicited targeted information about the role each respondent played in the regional response to the Colorado River flooding and subsequent boil water notice and asked respondents to rate and comment on critical components of the response (e.g., operations, resource management, planning documents, training, and communication processes). The results of the online survey are captured in the [Survey Summary Analysis](#) appendix to this report. Respondents were invited to attend the Focus Area Meetings at the same time as filling out the survey.

¹ Hagerty Consulting is a third-party emergency management consulting firm contracted to facilitate the after-action process and develop the full After-Action Report and Corrective Action Plan.

Based on the results of the survey, the Project Management Team along with the Focus Area Leads developed the critical elements of the response for facilitation for the Focus Area Meetings, including key themes, strengths, and areas of improvement. At the end of each Focus Area Meeting, participants were provided a menu of three to five key action items identified during the meeting and asked to select the one action item which should receive priority over the others. The results of this voting process are captured in the [Action Prioritization Ranking](#) appendix to this report.

An initial draft of this AAR was prepared based on information gathered from online survey responses and Focus Area Meetings. The initial draft was presented to the Project Management Team and Focus Area Lead, and then to other critical stakeholders for comment at an After-Action Conference (AAC). AAC participants were also invited to provide written feedback on the draft through a Comment Tracking Sheet. These comments were subsequently incorporated into a final draft.

An initial draft of the Corrective Action Plan (CAP) was developed in parallel with this report to assign responsibilities for implementing the identified recommendations. Following the AAC, the draft CAP was presented to the Planning Team at a CAP Conference, during which participants agreed upon the City, County, or regional partner departments, agencies, or responding organizations that would maintain primary or supporting responsibility for the implementation of each corrective action. The CAP can be found at the conclusion of this report.

Finally, both the AAR and CAP were finalized and approved by Austin HSEM and Travis County OEM. They were then presented to the City Manager, and formally accepted by the City and the County.

AAR Focus Areas

The Project Management Team identified eight unique Focus Areas of response to the Colorado River flood. Each Focus Area comprises a different aspect of the response, each with a unique narrative and a distinct set of stakeholders, actors, plans, processes, and outcomes. While overlap exists across some Focus Areas, these divisions provide a mechanism to break the overall response into accessible elements and establish a framework for a set of focused and achievable actions. This AAR recommends the City, the County, and/or their regional partners implement these actions in order to capture strengths and remedy areas of improvement observed during the response to the Colorado River flood. The Focus Areas are:

- [Operations](#)
- [Direction and Control](#)
- [Water Points of Distribution \(PODs\)](#)
- [Resource Management](#)
- [Emergency Procurement](#)
- [Communications](#)
- [Recovery](#)
- [Resilience](#)

Summary Analysis

Strengths

Through feedback captured during eight Focus Area Meetings, as well as through responses to the online survey, the Planning Team identified strengths evident across the joint city and county response to the Colorado River flood. These strengths were sorted by focus area and analyzed to identify actions and processes Austin, Travis County, and their regional partners should continue or incorporate into future response plans. The strengths organized by Focus Area are:

- [Operations](#)
- [Direction and Control](#)
- [Water Points of Distribution \(PODs\)](#)
- [Resource Management](#)
- [Emergency Procurement](#)
- [Communications](#)
- [Recovery](#)
- [Resilience](#)

Areas for Improvement

Through feedback captured during eight Focus Area Meetings, as well as through responses to the online survey, the Planning Team identified areas for improvement evident across the joint city and county response to the Colorado River Flooding. These areas for improvement were sorted by Focus Area and analyzed to identify actions and processes that Austin, Travis County, and their regional partners should incorporate into future response plans as remedy for the following areas of improvements, organized by Focus Area:

- [Operations](#)
- [Direction and Control](#)
- [Water Points of Distribution \(PODs\)](#)
- [Resource Management](#)
- [Emergency Procurement](#)
- [Communications](#)
- [Recovery](#)
- [Resilience](#)

Core Capabilities

Presidential Policy Directive 8 (PPD-8) describes the Nation’s approach to preparing for the threats and hazards that pose the greatest risk to the United States. The Directive sets forth the National Preparedness Goal of: *“A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.”* To achieve this goal, 32 Core Capabilities² have been established with associated capability targets to aid the whole community in achieving this goal. These Core Capabilities provide for collective goals across emergency management planning and exercises, and as such, have been incorporated into this report to assist both the City and County in aligning their future planning, training, and exercise initiatives. The Core Capabilities included in this report and their associated definitions are included below.

Core Capability	Definition
Economic Recovery	Return economic and business activities (including food and agriculture) to a healthy state and develop new business and employment opportunities that result in an economically viable community.
Environmental Response/Health and Safety	Conduct appropriate measures to ensure the protection of the health and safety of the public and workers, as well as the environment, from all-hazards in support of responder operations and the affected communities.
Logistics and Supply Chain Management	Deliver essential commodities, equipment, and services in support of impacted communities and survivors, to include emergency power and fuel support, as well as the coordination of access to community staples. Synchronize logistics capabilities and enable the restoration of impacted supply chains.
Operational Communications	Ensure the capacity for timely communications in support of security, situational awareness, and operations by any and all means available, among and between affected communities in the impact area and all response forces.
Operational Coordination	Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.

² A full list of Core Capabilities can be found at: <https://www.fema.gov/core-capabilities>.

Core Capability	Definition
Planning	Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.
Public Information and Warning	Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard, as well as the actions being taken, and the assistance being made available, as appropriate.

Response Analysis

Focus Area 1: Operations

Focus Area Introduction

Summary

On October 17, 2018 and October 18, 2018, Travis County and the City of Austin activated the Austin-Travis County EOC in response to the Colorado River flooding. For the next 21 days, the EOC served as Area Command, operating 24 hours a day, with roughly 25 agencies from across the City and County departments and regional partners. From the EOC, the City, County, and their regional partners coordinated water PODs and prepared for potentially catastrophic flooding around the Colorado River. Many of the City and County departments contributed personnel and resources to Logistics, Planning and Public Information, in addition to the entire range of operational activities. EOC staff were adaptable and flexible to address the situation. Additionally, Austin Communications and Technology Management (CTM) Geographic Information Systems (GIS) Emergency Response Team (ERT) was able to provide spatial data in real-time to help EOC staff plan for potential impacts of the disaster.

Many City, County, and regional partner personnel also maintained responsibilities in their day-to-day roles, causing Area Command to struggle with staffing shortfalls. At times, operational coordination was hampered by a lack of familiarity (or practice) with the Incident Command System (ICS) among some City and County personnel staffing the EOC. EOC staff were unsure of processes for requesting activation of reassigned employees and missed the existence of agency traffic control and POD plans that would have aided incident planning. Through all of this, employees in the EOC were able to work through these difficulties.

Related Core Capabilities

- Situational Assessment
- Operational Coordination
- Operational Communications
- Planning

Strengths

Coordination with GIS ERT (Situational Assessment):

- CTM (GIS ERT), a team of interagency GIS specialists who provide support to the EOC during incidents, was effectively mobilized during this activation. CTM (GIS ERT) was utilized to plan for

potential impacts during the incident for the first time. The floodplain group was able to provide information regarding flood risk due to dam operations to CTM (GIS ERT) in order to map potential impacts in real-time. This information was then distributed to relevant agencies/departments.

- **Recommendation 1.1:** The City and County should expand GIS capability for application during incidents and planning.
- **Recommendation 1.2:** The City and County should simplify the process of City and County staff sharing and updating data with CTM (GIS ERT) for production of maps and other geospatial information.

City/County Coordination (Operational Coordination):

- Coordination between the City and County staff was strong throughout the activation, partially attributed to the strong operational relationship between the Austin HSEM Director and the Travis County OEM Chief Emergency Management Coordinator.
 - **Recommendation 1.3:** The City and County should continue to foster the relationship between City and County staff for enhanced coordination in future EOC activations.
 - **Recommendation 1.4:** Work with lifeline critical infrastructure stakeholders (e.g., water, energy, transportation) to develop proactive and preventative trigger points to mitigate cascading impacts.
- The Capital Area Medical Operations Center (CAMOC) during the incident was fully operational. The CAMOC was staffed by representatives from Austin Public Health, Hospital liaisons from St. David's and Seton Family of Hospitals and Capital Area Trauma Regional Advisory staff. The water needs of the hospitals were determined very quickly due to the working history of this group.
 - **Recommendation 1.5:** The City and County should maintain full operations of the CAMOC during incidents.

Institutionalizing Knowledge (Planning):

- Some response partner agencies brought inexperienced personnel into the EOC to shadow their more experienced counterparts as on-the-job-training, providing these personnel with hands-on real-world incident observation experience.
 - **Recommendation 1.6:** The City and County should include shadowing as a standard practice for responding agencies and departments.

EOC Personnel (Operational Coordination):

- Having a variety of agencies and departments in the EOC benefited the operation by improving coordination. This also included representation from the state (Texas Division of Emergency Management (TDEM) and Disaster District Committee (DDC), and Austin CTM, which maintained a presence in the EOC (or were on call) for the majority of the activation to provide immediate technical assistance.

- **Recommendation 1.7:** The City and County should continue to encourage representation for all relevant agencies/departments in the EOC in order to strengthen coordination during EOC activations.

Situational Awareness (Operational Communications):

- The schedule of meetings and calls was displayed every day in the EOC. This was a great method to maintain the broader organization of the EOC and maintain situational awareness for the EOC staff. The posted schedule contributed to the situation report (SitRep) to summarize what happened during that operational period to inform future operational periods.
 - **Recommendation 1.8:** The City and County should continue the practice of posting the call and meeting schedule daily in the EOC to maintain EOC staff situational awareness.

Areas for Improvement

Mobilization (Operational Coordination, Operational Communications):

- The timing of the activation was not clear among City and County staff. This was partially attributed to the unprecedented nature of the incident and partially to the differences in the operational levels by the City and County. Examples of the differences include but are not limited to: The City's reduced operational level (not fully staffing EOC), and the County having fewer activation levels compared with the City.
 - **Recommendation 1.9:** Austin HSEM and Travis County OEM should work together to align their activation levels and interagency coordination in the context of a joint EOC.
- There was an inconsistency amongst agencies and organization representatives as to notification, both in timing and in the method of contact.
 - **Recommendation 1.10:** EOC leadership needs to strengthen and refine the notification process, particularly in complex incidents where scaling-up and scaling-down is needed.
 - **Recommendation 1.11:** The City and County should use a multi-method form of notification including pagers for initial notification and email for large amounts of information. The list of those notified should be periodically updated.

EOC Personnel (Operational Coordination):

- This incident required a large amount of coordination with the LCRA. The LCRA hosted daily conference calls to bridge the gap between the numerous jurisdictions involved in this incident and the LCRA EOC, but even with this, the amount of coordination was limited for the needs of joint Austin-Travis County EOC for this incident. This incident highlighted a need for more coordinated efforts with key external entities (in this case the LCRA). To fill the specific gap identified in this incident, the LCRA has invited a liaison from the City/County to be present in the LCRA EOC during incidents, if desired.

- **Recommendation 1.12:** The City and County should institute a practice providing the information provided in this call to all EOC staff in executive briefings.
- **Recommendation 1.13:** The City and County should coordinate and assign City and/or County staff to be a liaison between key external agencies to coordinate a seat in the host EOC as needed.
- **Recommendation 1.14:** Departments represented in the EOC should identify additional liaisons to work at external sites in order to improve communications, specifically during complex cross-jurisdictional events.
- During the incident, the responsibilities for reassigning employees were not clear. It was a challenge for EOC staff to identify how many reassigned employees were available to activate, which reassigned employees had specific qualifications necessary for incident operations, and to maintain visibility on the activations of reassigned staff, resulting in some staff having too many assigned shifts. EOC staff expected Austin Human Resources Department (HRD) to play a critical role in leading staffing of reassigned employees for emergency field operations. However, HRD's role in the activation was unclear and they were expected to meet requests that they had not been in charge of for previous activations. The speed of onset of the crisis limited the amount of time HRD had available to take strategic action to reassign employees. Many employees needed to be activated after traditional business hours, which made it a challenge to reach people. As HRD began reassigning employees, they were unaware that there were additional details of the activation (e.g., reassigned employees at the water PODs needed to be able to lift). Fleet Services was able to assist in identifying potential reassigned employees as they were aware of employees with the right certifications.
 - **Recommendation 1.15:** City and County staff should clarify the process of identifying and requesting reassigned employees in order to make the process easier and more streamlined.
 - **Recommendation 1.16:** The City and County should clarify the role and expectations of City and County Human Resources (HR) departments in the context of an EOC activation and their timeline in the EOC activation process. This will allow for staff in the EOC and City and County HR to prepare accordingly and ensure reassigned employees are certified, safe, and not overworked.
 - **Recommendation 1.17:** The City and County should explore developing and making a consolidated list of skill-sets by department available to EOC staff in order to streamline the activation of reassigned employees in the field.
 - **Recommendation 1.18:** The City and County should explore the creation of a local incident management team (IMT) that is pre-trained for specific positions and can support meeting the needs of operational resource requirements.
 - **Recommendation 1.19:** City HRD has proactively initiated the development of an EOC activation standard operating procedures (SOPs). Austin HSEM should provide input on the SOP for EOC activation by City HRD to provide context to an EOC activation. Similarly,

Travis County Human Resources Management Department (HRMD) should develop an EOC activation SOP with input from Travis County OEM.

- **Recommendation 1.20:** City and County HR should include an incident assessment process in their EOC SOP to assist them in assessing the need for organizing and contacting reassigned employees during the work day.
- **Recommendation 1.21:** City and County HR should be included in any planned logistics exercises. Austin and Travis County Purchasing Offices and Finance Departments are currently discussing plans to hold a joint logistics exercise.
- **Recommendation 1.22:** The City and County should compile a list of external labor contracts and memorandum of understandings (MOUs) readily available for use and establish a trigger point for utilizing outside labor resources versus reassigned employees.
- **Recommendation 1.23:** HRMD should staff representatives in the EOC throughout the duration of emergency incidents.
- **Recommendation 1.24:** The City and County should assign an EOC Staffing Coordinator who would act as a centralized employee to manage the task of reassigning employees.
- The Central Texas School Safety Consortium did not have a representative, apart from AISD, in the EOC during the Boil Water response phase of the incident. This presented challenges for the AISD emergency operations staff as they were not able to comprehensively inform and act for AISD, specifically, and the Central Texas School Safety Consortium.
 - **Recommendation 1.25:** Austin HSEM and Travis County OEM should work with the Central Texas School Safety Consortium on the protocol for mobilizing a school representative to serve in the EOC, to ensure consideration is given to the impact of a given emergency on the selected representative's district.

EOC Staffing (Operational Coordination):

- Operating the EOC while maintaining day-to-day operations of departments/agencies and DOCs was challenging during this incident due to resource limitations. Some personnel were overworked and burned out, particularly when operations became 24/7. Additionally, not all EOC staff integrated easily into the EOC. EOC staff had not all received an initial briefing and did not have all of the same training for EOC operations; this was particularly true for staff who were placed in unfamiliar roles.
 - **Recommendation 1.26:** Austin HSEM and Travis County OEM staff should expand EOC orientation, coordination, and training. Those eligible for training should include staff who are not expecting to work in the EOC. This should include scripted “just-in-time” training to allow staff training during an activation.
 - **Recommendation 1.27:** Austin HSEM and Travis County OEM should build out agency director communication to include emergency management training.
 - **Recommendation 1.28:** Austin HSEM and Travis County OEM should develop a staffing plan for activations in order to be better prepared for activation needs. This plan should include: a schedule, roles needed, and potential agencies/individuals to fill those roles.

The City and County should consider using standby contracts to fulfill resource needs in the staffing plan.

- **Recommendation 1.29:** The City and County should create a designation of “essential” or “critical” employees to ensure employees who are responsible for activating to the EOC understand their role.
- **Recommendation 1.30:** City and County agency and department continuity of operations (COOP) plans should acknowledge agency and departmental staffing challenges during activations, accounting for staff that may be activated to the EOC or assisting with the disaster in some way even if normal agency and departmental operations are suspended.

Resource Awareness (Planning):

- City and County staff underutilized existing plans during this incident. This included, but is not limited to, traffic control plans, maintained by City of Austin Department of Transportation, and POD Plans, maintained by Austin Public Health (APH).
 - **Recommendation 1.31:** The City and County should conduct an assessment and catalog City and County department/agency plans related to emergency management. Austin HSEM and Travis County OEM should then utilize identified plans in future activations and develop a plan for updating of this assessment.
 - **Recommendation 1.32:** The City and County should review the POD plan produced by APH in order to produce a plan that is more flexible for numerous POD types, and to identify pre-determined POD locations, as well as considerations for just-in-time locations. The City should look to the Austin Office of Real Estate Services for support in the pre-identification of future POD locations.
- Long term care facilities, dialysis centers, home health and hospice agencies have not been active members of the Capital Area Public and Medical Preparedness Coalition and have not been involved in the CAMOC. This event showed the need for them to be active members similar to what hospitals have been doing for years. We need current contact information and involved the Department of State Health Services to impress upon these groups that they need to be involved as part of the requirement of the Center for Medicare and Medicaid Emergency Rules.
 - **Recommendation 1.33:** The City and County should work with long term care facilities, dialysis centers, and home health and hospice agencies to get them more involved in the Capital Area Public and Medical Preparedness Coalition and the CAMOC to be more prepared during incidents.

GIS Capability (Situational Assessment):

- During the activation, there were a number of GIS data issues identified. Data that CTM (GIS ERT) had access to was not always up-to-date and departments/agencies had data or datasets relevant to emergency management that CTM (GIS ERT) did not have knowledge of. Staff did not have compatible systems for sharing data and data was emailed between GIS personnel. There were also compatibility issues between the outputs produced by the GIS tool used by the City and the

GIS tool being utilized by the County. These data challenges resulted in additional processing time for CTM (GIS ERT) representatives to produce accurate and relevant products.

- **Recommendation 1.34:** Austin HSEM and Travis County OEM should then work with City and County GIS staff to ensure there is mutual knowledge of relevant datasets.
- **Recommendation 1.35:** The City and County should establish a dedicated emergency management GIS analyst in order to have a greater ability to utilize GIS as a tool for emergency management, resolve challenges in utilization of GIS during activations, and be a liaison between CTM (GIS ERT) and the EOC staff.

Utilizing WebEOC (Operational Communications, Situational Assessment):

- WebEOC was not regularly updated by all departments/agencies and there were WebEOC accessibility issues, where some staff with the same title did not have the same access to WebEOC. Additionally, not all pertinent remote staff in DOCs have access to WebEOC.
 - **Recommendation 1.36:** A WebEOC controller position should be established. They would be responsible for updating WebEOC with command and control decisions.
 - **Recommendation 1.37:** Austin HSEM and Travis County OEM should work with the Capital Area Council of Governments (CAPCOG) in order to update and improve WebEOC boards.
 - **Recommendation 1.38:** Austin HSEM and Travis County OEM should review the assignment of WebEOC login information and remote access capability during an activation to promote collaboration and situational awareness.

Demobilization (Operational Coordination):

- The demobilization planning process did not include all relevant agencies, which led to challenges. Not all agencies were informed of their role in the demobilization process and other agencies were not able to include specific needs into the demobilization plan. For example, APH was not sufficiently involved in the demobilization planning process and did not realize their role in public messaging after the boil water notice was lifted.
 - **Recommendation 1.39:** EOC representatives should create a more transparent demobilization process. While all EOC representatives cannot be included in the demobilization planning process, the demobilization plan should be communicated to all in the EOC, and some allowance for feedback should be made. Additionally, the demobilization process should include demobilization of mutual aid resources.

Focus Area 2: Direction and Control

Focus Area Introduction

Summary

On October 18, 2018, the City of Austin, in conjunction with Travis County and regional partners, activated the Austin-Travis County EOC as the Colorado River was flooding. The response to the Colorado River flooding incident transitioned into a complex incident when the boil water notice was initiated, as a large area was significantly impacted and required numerous agencies and stakeholders to affect a response. Throughout this complex incident, the EOC served as Area Command. Although the EOC was deactivated on October 29, 2018, a limited staff remained in the EOC to continue coordinating recovery efforts, including establishing two Multi-Agency Resource Centers (MARC) to provide assistance to those impacted by the flooding. Numerous agencies stepped up to lead various parts of the response, such as Austin Water closely monitoring and managing the impact of the floods on water treatment facility operations and Austin Fire Department (AFD) taking command and control over the five City PODs. Overall the coordination between agencies was strong and effective, as many of these same partners had worked together during the Harvey response in 2017 and continued building upon their relationship in the months leading up to the Colorado River flooding.

The City and County had never experienced an event such as this, which, as expected, exposed some operational challenges. The City and County have separate emergency response plans which contain different language and activation levels. This created confusion for some personnel as to whether they were officially activated for the response or were to continue with their day-to-day operations. In the initial stages of the response, there was a general lack of decision makers present in the EOC. A call was made to bring department and agency heads together to the same room to rectify this, but they should have been brought into the EOC earlier. Staffing challenges at the EOC led individuals to be assigned to roles they had neither training nor experience in.

Related Core Capabilities

- Operational Coordination
- Planning
- Situational Assessment
- Operational Communications

Strengths

Coordination Between Agencies (Operational Coordination, Planning):

- Operations at the Delco Center staging site went smoothly. Despite having a limited staff and being the only school district represented, AISD managed the Regional Staging Areas (RSAs) very

well while also facilitating day-to-day operations. As APH does a lot of work with Central Texas Voluntary Organizations Active in Disaster (VOAD) on a regular basis, medical operations had good representation with external partners and facilities, which enabled effective coordination for water tracking and distribution at long-term care facilities.

- **Recommendation 2.1:** Austin HSEM and Travis County OEM should facilitate planning meetings and exercises that bring regional partners together outside of emergency incidents. This will help to continue building upon established working relationships to enhance communication and coordination effectiveness in future responses.
- **Recommendation 2.2:** The City and County should identify and coordinate with nontraditional community partners (e.g., H-E-B, Tito's Vodka) who may be able to provide assistance during future responses.

POD Command and Control (Operational Coordination):

- AFD very successfully operated as command and control at the PODs. However, in many other instances, AFD might not be able to provide the same amount of personnel to external operations as they were able to during this incident.
 - **Recommendation 2.3:** The City and County should use internal resources in the short term up to 48 hours, or until external resources from the State or private sector can be mobilized.
 - **Recommendation 2.4:** The City and County should train additional staff in operational command and control in order to augment other trained staff (e.g. AFD) in the event they are not available for a future deployment.

Donations Management (Logistics and Supply Chain Management):

- Field personnel at the water PODs successfully utilized the ICS structure to manage donations. Donations that were not directed by the EOC were redirected or referred to the EOC for verification and acceptance. This allowed for proper donations management and decision making by the City and County.
 - **Recommendation 2.5:** The City and County should explore having a shared emergency donations policy and specify whether all donations should be handled through non-governmental organizations (NGOs), Central Texas VOAD, or other community partners.
 - **Recommendation 2.6:** The City and County should continue utilizing a single approval authority/entity (i.e. the EOC) to direct donations. This will allow the EOC to accurately manage and track donations while preventing external sites from accepting potentially illegitimate donations.
 - **Recommendation 2.7:** City and County Public Information Officers (PIOs) and executives should provide proactive messaging to the media and public regarding acceptance of donations.

Incident Command and Control (Operational Coordination):

- The EOC used unified command and applied the National Incident Management System (NIMS) throughout the response. Departments and agencies that have a deep knowledge of and experience in ICS, such as AFD, consistently perform well during responses and are able to adapt to changes in roles and responsibilities more effectively.
 - **Recommendation 2.8:** Austin HSEM and Travis County OEM should continue encouraging ICS and NIMS training and utilization to the utmost degree possible. Additionally, facilitating exercises utilizing ICS will help relevant City and County personnel have a better understanding of ICS during responses.

Information Sharing from PODs (Intelligence and Information Sharing, Public Information and Warning):

- AFD received hourly updates from the PODs they had command and control over, as well as regular updates from the other two sites. EOC representatives provided timely information to the POD sites on when trucks were coming in with more water. This allowed the dissemination of updated information to the public, such as how long the lines were at the PODs.
 - **Recommendation 2.9:** The City and County should record these capabilities and practices to sustain this regular communication between field sites and the EOC in order to provide an accurate situational awareness among response personnel. Moreover, the City and County should explore automating this process.

Areas for Improvement

Personnel Staffing (Operational Coordination):

- Some personnel served in roles in the EOC with no prior experience or training in that role. These individuals often had to learn in the moment, which was difficult as the operations tempo of the response was high and complex.
 - **Recommendation 2.10:** City and County agencies and departments should develop job action sheets with information on specific roles when assigning representatives to the EOC.
 - **Recommendation 2.11:** Austin HSEM and Travis County OEM should provide continued EOC training to regular employees who activate to the EOC. This training should be additionally offered to untrained employees who will eventually be activated to the EOC as they progress in their careers.
 - **Recommendation 2.12:** City and County agencies and departments should develop operational structures for activation staffing that are clearly defined and communicated to EOC personnel in advance.

Approval Authority (Operational Coordination, Situational Assessment):

- In the initial stages of the Colorado River flooding response, often the people who make decisions for various agencies or departments were not present in the EOC or in meetings where decisions needed to be made. This resulted in a delay of operational decision-making.
 - **Recommendation 2.13:** City and County departments and agencies need to establish the level of decision-making authority their personnel in the EOC have, and their process for gaining rapid departmental approval for decisions that are above their level. Establishing and communicating this in advance will help facilitate decision making early in future responses.

Plans and Planning Language (Planning):

- Austin HSEM and Travis County OEM have separate emergency response plans, which complicated operations during this unprecedented incident. These plans contain different language and operational levels, such as disaster declaration procedures, activation levels, and EOC staffing levels. This created confusion among some EOC personnel such as to whether they were officially activated, or if they should proceed conducting day-to-day operations as normal.
 - **Recommendation 2.14:** Although political and organizational differences between the City and County complicate the development of joint emergency response plans, Austin HSEM and Travis County OEM should collaborate to make the language and processes of each more uniform, such as providing clarification on respective activation and staffing levels in the context of a joint EOC.
 - **Recommendation 2.15:** The City and County should facilitate planning meetings between counterpart departments and agencies in order to share understanding of their emergency plans, capabilities, and responsibilities in advance of emergency incidents.

Command Roles and Response (Operational Coordination, Planning):

- There was confusion regarding who was in charge of the unified command. In some instances, multiple individuals thought they were in charge of certain aspects of the response based on their roles in prior experiences. Additionally, personnel were often briefed individually over the phone, rather than conducting a group briefing to provide a shared understanding on specific roles and responsibilities. Operationally, this incident was not handled like a true complex incident where a transition of unified command over time may be the best fit for the operation.
 - **Recommendation 2.16:** Austin HSEM and Travis County OEM should facilitate tabletop discussions and associated planning on complex incidents (e.g., Branch Tactical Planning), command roles and functions (e.g., Unified Command versus Area Command; Area Commander versus Incident Commander), and staffing.

Bulk Resource Ordering (Logistics and Supply Chain Management):

- When City and County purchasing office personnel were ordering bottled water in bulk quantities, there was a lack of understanding of specific terminology as this was a new process that was unfamiliar to purchasing personnel. Purchasing personnel had to learn on the fly to ensure bottled water was correctly ordered, which added an extra layer of complexity to this already complex incident.
 - **Recommendation 2.17:** City and County purchasing office personnel should review the lessons learned from this incident in order to have a better understanding of this purchasing process, to include contract language and restrictions, in advance of future emergency incidents. These lessons should be incorporated into future planning and operations.
 - **Recommendation 2.18:** The City and County should explore standby contracts with vendors for bulk resource ordering containing emergency clauses and emergency contact information for high-priority resources to be on standby at all times of day throughout the year.

Personnel Presence in EOC (Operational Coordination, Planning):

- Travis County Emergency Services Districts (ESD) maintained a representative in the EOC during the initial flood response, but a representative was not present in the EOC for the boil water response. The ESD representative de-activated from the EOC after the potential need for a water rescue response had passed. Additionally, AISD staff were slated to support RSA operations and were unable to maintain representation in the EOC, establishing a hole not only for AISD, but for the Central Texas School Safety Consortium, as other districts were not requested to backfill. City and County HR's presence was inconsistent for the need throughout the operation due to lack of understanding of need and roles and responsibilities.
 - **Recommendation 2.19:** Austin HSEM and Travis County OEM should conduct regular training on EOC roles, specifically tailored to joint Austin-Travis County EOC operations for EOC personnel. This training should highlight the process for demobilizing to ensure adequate staffing is maintained and/or positions can be quickly reactivated if required.
- AFD provided a detailed initial briefing to EOC personnel on the first day of POD operations that would have been beneficial to all participating departments, agencies, and partners. However, several agencies were brought into the response after the first day and were not a part of the initial briefing.
 - **Recommendation 2.20:** Austin HSEM and Travis County OEM should develop a standardized EOC informational briefing that should be conducted as personnel are assigned to the EOC.

Communications (Operational Communications):

- There was confusion on some of the communications channels. For example, AFD was operating on a specific channel and water PODs were operating on a different channel. AFD personnel were leading the five City PODs but were unsure whether they should have used the AFD or POD channel. While a 205 was developed for the incident, it was not shared repeatedly throughout the incident, leading to response partners not having clarity on appropriate communications channels.
 - **Recommendation 2.21:** The EOC and Incident Command Post (ICP) should conduct an operational period briefing of the Incident Action Plan (IAP) at the beginning of each operational period.
 - **Recommendation 2.22:** Austin HSEM and Travis County OEM should facilitate exercises to practice communications procedures during incident response involving multiple agencies and departments across multiple cities and counties.

Personnel Shift Transitioning (Planning):

- EOC and external site personnel from different departments and agencies had different reporting requirements and shift schedules. Some POD personnel whose shift ended at night did not adequately communicate with the next shift reporting in the morning. Information sheets were supposed to be left at the sites for replacement personnel to gain situational awareness, but this happened sporadically.
 - **Recommendation 2.23:** The City and County should consider developing shift transition guidelines to accompany job action sheets and training initiatives.

Focus Area 3: Water Points of Distribution (PODs)

Focus Area Introduction

Summary

On October 21, 2018, as flood waters were having an increasing impact on water treatment plant operations, Austin Water issued an advisory notice to the city asking residents to reduce their water usage. Early in the morning on October 22, 2018, Austin Water issued a boil water notice for all customers as they worked to stabilize the water treatment system and continued to urge residents to reduce their water usage. The notice advised residents that tap water used for cooking and consumption should be boiled first, or to use bottled water. In response, the City of Austin, Travis County, and Williamson County purchased millions of gallons of bottled water, shipped it to seven PODs throughout the area, and distributed them to residents. Coordination between the City, County, and regional partners to identify locations for the PODs and their subsequent establishment went very well, particularly as this was the first time the City and County had run water POD operations. However, as water distribution operations were being conducted, uncoordinated staffing of personnel at the PODs as well as a lack of communication between the EOC and the PODs generated confusion among some of the POD personnel. Additionally, logistics and resource shortfalls created what should have been preventable complications.

Related Core Capabilities

- Planning
- Operational Coordination
- Situational Assessment
- Operational Communications
- Logistics and Supply Chain Management
- Environmental Response/Health and Safety

Strengths

Coordination for PODs (Operational Coordination, Planning):

- City and County personnel, as well as regional partners, showed tremendous adaptability in setting up and operating the water PODs. Existing POD plans, although not referenced for this event, are centered around school-based PODs for the distribution of medication. As area schools remained open and the need was for bulk water distribution rather than medicine, alternative options were successfully identified and utilized. AFD and various other partners went to the POD sites in advance to plan for water distribution operations. Additionally, the POD planning team looked at potential sites with GIS analysts to determine certain characteristics and limitations. This enabled a smoother flow for water distribution and pickup by citizens.

- **Recommendation 3.1:** Austin HSEM and Travis County OEM should develop a joint plan on the distribution of commodities, to include elements of direction and control.
- **Recommendation 3.2:** Austin HSEM and Travis County OEM should continue identifying and inspecting potential POD sites for future use, with an emphasis on creating a running list of site characteristics and limitations and matching these characteristics and limitations to the type of POD site. Additionally, incorporating and utilizing GIS resources in the planning process will further improve future POD establishment and operations.

Reporting (Situational Assessment, Operational Communications):

- Personnel at the Williamson County POD composed a daily SitRep that was different than the one composed at the EOC. This report provided additional information that the EOC was able to incorporate into their daily SitRep.
 - **Recommendation 3.3:** The City and County should evaluate the SitRep used and consider standardizing the modified SitRep for future operations.

Areas for Improvement

POD Communications (Operational Communications, Situational Assessment):

- Although the PODs were tracking the number of pallets of water that were being distributed, this statistic did not aid with judging the flow of operations (e.g., wait times at the PODs). Wait times during the incident were estimated every two hours, but accuracy of the estimations was not measured.
 - **Recommendation 3.4:** The City and County should explore alternative options for distributing information about wait times at POD sites. This should include City and County websites and social media. An example of an effective system was the voter wait time map that Travis County produced during the elections that occurred at the same time as the Colorado River flooding and boil water response. As participants voted, they were asked to report how long they had waited in line. This information allowed others to see approximate wait times at the various sites in real-time.
 - **Recommendation 3.5:** Austin HSEM and Travis County OEM should explore a similar technology to what Williamson County used to track check in and out times of personnel at POD sites, in order to provide accurate real-time tracking of staff at external sites.

VOADs and Vulnerable Populations (Operational Coordination, Planning):

- VOADs could have been utilized to a greater extent at the water PODs and during other operations (e.g., leveraging unmet needs assessments to assist in County decision-making); however, there was very little response when asked to help staff the water PODs. As VOADs work directly with local populations on a daily basis, they are a valuable source of knowledge on the area demographics and could have helped to better identify the areas of greatest need. Additionally,

knowing VOAD resource capabilities in advance would have been beneficial to ensure adequate resource availability.

- **Recommendation 3.6:** Austin HSEM and Travis County OEM should increase communication and coordination with VOADs and nontraditional community partners both in advance of and during emergency incidents. Facilitating planning meetings and exercises will allow Austin HSEM and Travis County OEM opportunities to understand available resources and capabilities, which will be beneficial for easily identifying surge resources when needed.
- There was concern that vulnerable populations, such as the in-home population, individuals requiring oxygen, and those with limited access, were not able to adequately procure safe drinking water, whether bottled or boiled. It was also estimated that seven percent of households in Austin do not have vehicles, which would make transporting multiple gallons of water from the PODs to their homes difficult. Organizations such as Meals-on-Wheels and Travis County Health and Human Services distributed water to homebound populations during the incident. However, Travis County Health and Human Services found that water they ordered for delivery was redirected to Water PODs so there was limited water availability for homebound populations.
 - **Recommendation 3.7:** The City and County should aggregate demographic assessments conducted by various departments and agencies in order to better understand the potential locations of greater need for assistance and where there may be a need to conduct more thorough demographic assessments to identify locations of vulnerable populations (not individuals). The City and County should implement a system to update this aggregated data on a quarterly basis. Organizations such as Meals-on-Wheels and CapMetro were stated examples of expanded sources for information on vulnerable populations.
 - **Recommendation 3.8:** The City and County should understand the methods of mobile distribution of resources for those individuals with limited ability to travel (e.g., homebound population) currently utilized and explore how to improve this process.
 - **Recommendation 3.9:** The City and County should consider the prioritization of resources for distribution to the community during incidents.

POD Logistics and Resources (Logistics and Supply Chain Management):

- Some of the sites were not well equipped to receive large tractor-trailers and were better suited for box truck deliveries, resulting in logistical challenges and time constraints. Further, the lack of understanding in the procured resource constraints (e.g., how contract drivers are permitted to operate) complicated logistics further to avoid any breaches of contract or liability issues.
 - **Recommendation 3.10:** The City and County should create a checklist with considerations for POD sites. Knowing what site layout needs are in advance can prevent logistical limitations and the need for significant changes when time is critical.
- The Circuit of the Americas (COTA) POD site, operated by Travis County, obtained maps with identified traffic points which helped personnel at this site to direct vehicular traffic in and out.

Similarly, the Williamson County POD had detailed maps of their site, which they produced and distributed to the public prior to the start of distribution operations. However, the City sites did not have maps with this type of information. One site instituted signs and barricades in its plan to direct traffic, but during operations, had to create additional signs and find additional barricades to handle the unexpectedly high volume of traffic.

- **Recommendation 3.11:** Field site managers should ensure that gaps and deficiencies in resources (e.g., necessary signage and barricades) are clearly communicated to the EOC. Additionally, the EOC should coordinate consistently with all sites to ensure that other field sites do not have the same gaps or deficiencies, and that all sites have access to and knowledge of available resources and their locations.
- To meet initial assistance needs, over 1.5 million gallons of water had to be ordered at 2:00 a.m. on Monday, October 22, 2018, for distribution at the PODs. However, without existing contracts in place or warehouses with resources on standby notice, it was not feasible that the entire order would be able to be delivered on the first day.
 - **Recommendation 3.12:** The City and County should explore standby contracts with vendors containing emergency clauses and emergency contact information for high-priority resources to be on standby at all times of day throughout the year.
 - **Recommendation 3.13:** The City and County should meet with the business community (e.g., H-E-B and Wal-Mart) in a non-disaster setting to discuss resources that can be provided during an emergency and to establish how communications will be handled in an emergency. In discussions with these partners, consideration to become additional distribution points should be discussed as they are at times large and can potentially handle such an operation.

POD Staffing (Planning, Operational Coordination):

- The City and County had challenges staffing the PODs. Initially Austin HSEM considered 10 PODs located at the city centers, but this was determined to be logistically unfeasible. Austin HSEM then wanted to open seven PODs, however this was again determined to be unfeasible due to staffing. Austin HSEM finally decided to open five PODs throughout the city, with Travis County and Williamson County each deciding to operate a separate POD, bringing the total number of sites to seven. Spontaneous volunteers showed up wanting to help, not having been directed by any particular department or agency, creating confusion among some POD personnel as to who was supposed to work where. Other issues of confusion included POD staff not understanding their respective roles and responsibilities, and the unclear communication of staff shift schedules at each site.
 - **Recommendation 3.14:** The City and County should establish aligned POD procedures, and ensure they are followed during operations. Just-in-time training should be instituted for on the job training. Pre-identified personnel who may be involved in POD operations should, at minimum, complete and familiarize themselves with FEMA's Emergency Management Institute (EMI) course IS-26, "Guide to Points of Distribution".

- **Recommendation 3.15:** The City and County should develop and utilize POD manager kits to outline the staff and resources required to operate a POD (in a manner similar to the way existing shelter manager kits are organized and utilized).

Safety (Environmental Response/Health and Safety):

- There was an initial lack of guidance from the EOC to the City PODs on issues related to safety, such as conducting site safety training and the provision of safety equipment and materials. While one of the three AFD employees at the POD sites was assigned to safety, several participating departments and agencies did not receive safety training upon arriving to the POD sites. Also, safety vests were not initially issued at PODs nor was there guidance on safety measures such as wearing closed-toe shoes when working on site. The EOC provided these after personnel at the sites reported this. Some departments and agencies were also unsure if there was a safety officer in the EOC responsible for ensuring sites complied with necessary safety requirements, and if so, who the safety officer was.
 - **Recommendation 3.16:** The City and County should consider a safety officer in the EOC. Among items the safety officer should be responsible for are: (1) identifying whether reassigned employees need to have specific certifications, qualifications, be able to physically lift a certain weight, or any other criteria in order to perform the task being assigned to them; (2) identifying safety officers at all field sites to provide safety training and equipment to personnel; and (3) assessing EOC schedule to ensure adequate rest is provided to those involved in the operation.

Waste Removal (Environmental Response/Health and Safety):

- Management of resource byproducts was a challenge during the incident. Bottled water was delivered to the PODs by the pallet. Once off-loaded and the water distributed, the pallets remained at the site, resulting in large numbers of pallets at multiple sites which were difficult to properly dispose of. While there was some amount of communication about recycling, as a community committed to reducing the amount of trash sent to landfills by 90% by 2040, additional messaging would have further promoted the commitment to zero waste.
 - **Recommendation 3.17:** City and County purchasing office personnel should ensure that contracts include clauses for the removal of byproducts.
 - **Recommendation 3.18:** City and County PIOs should collaborate with waste removal organizations to ensure the public has access to information on proper waste disposal methods and site locations.

Demobilization (Operational Coordination):

- The demobilization of the POD sites was not centralized. It was not clear to reassigned staff who would be letting them know when they were demobilized and when this issuing would occur.

- **Recommendation 3.19:** The City and County should provide a structure for POD demobilization. This structure should be integrated into a POD plan produced by these jurisdictions.

Focus Area 4: Resource Management

Focus Area Introduction

Summary

After the boil water notice was announced, resource management became a primary function of the EOC. Staff in the EOC primarily needed to manage reassigned employees and manage resources going to and operating the water PODs in order to ensure effective and efficient distribution of water to the community. EOC staff primarily relied on HRD to schedule and reassign employees in order to support the activation. Reassigned employees were primarily utilized at water PODs. Ultimately this process of reassigning employees was successful, but it came with some clear logistical challenges. HRD was not involved in the activation from the beginning and they were expected to complete tasks that they had not been previously assigned to complete. This meant the process of resource management of personnel was not as efficient or effective as ideally it would have been.

In addition to the reassigned employees, resource management at the water PODs was a primary issue of EOC staff. This involved managing water deliveries and the personnel and equipment required for the process. This also involved donations management at the POD sites and EOC. Resource management at the water POD sites was overall successful, as AFD assisted in ensuring leadership was maintained at the PODs and donations and other resource management issues were directed through the EOC.

AISD had significant challenges with resource management. The RSAs that AISD were running eventually became managed by the state. This was a challenge as it meant that the processes for resource requests and communication were made unclear as AISD began routing requests directly to the State and not through the EOC, Austin HSEM, and Travis County OEM.

Related Core Capabilities

- Logistics and Supply Chain Management
- Operational Coordination
- Operational Communications

Strengths

Purchasing (Logistics and Supply Chain Management):

- The City of Austin Purchasing Office was present in Logistics in the EOC. This has been a recurring practice with recent EOC activations that has been successful. The Travis County Purchasing Office was also present in the EOC. This was one of the first activations where the Travis County Purchasing Office was present and this aided in operations.

- **Recommendation 4.1:** The City and County should make it standard practice and continue to have the Austin and Travis County Purchasing Offices present in the EOC during activations.

Resource Tracking (Logistics and Supply Chain Management):

- Resource tracking was successful during the incident, largely attributed to the role Fleet services played during this activation.
 - **Recommendation 4.2:** Austin HSEM and Travis County OEM should work with CAPCOG in order to develop WebEOC boards for resource tracking. This should include automated tracking of resources, equipment, people, and costs to provide real-time information should be explored and developed. Implementing this will improve the demobilization process.
 - **Recommendation 4.3:** The City and County should compile a list of available logistics resources that are ready to use in an emergency. A gap analysis of should also be developed in order to develop sources for resources that are not readily available. The EOC should develop its role as a Multi-Agency Coordination Center (MACC) and catalog types of available resources by agencies.

Areas for Improvement

Donations Management (Logistics and Supply Chain Management):

- Austin HSEM and Travis County OEM were operating in “trusted source mode” because of the nature of the donations. This meant that none of the donations were tested, except the two tankers of water donations. This revealed the challenge that would have occurred if Austin HSEM and Travis County OEM could not operate in this trusted source mode.
 - **Recommendation 4.4:** The City, the County, and their regional partners should revise the Donations Management Annex pre-disaster to identify which agencies, departments, and/or organizations will lead, and which will play supporting roles in donations management.
 - **Recommendation 4.5:** The City and County, with guidance from the City and County health departments, should expand their donations management policies to include food and water safety standards.
 - **Recommendation 4.6:** Travis County OEM does not accept donations; rather the County directs donations to NGOs or VOADS. Austin HSEM should explore this option for managing donations.
- AISD and hospitals received a multitude of donated resources that were logistically burdensome. These were donated by the private sector to the RSAs as well as via direct donation to schools by parents. AISD and hospitals ended up with too many resources compared with their needs and had to balance the management of these resources.

- **Recommendation 4.7:** Facilities that receive direct donations, such as schools and hospitals, should expand their donations management policy to account for these donations and educate decision makers about the importance of these policies.

Resource Request Process (Logistics and Supply Chain Management):

- AISD resource fulfillment changed over the course of the operation and resulted in delays. At first, with a more concentrated presence in the EOC, AISD requested that Austin HSEM and Travis County OEM submit a State of Texas Assistance Request (STAR) on their behalf; however, the request did not leave the City/County because AISD submitted it through WebEOC and not by calling the EOC. Once exclusively located in the RSAs, AISD was working more closely with the TDEM and FEMA on resource requests, which were being filled more efficiently. However, this shift resulted in a disconnect between AISD and the EOC with the Central Texas School Safety Consortium not represented.
 - **Recommendation 4.8:** Austin HSEM, Travis County OEM, and the Central Texas School Safety Consortium members should clarify and formalize the resource request process whether or not the State is involved in the incident in order to better support their disaster operations.
- Security was an issue at the AISD RSAs. This was an additional resource request issue, as security presence was requested and eventually filled in a limited way through State Troopers. AISD requested four patrol officers and only ever received two at a time.
 - **Recommendation 4.9:** The City and County should pre-identify areas of staffing gaps to utilize contract staffing during activations to help fill staffing gaps.

Focus Area 5: Emergency Procurement

Focus Area Introduction

Summary

As the flood and boil water response progressed, there was a need to procure additional resources. Overall the ability for response participants to purchase and utilize emergency resources went well. Purchasing personnel in the EOC were given clear and deliberate guidance on individual responsibilities. The additional presence from various partners in the EOC allowed for more effective communication and coordination than what was seen during the Harvey response.

Experience gained from the Harvey response helped strengthen interdepartmental and interagency relationships and provided lessons learned that were incorporated in the Colorado River flooding response. Assistance was requested from and provided by neighboring jurisdictions, including San Antonio, Williamson County, and Fort Worth, to provide water and POD site help. Despite these lessons, gaps and challenges inevitably presented themselves. The differences in purchasing processes between the City and County created challenges, namely in deciding if certain expenses should be shared or should fall on one entity. Although the City was the primary lead for the response, there were instances when both the City and County required the same resources to be procured but without requiring duplications in orders. As WebEOC was greatly underutilized for purchase requests and tracking, it was discovered that the City and County were often ordering similar supplies. Had there been a larger emphasis for purchase requests to be input on WebEOC, these duplicate orders could have been reduced.

Additionally, challenges in utilizing procurement cards created some complications in acquiring emergency resources. There is no established policy for using the City of Austin emergency procurement cards versus individual City of Austin procurement cards. It was identified that Travis County does not have an adequate number of procurement cards, and there is a lack of clarity as to whether procurement cards and costs can be shared between the City and County.

Related Core Capabilities

- Logistics and Supply Chain Management
- Planning
- Operational Coordination
- Operational Communications

Strengths

Collaboration / Teamwork (Planning, Operational Coordination):

- Experience from the Harvey response helped establish rapport and a stronger working relationship between the City and County logistics and purchasing office personnel working in the EOC. Purchasing office personnel from the City and County were better organized and prepared before the EOC was up and running. There was a clear delineation established for each personnel's responsibilities. This enabled them to get ahead of the curve instead of having to play catch up once response operations fully began. The City and County logistics and purchasing office personnel adapted quickly and effectively, as they had never experienced or planned for an event like this.
 - **Recommendation 5.1:** City and County departments and agencies should continue encouraging regular communication and coordination between their counterparts outside of emergency incidents, such as through planning meetings and exercises.

EOC Representation (Planning, Operational Coordination):

- During the Colorado River flooding response, most activated departments and agencies placed only one or two representatives in the EOC. This allowed for improved coordination and communication, as compared to the Harvey response when some departments and agencies had as many as five or six representatives that often rotated in and out.
 - **Recommendation 5.2:** City and County departments and agencies that staff personnel in the EOC should ensure that they have a dedicated team of personnel within their office who can respond to the EOC. This should also include exploring a policy whereby their regular positions are backfilled while they are deployed during the emergency. Utilizing consistent personnel will help build stronger working relationships, thereby increasing communication and coordination effectiveness.
- Having Travis County Purchasing Office personnel located in the EOC during the response helped improve communication and coordination with Austin Purchasing Office to efficiently and promptly meet procurement needs. Austin Fleet Services Department's presence in the EOC and on the ground as the Ground Transportation Unit was extremely valuable, particularly utilizing their CDL-certified drivers in distribution operations. Similarly, having additional necessary representatives in the EOC, such as hospital personnel, was beneficial.
 - **Recommendation 5.3:** Austin Fleet Services Department and Travis County Purchasing Office should continue to staff personnel in the EOC during related emergency incidents.
- Purchasing decision makers were present in the EOC and purchasing approval authority was established immediately. This was an improvement over the Harvey response, when purchasing decision makers were not immediately present, and subsequently it took several days to establish purchasing approval authority.

- **Recommendation 5.4:** City and County purchasing office leadership should ensure that relevant decision makers from their respective offices are involved in responses from the beginning and are made available throughout the duration.

Areas for Improvement

Procurement and Purchasing Processes (Logistics and Supply Chain Management):

- City and County purchasing offices have different purchasing processes, such as purchasing thresholds and policies on reimbursement, as these processes are constituted under different bodies of law. One example in which this made purchasing efforts difficult was in determining if purchases should be shared or if one office should be the purchaser.
 - **Recommendation 5.5:** During the Harvey response, purchasing personnel had a flow chart to direct them on reimbursement policies and processes. City and County purchasing office personnel should collaborate to develop a similar tool template that can be modified for utilization during future incident responses.
 - **Recommendation 5.6:** City and County leadership should enact an interlocal agreement that would establish the lead purchasing office for shared expenses.
 - **Recommendation 5.7:** Purchasing authority and thresholds, as well as the process for increasing them, should be established prior to the next emergency.
- During the Colorado River flooding response, personnel frequently made procurement requests by verbally telling their respective purchasing offices. The purchasing office personnel would then fill out the procurement forms, often at a later time due to the high tempo of operations. Not only is this against the actual processes for the City of Austin Purchasing Office, this method is inefficient and can increase the likelihood of errors and missing documentation for purchases.
 - **Recommendation 5.8:** During the Harvey response, personnel requesting resources filled out their own procurement forms which would then be processed by the City of Austin Purchasing Office. Austin HSEM should ensure that this method continues to be utilized, and supervisors should ensure that their personnel know the correct processes for requesting resources and adhere to them.

Procurement Card Utilization (Logistics and Supply Chain Management):

- The City and County both possess a procurement card system, specific to their jurisdiction. There are a limited number of procurement cards (five) made available by the City of Austin for emergency use by any City employee. Similarly, Travis County has three procurement cards, but is currently working on obtaining procurement cards for all 24 of their buyers. Purchasers had to use their own procurement cards, instead of general-use procurement cards, if the purchase was over a certain amount. These amounts can be increased, but it requires authorization and activation, both of which can take time. Additionally, these cards are assigned to specific individuals and only these individuals are authorized to use the cards. Austin HSEM procurement

cards are activated in an emergency, the purchase limit is decided at the time of activation and can be increased or decreased throughout the event.

- **Recommendation 5.9:** City and County departments and agencies should identify personnel who may need access to procurement cards in emergencies, provide these individuals with initial procurement card training, issue procurement cards, and provide annual procurement card refresher training.
- **Recommendation 5.10:** The City and County should enact an interlocal agreement that authorizes procurement card usage and cost sharing between specific agencies and departments to facilitate purchasing requests. This agreement should allow personnel with purchase approval authority to authorize purchases on their procurement cards for personnel of a different agency or department and should contain points of contact for procurement card usage and authorization. The process of tracking receipts and attaching them to the relevant procurement card should also be addressed.

WebEOC Utilization (Operational Communications, Situational Assessment):

- Some agencies and departments did not utilize WebEOC for purchase requests, which would have allowed for real-time updates. Often City and County departments were ordering the same supplies as their counterparts, as these requests did not show up in WebEOC.
 - **Recommendation 5.11:** City, County, and other emergency response agencies and departmental leadership should ensure that personnel who require access to WebEOC have the ability to receive adequate training on WebEOC. Additionally, supervisors should ensure these personnel have accounts setup and are consistently utilizing WebEOC to input purchase requests. WebEOC should be utilized for purchase requests to help avoid double-ordering of supplies by providing situational awareness of current requests. Lastly, a process should be outlined for departmental operations centers to add their information in WebEOC in a way that provides extra logistical awareness but that is separate from EOC logistics.
- Some purchasing personnel with the same responsibilities had different “roles” in WebEOC, which gave them different abilities. Similarly, some agencies and departments did not have the same access as their counterparts.
 - **Recommendation 5.12:** The City and County should work with the CAPCOG WebEOC Administrator to modify “roles” in WebEOC to provide similar roles with the same access. These roles should be pre-identified and updated regularly outside of emergency incidents.
- Serial numbers and other identifying information for equipment, mainly vehicles, was not input to WebEOC. This made essential elements of demobilization and cost recovery (including tracking equipment and their status) difficult as personnel had to physically go out to locate and verify serial numbers for equipment that was being demobilized or needed to be replaced.

- **Recommendation 5.13:** The City and County should explore the use of GIS and WebEOC integration to support collecting and entering detailed information on serialized equipment into WebEOC to include last known location and status.

WebEOC Capabilities (Operational Communications, Situational Assessment):

- Currently WebEOC only shows purchasing request tasks as a checklist with entries for accepted, assigned, working, and completed, with no specific information on who, what, when, or the allowance for additional information to be input. WebEOC can display a summary for individual stations, but not an overall summary screen for the entire logistics section to show status and updates.
 - **Recommendation 5.14:** Austin HSEM and Travis County OEM personnel should collaborate with City and County purchasing office personnel and CAPCOG to explore and/or create updates to WebEOC that can provide additional purchasing request task assignment and status information, as well as to provide a logistical overview for an operation that can be displayed throughout the EOC.

Leveraging Resources (Logistics and Supply Chain Management):

- There were issues in locating necessary resources in a timely manner, specifically personnel with specialized qualifications, as well as understanding the requirements needed for these personnel. For example, some departments initially contacted non-logistical departments to locate personnel with certain logistical qualifications (e.g., forklift drivers), rather than first contacting logistics who can locate these individuals and also know the requirements and restrictions for specific qualifications and certifications. Mutual aid requests bypassed the Logistics request system and the demobilization process.
 - **Recommendation 5.15:** City and County departments and agencies should create lists of available resources and assets that are regularly updated and shared with others. Reusable resources should be shared among departments before purchasing new resources.
 - **Recommendation 5.16:** The City and County should explore establishing additional requirements contracts for routine use that have emergency clauses that can be tapped for emergency needs. For example, Austin Water has requirement contracts for their routine needs. These contracts have an emergency provision that requires the contractor to provide 24-hour point-of-contact and an “emergency response” surcharge rate.
 - **Recommendation 5.17:** The City and County need to better understand mutual aid processes and develop a policy and process for accepting and providing mutual aid, to include approval, demobilization planning, legal, and cost recovery issues.

Focus Area 6: Communications

Focus Area Introduction

Summary

Communications were critical throughout the Colorado River flooding and subsequent boil water notice incident. As flooding began, communication between the LCRA, Austin HSEM, and Travis County OEM was critical for Austin HSEM and Travis County OEM to be able to start to understand potential impacts on the City and County as flooding occurred at the Llano River and Colorado River. Public information grew in importance as flooding around Lake Travis began to occur and the first residents in the region were directly affected.

Communications became most critical on Sunday, October 21, 2018, when the Austin Water Director recommended to the Austin City Manager to initiate a pre-emptive boil water notice. This created the need for increased public information and notification of the boil water notice. Public notice included usage of the Warn Central Texas regional notification system and a press conference at 6 a.m. on Monday, October 22, 2018. Additionally, social media and existing relationships with media outlets were effectively utilized to inform residents of the situation and available assistance. Initially, there were some interagency coordination challenges which resulted in not all agencies and departments receiving word of the boil water notice as early as they would have hoped. There was a communications gap between the EOC and Austin 3-1-1. Once the communication processes about the boil water notice got going, however, things went smoothly. Public information services quickly dropped off however after the boil water notice was lifted on Sunday, October 28, 2018.

While communications overall went smoothly, major communication decisions came primarily from the City. The City has a dedicated PIO that when activated remains in the position until the end of the EOC activation. Travis County on the other hand does not. County resources were stressed and not all communication services were effectively conducted. Additionally, operational communications between AISD and the EOC became a major challenge. The State stepped in to support the RSA efforts of AISD, which resulted in limited communications between Austin HSEM and Travis County OEM.

Related Core Capabilities

- Public Information and Warning
- Operational Coordination
- Planning

Strengths

Public Information (Public Information and Warning):

- Once communication with the public was initiated, it was well-executed. In press conferences, staff provided useful information and it appeared organized. Staff involved with public information in the EOC were actively supporting operations and flexible. Throughout the region, those who fill the PIO role all maintain strong personal relationships which helped coordination and effective public information. Messaging was developed in six languages. Additionally, the City and County have developed good relationships with the media which allowed for accurate and swift dissemination of public information through media outlets.
 - **Recommendation 6.1:** Austin PIO should maintain relationships with regional PIOs in order to maintain effective regional public information coordination.
 - **Recommendation 6.2:** The City and County should continue to maintain strong relationships with the media in order to maintain public information dissemination channels.
- AFD effectively instituted appropriate press interaction protocol at the water POD sites, referring press back to the EOC for centralized management of messaging.
 - **Recommendation 6.3:** Austin HSEM and Travis County OEM should conduct training with POD managers regarding how to manage media relations.
- State (TCEQ) rules require specific language be included in written notices to the public (customers), along with some latitude to include additional language. The City PIO was able to interpret this technical language into simpler terms to effectively convey the message to the public. Austin Water was also able to provide this language in an email mailer after the incident, in a non-intimidating way to ease the minds of the public.
 - **Recommendation 6.4:** City and County staff should use this as an example for simplifying complex information to the public and continue this practice.
 - **Recommendation 6.5:** City and County staff should work with those who have the technical knowledge to ensure the simplified language disseminated to the public is accurate and sufficient, in addition to the language that is being disseminated to meet regulatory requirements.
- Approaching Sunday, October 28, 2018, when the boil water notice was to be lifted, Austin HSEM and Travis County OEM carefully considered the test results coming from the TCEQ prior to addressing the public though media was producing news implying the boil water notice would certainly be lifted on Sunday.
 - **Recommendation 6.6:** The City and County should continue to utilize technical data when communicating with the public and media, involving agencies with subject matter expertise in a particular area in the development and dissemination of the communication.

- **Recommendation 6.7:** The City and County should keep the media apprised of the decision-making process, when possible, related to operations in order to provide consistent messaging.
- The use of social media during the incident for communication with the public was better than previous incidents. Posts were more frequent, relatable, and used less formal language to speak to the public. In addition, the County was able to coordinate with the Travis County Information Technology Services Web Team to provide situational awareness to the responders in the EOC.
 - **Recommendation 6.8:** City and County Staff should continue to utilize accessible and relatable social media communication. This should include creative communications, including videos and other visual communication.
 - **Recommendation 6.9:** The City and County should develop a proactive approach to social media, including assigning employees to monitor social media in support of agency coordination. The City and County should develop a digital operations center where these assigned employees would activate to.

Coordination with Public Officials (Public Information and Warning):

- Throughout the EOC activation, the majority of city, county, state, and federal staff and officials were up-to-date on the status of operations in the EOC and in field operations during the boil water notice response. Intergovernmental relations representatives for the City were in the EOC and able to provide a connection point for local and elected officials. However, while these representatives were the primary source of information from the EOC, they were not always the source from which elected and appointed officials were seeking information.
 - **Recommendation 6.10:** Austin HSEM and Travis County OEM should continue to maintain good coordination with state and federal staff during EOC activations.
 - **Recommendation 6.11:** The process for engaging intergovernmental relations staff in the EOC should be documented, clarified, and socialized with elected and appointed officials.
 - **Recommendation 6.12:** Austin HSEM and Travis County OEM should meet with state personnel in a non-disaster setting to better understand state processes in an emergency, to include mutual aid.

Language Access (Public Information and Warning)

- Even with resource challenges, the language access personnel were able to use the City's language access to plan to identify the six most commonly spoken language in Austin, outside of English and Spanish, and translate critical information into those languages.

Areas for Improvement

Interagency Coordination (Planning, Operational Communications, Public Information and Warning):

- The decision to establish the precautionary boil water notice was made when Austin Water arrived at the EOC on the evening of Sunday, October 21, 2018, but agencies and departments were informed about the boil water notice at different times. This was a challenge because some agencies/departments (Austin 3-1-1, Travis County Sheriff's Office) felt like they were not informed early enough and with enough detail to prepare for the consequences of the boil water notice, which made planning for and responding to the announcement of the boil water notice challenging.
 - **Recommendation 6.13:** Austin HSEM and Travis County OEM should consider a process to inform all City and County staff when an activation occurs to create an understanding that the City and County are responding. From there, Austin HSEM and Travis County OEM can communicate with agencies that need to mobilize to the EOC.
 - **Recommendation 6.14:** Austin HSEM and Travis County OEM should create a process of informing agencies and departments as soon as possible of incident information, making note of information that is public, or that is "For Official Use Only."
 - **Recommendation 6.15:** City and County health departments should identify public health information for internal agencies and departments, concurrently with that for residents and commercial businesses to support continuity within government operations.
- There was a specific gap in communication with Austin 3-1-1. Austin 3-1-1 is the first point of contact for the community, but Austin 3-1-1 did not have a representative in the EOC until the morning of Monday, October 22, 2018. Austin 3-1-1 had sufficient information for residential calls, however they did not have sufficient information for commercial calls and information was slow getting to wholesale customers. Austin 3-1-1 was unaware that APH was in the process of developing the commercial customer information but had encountered a barrier related to the Health Authority approval process.
 - **Recommendation 6.16:** Austin HSEM and Travis County OEM should request an Austin 3-1-1 presence in the EOC earlier to ensure they can communicate accurate, timely, and helpful information to the public.
 - **Recommendation 6.17:** The City and County should continue to utilize third-party groups, such as professional associations, to assist in collecting and disseminating information. Communicating and coordinating with these groups outside of emergency incidents through planning meetings and exercises will increase efficiency during future responses.
 - **Recommendation 6.18:** The City and County should consider the development and use of a communication diagram to map out audiences and message flow to support crisis communications.
- There was a challenge in the approval process for APH in providing information to Austin 3-1-1. APH staff needed approval from leadership who was unavailable and as they were at the EOC.

This delayed the information being sent to Austin 3-1-1. There was no communication between Austin 3-1-1 and APH during this time.

- **Recommendation 6.19:** APH should streamline the process of getting information approved to send to and updating Austin 3-1-1.
- CTM personnel who maintain the City's website were not initially notified of the incident and the role the website would be playing in the provision of public information. As a result, the website was not prepared to receive the amount of traffic that it did when it was being used for information about the boil water notice and it crashed. Austin HSEM has already revised notification processes to ensure CTM is included early on.
 - **Recommendation 6.20:** Austin HSEM and Travis County OEM should coordinate with all public information partners, including digital, to ensure effective preparation for the increased inquiries and web traffic.
- There was a breakdown of operational communications between the EOC and POD sites (including the Travis County and Williamson County sites). There does not seem to be a reliable way for real-time, on-the-ground, consistent information to make its way back to the EOC for digestion, analysis, and redistribution. Moreover, Williamson County POD operations were caught off guard by the end of the boil water notice.
 - **Recommendation 6.21:** The EOC should reevaluate situational awareness protocols, including interagency communications, to establish communication channels for all operational areas during activations.
- The back section of the EOC is very crowded during activations between the PIO desk, the GIS desk, and the Austin 3-1-1 desk. This creates a challenge for employees to effectively fulfill their assigned mission during the EOC activation and productively collaborate. That said, not all public information officers were consistently present for EOC operations which created challenges in disseminating information in a cohesive fashion.
 - **Recommendation 6.22:** The City and County should evaluate the allocation of space in and around the EOC to be inclusive of a Joint Information Center (JIC), and to support GIS needs.
 - **Recommendation 6.23:** Applicable City and County agencies and departments and the State should assign a public information liaison to the EOC to assist in more effective operational communication.
- Public information from the EOC is strongly led by the City Communications & Public Information Office's (CPIO). There is a lack of a dedicated PIO during EOC activation for the County; representatives from the County maintain their normal workloads. Many decisions related to public information dissemination were made by the City and conveyed to the County afterwards, making it challenging to provide a full range of public information services for the County.
 - **Recommendation 6.24:** Travis County should identify employees to fill PIO positions during EOC activations.

- **Recommendation 6.25:** The City and County should implement additional training for individuals filling the PIO positions. The City and County should consider implementing mutual aid and standby contracts for PIO support.
- A virtual JIC was activated during the incident; however, it was primarily run and utilized by the City rather than the County resulting in a reduction of communication during the recovery phase of operations which impacted the County more than the City.
 - **Recommendation 6.26:** The use of a virtual versus physical JIC should be examined to ensure all public information-related operational needs are met in all phases of an incident.
 - **Recommendation 6.27:** The JIC plan should be re-examined to ensure all key partners are included in the planning, and operational processes. Where gaps are identified, the City and County should prioritize, and determine how to best fill those key gaps.

Public Notification (Public Information and Warning):

- The Warn Central Texas notification was not disseminated in a timely manner, going out at 5:25 p.m. on Monday, October 22, 2018, when it should have gone out in the morning when the boil water notice was announced. Additionally, Warn Central Texas subscribers are limited compared to the impacted population in this incident.
 - **Recommendation 6.28:** The City and County should continue to work towards maximizing the use of already existing warning tools.
 - **Recommendation 6.29:** Austin HSEM and Travis County OEM should work with agencies with customers in the region to utilize their customer information for public notification (e.g., Austin Energy collaborating with Austin HSEM and Travis County OEM staff to subscribe customers; work with APH to notify permitted buildings related to food safety standards).

Public Information (Public Information and Warning):

- There were inconsistencies in messaging regarding the amount of time required to boil water and a lack of language in the public notification noting the dangers associated with boiling water (e.g., the caution of using gas to boil if oxygen-dependent). These two considerations resulted in confusion from the public regarding the boil water requirements.
 - **Recommendation 6.30:** The EOC should clarify the language used to direct the public during incidents and consider the safety information required for their notices.
- The EOC SOP identifies a Warning Officer, but this role is not currently staffed. Other EOC personnel had to write public notices in addition to their other tasks, stressing resources.
 - **Recommendation 6.31:** Austin HSEM and Travis County OEM should staff the Warning Officer whose role is to document and understand the situation and produce public notices.

- Public information services quickly fell off once the boil water notice was lifted. This presented a challenge for maintaining effective public communication about ongoing recovery operations pertinent to community members (e.g., MARC).
 - **Recommendation 6.32:** EOC staff, including those in the JIC, should monitor operations and continue support throughout the recovery phase. The expectation for maintaining operations throughout recovery should be included into all EOC trainings and personnel role documentation.
- Communication to the public regarding water conservation actions was not well publicized and limited to reactive measures.
 - **Recommendation 6.33:** The City and County should work with infrastructure partners to establish a public communications plan inclusive of timely and proactive conservation practices to mitigate potential system compromise.

Language Translation and Accessibility Services (Public Information and Warning):

- The process for translation services was not well understood and led to an inconsistency with translated documentation throughout the operation. Not all agencies/departments were able to get materials translated efficiently during the incident. During this incident, two Spanish-speaking PIOs happened to be in the EOC and were able to translate some materials. However, as this was not their primary role in the EOC, their focus needed to be on their dedicated role. Each agency in Austin is charged with developing a language access plan to support their vital services. Currently, outside of leveraging the CPIO standby contracts for language access services, this does not exist for the EOC. CPIO did activate their standby contracts during this incident, but these contracts are not written for emergency situations and therefore, were not able to provide the amount of support needed.
 - **Recommendation 6.34:** Austin HSEM and Travis County OEM, supported by CPIO and the CPIO Language Access Program Coordinator, should develop a language access plan specific to the emergency management related activities. The language access plan should include measures for how responders should submit requests for translation support during incidents, as well as a management framework for language access support. This plan should be supplemented by pre-established standby contracts.
 - **Recommendation 6.35:** Austin HSEM and Travis County OEM staff should consider organizing a specific City / County translation services team who can activate with the EOC and devote time and resources to translation services. This team could consist of VOAD members if they have been certified through the language access program or vendors that the CPIO's office has already contracted with.
- Warn Central Texas allows for users to select whether they want to receive alerts via phone call or text message, but does not meet the needs of the full access and functional needs (AFN) population, such as those who are blind, deaf, and hard-of-hearing, to receive alerts in the manner that is most suited to their needs. During this incident, the City was able to access DeafLink

through the City of San Antonio, which helped to disseminate accessible communications. However, the City does not have access to this service itself.

- **Recommendation 6.36:** The City and County should re-examine policies and limitations to notification systems and modify existing systems or procure new systems to ensure there is a streamlined process of providing notification and information to AFN communities. If the current system is identified as appropriate, the City should seek to expand the registry for this system to include more of the AFN community.

Focus Area 7: Recovery

Focus Area Introduction

Summary

After the EOC was deactivated on October 29, 2018, a limited staff remained in the EOC to continue the coordination of recovery efforts. Austin HSEM Office of Financial Services had their personnel involved early in the recovery phase, which was a major improvement from the Harvey response when they were brought in later on and had to essentially play catch up. On November 5 and 7, 2018, respectively, MARCs were established in Lago Vista and Lakeway in conjunction with regional partners to provide information and services such as financial assistance, long-term recovery assistance, and case management to those impacted by the flooding. The planning and operation of the MARCs went very well, and MARC personnel were able to adapt easily to changes that arose. Communication regarding the MARCs, both to the public and to City and County leadership, was the main challenge stemming from the MARC operations. Information regarding the MARCs should have been released to the public earlier to allow them sufficient time to take advantage of their resources.

The assistance provided by VOADs in setting up and working in the MARCs was invaluable. They were able to provide thorough assistance to the community and should be utilized in planning future responses. However, communication with VOADs and other regional partners was challenging during the subsequent damage assessment process. There were numerous damage assessments conducted with delays in information sharing. Increased communication and coordination during this process could have facilitated a more comprehensive and better-aligned assessment among partners.

Related Core Capabilities

- Economic Recovery
- Planning
- Operational Coordination
- Infrastructure Systems

Strengths

Multi-Agency Resource Centers (Planning, Operational Coordination):

- MARC planning and operations went very well, improving from lessons learned experienced during Hurricane Harvey. The time between the decision to activate MARCs and the MARCs' setup was sufficiently short. Additionally, MARCs were able to adapt easily as operational changes occurred.
 - **Recommendation 7.1:** Austin HSEM and Travis County OEM should continue to encourage regular coordination and communication between personnel involved in

MARC operations, to include regional partners, outside of emergency incidents, such as through planning meetings, workshops, and exercises.

VOADs (Operational Coordination):

- VOAD members were able to provide thorough assistance to community members. Previous working experience with these VOAD partners, such as the Harvey response, enabled effective communication and coordination.
 - **Recommendation 7.2:** The City and County should collaborate with VOAD partners to build a pre-identified list of available resources that each VOAD would be able and willing to contribute to future responses.

Finance (Operational Coordination, Planning):

- City of Austin financial personnel were involved early in the response and provided templates, instructions for compiling expenses, and a repository on SharePoint for gathering documentation. Finance managers city wide showed a tremendous level of flexibility. Getting state-level finance personnel involved in conversations with City and County finance staff provided them with clarification on finance issues.
 - **Recommendation 7.3:** The City and County should continue to engage their respective finance personnel early in future responses, as well as facilitate meetings and exercises outside of emergency incidents. The City and County should continue to proactively coordinate with state partners to ensure effective collaboration during response operations. City and County finance should explore where their processes and tools align so that the EOC Finance Officer can provide financial direction to representatives of both jurisdictions, rather than solely communicating City of Austin codes and processes, as was the case in this event.
 - **Recommendation 7.4:** Emergency-focused financial capability should be enhanced so that financial activities, such as modification of expense templates and instructions for a specific event, can continue while the EOC Finance Chief is still activated in the EOC. Explore developing separate roles for different emergency-focused financial activities (e.g., providing city and county wide financial direction and tools, creating the daily burn rate, developing the Disaster Summary Outline, and providing financial support for Logistics). Depending on the scale of the event, these activities may require multiple personnel to complete. Training should be given to personnel in these areas.

Areas for Improvement

Damage Assessment (Planning, Economic Recovery):

- Windshield surveys and other damage assessments conducted following the flooding did not correspond with one another, creating challenges in understanding who was eligible for

assistance. Both the American Red Cross (ARC) and Travis County conducted damage assessments but did not coordinate their efforts resulting in some amount of duplication and potential gaps in information. Damage assessments conducted by Travis County were not used to inform the need or location of local recovery facilities (e.g., MARCs), rather they were exclusively used in coordination with state and federal agencies. Had coordination and communication of damage assessment processes and reports been more uniform among the involved stakeholders, MARCs could potentially have opened earlier.

- **Recommendation 7.5:** The City and County should facilitate damage assessment tabletop discussions and exercises outside of emergency incidents in order to improve coordination and communication among stakeholders, particularly VOADs and other regional partners.
- **Recommendation 7.6:** Damage assessment planning should incorporate an assessment of the unmet needs of the community, instead of solely focusing on infrastructure, to inform need for facilities and debris pick up and communication with VOADs to reduce duplication of efforts.

Multi-Agency Resource Center Planning and Communication (Planning, Public Information and Warning):

- There are multiple plans that address family assistance. This needs to be streamlined across the City and County.
 - **Recommendation 7.7:** The City and County should identify and align the recovery related plans across City and County agencies. The City and County should maintain awareness of the respective planning cycles for recovery related plans to ensure participation by the appropriate agencies in the plan update process.
- There were issues surrounding the release of information about the MARCs to the public. Initially there was no media presence at the first MARC located in Lago Vista, which would have been ideal at the beginning of the MARC operations. This would have increased the public's initial awareness of the resources and services available to those impacted. There was an increased media presence at the second MARC located in Lakeway after it appeared on social media, and as a result this MARC had a larger turnout for individuals seeking assistance.
 - **Recommendation 7.8:** City and County PIOs should ensure that information regarding the recovery centers is advertised to the public early on in an incident. PIOs should follow up through the entire recovery process to ensure the public receives regular information updates.
 - **Recommendation 7.9:** The City and County should explore and develop plans for establishing a mobile MARC, as well as having an online presence to provide information to the public.
- The MARCs were operating in parallel with VOAD resource centers, although the resource centers began operations before the activation of MARCs.

- **Recommendation 7.10:** The process for identifying the need of MARCs should be coordinated and consolidated with VOADs and other partners so as to limit logistical needs, duplication of efforts, and confusion to the public.

Multi-Agency Resource Center Location (Planning):

- The location of MARCs was not optimal. This was due to multiple factors including the lack of a consolidated picture of where the impacted community members lived, the absence of a damage assessment informing MARC operations, the lack of collaboration between government and non-governmental entities on unmet needs assessments, and a general misunderstanding of which homes were primary versus secondary properties.
 - **Recommendation 7.11:** The City, County, and VOADs responsible for setting up MARCs should collaborate with other organizations that can assist in identifying areas with greater potential need for assistance. For example, Travis County Transportation & Natural Resources (TNR) can help identify which areas would most likely consist of primary residences versus areas that would most likely consist of non-primary residences. Gaining a better demographic understanding of those impacted will help predict demand for assistance.
 - **Recommendation 7.12:** City and County departments and agencies should work together to develop a cohesive process for determining impacted community members and unmet community needs throughout response and recovery. The City, County, and other departments and agencies should coordinate with partner agencies in advance to determine impacted community members and the unmet needs of the community.
 - **Recommendation 7.13:** The City and County should use applicable data sets to determine the impacted areas and how that compares with identifying needs (e.g., secondary homes will require different, most likely limited, recovery services).

Cost Tracking and Reimbursement (Economic Recovery):

- FEMA requires supporting documentation to back up expense and damage estimates and determine if expense reimbursement thresholds have been met. The State was under their necessary threshold, so there was increased pressure on the City and County to rapidly (during the activation and immediately after) identify all eligible expenses to see if they reached the necessary threshold.
 - **Recommendation 7.14:** Austin HSEM and Travis County OEM should explore automating cost tracking processes and utilizing contractors in order to reduce the burden of compiling supporting documentation for FEMA.
 - **Recommendation 7.15:** Travis County OEM and Travis County Planning & Budget Office should develop plans to track volunteer hours. Travis County OEM and Travis County Planning & Budget Office should become familiarized with the supporting documentation required to track volunteer hours.

- Effective cost tracking requires continuous and specific data collection throughout the incident. To be able to receive maximum reimbursement following an activation, the City and Travis County personnel, outside of Austin HSEM and Travis County OEM personnel who manage recovery on a regular basis, need to be aware of reimbursable costs and cost tracking processes and policies. Simple technological improvements, such as an electronic sign-in system, can further expedite the compilation of documentation.
 - **Recommendation 7.16:** A Disaster Cost Recovery Plan should be developed by the City and County, clearly identifying all roles, responsibilities, triggers, and operations for cost recovery functions, beginning with pre-disaster activities, through conclusion of said activities (e.g., closeout activities). All pertinent departmental representatives should be trained on the plan and their specific responsibilities to ensure procedures are effectively implemented.
 - **Recommendation 7.17:** City and County finance personnel should receive cost recovery training and should have an opportunity to coordinate and communicate outside of emergency incidents through planning meetings and exercises, particularly the planned logistics exercise. Additionally, instructions on how to accurately read payroll reports should be provided and trained on in a non-disaster setting.
 - **Recommendation 7.18:** The City and County should explore utilizing automated check-in/check-out systems in the EOC. This will ensure more accurate personnel time and compensation tracking.

Debris Removal (Infrastructure Systems, Operational Coordination):

- There was confusion among departments as to the time and frequency that debris would be picked up by TNR. TNR had to get permission from the Commissioners Court to go on private property.
 - **Recommendation 7.19:** City and County agencies involved with debris removal should provide a brief of the debris management process to the EOC staff during activations.
- There was an overarching lack of information disseminated to the public on debris removal, such as the amount and type of debris to be collected.
 - **Recommendation 7.20:** The City and County should facilitate planning meetings with City and County agencies involved with debris removal and City and County PIOs outside of emergency incidents to gain a more comprehensive understanding of their debris removal procedures. Subsequently, Austin HSEM, Travis County OEM, and TNR should collaborate to develop a joint plan on debris removal procedures for future responses.
 - **Recommendation 7.21:** City and County PIOs should communicate information regarding debris removal to the public as early as possible, with an emphasis on identifying outreach methods to individuals in the impact area. This will help alleviate debris build-up and make removal more manageable for TNR.

Economic Impact (Economic Recovery, Planning):

- During the boil water notice, numerous businesses were impacted. However, an overall economic impact analysis was not being conducted by any official City or County agency, at the time of this report writing. The ability to show the cost and economic impact of an emergency incident, or even an estimate, would be beneficial in preparing for future responses and recovery efforts.
 - **Recommendation 7.22:** The City and County should update their damage assessment plan to make sure businesses are assessed post-incident.

Focus Area 8: Resilience

Summary of Workshop Outcomes

January 17, 2019

Austin, TX

Executive Summary

The Colorado River flooding and subsequent boil water notice in October 2018 caused a series of cascading impacts in Austin and Travis County that exposed the need for the City and County to prioritize developing a culture of resilience throughout their government departments and agencies and broader community as a whole, in order to be better prepared for hazards and threats as well as be more adaptable for a changing climate. While the City has worked to develop a definition for climate resilience, Austin HSEM and Travis County OEM need to come together with the Austin Office of Sustainability as well as governmental agencies and departments in order to develop a holistic definition of resilience, discuss what a resilient community would look like, and collectively create a plan for moving towards resilience.

As a part of this process, in conjunction with the Colorado River flooding AAR process, a Resilience Discovery Workshop was conducted. On January 17, 2019, a self-selected group of 15 participants from agencies and departments impacted by the Colorado River flooding and subsequent boil water notice worked to think through the cascading impacts of potential hazards to improve resilience in the City and County.

Summary of Workshop Outcomes

The following sections provide a general overview of the themes discussed, identify where the City and County currently are in relation to the theme, and describe the priorities discussed during the workshop. The bulleted points are actions the City and County should consider moving forward in order to move towards resilience.

Defining Resilience for the Austin-Travis County Region

The City of Austin's Office of Sustainability has been working to define climate resilience for the City, where "a climate resilient Austin is prepared for and responsive to extreme weather events and changing climate conditions" (City of Austin Office of Sustainability). This definition was strategic, outlining the need for Austin to be both prepared for an event before it happens, and also build back better after the event occurs. Defining climate resilience for the City has allowed for the theme to become integrated into all elements of the City's government. Moving forward, Austin and Travis County should consider:

- **Expanding the definition of resilience:** The City's definition of climate resilience is a valuable launching point; however, resilience should incorporate more than climate. Critically, a resilience

definition should include acute technological and adversarial hazards as well as long term stressors such as the economy and how these hazards and stressors affect the community. This definition should include language outlining the need to build back better after an incident. This will assist to bridge the gap from the initiatives that the Austin Office of Sustainability initiating and the standard operations of Austin HSEM and Travis County OEM.

- **Define framework for resilience analysis:** A comprehensive framework for analysis of resilience should be created and applied in order to define the founding principles of resilience for the City and County. Consider defining priorities for resilience, e.g., lifeline sectors or the economy, to focus analysis of City and County resilience. This will help to unite stakeholders around common goals and provide a frame of reference for thinking through resilient issues.
- **Define metrics for resilience assessment:** A variety of matrices or methodologies exist for resilience assessment. Determining metrics for resilience, which align to the determine framework for understanding resilience in the context of the City of Austin and Travis County is critical to understand if the City and County are succeeding in efforts to become more resilient. Metrics allow for measurement resilience of overtime.

Infrastructure

Currently, infrastructure in the City of Austin and Travis County effectively services its community members. However, this does not mean that it is resilient. The Colorado River flooding and subsequent boil water notice provides one example of a vulnerability in Austin and Travis County's infrastructure network. This was illustrated through the cascading impact from the flooding event of the boil water notice. Austin HSEM and Travis County OEM staff considered the gravity of an incident involving a power grid failure or a cyber security incident. Austin HSEM has a critical infrastructure committee which has initially considered these issues, but it has not met in about a year and a half because of numerous competing priorities, real-world incidents, and special events. Considering resilience for infrastructure agencies is currently a second priority, staffing shortages and resource limitations prevent long-term resilience planning. Moving forward, Austin and Travis County should consider:

- **Reconvening and enhancing the Austin HSEM critical infrastructure committee:** Considering critical infrastructure preparedness is a key component of resilience. Austin HSEM should reconvene the critical infrastructure committee to reprioritize this amongst the other preparedness practices.
- **Prioritizing restoration of critical facilities and infrastructure redundancies:** Austin HSEM, Travis County OEM, the Office of Sustainability, and relevant agencies and departments should come together to understand critical infrastructure interdependencies and make decisions about what priorities exist for service restoration. This can be helpful to plan ahead of time in order to reduce the burden hazard events have on infrastructure.
- **Develop a conservation-based approach to infrastructure stressors:** The City and County, when faced with infrastructure stressors, should take a proactive conservative approach to mitigate potential system compromise.

- **Enhance critical infrastructure assessments:** Enhance existing infrastructure assessments to determine the vulnerabilities in the infrastructural system. This will help to determine what needs to be enhanced in the COOP plan.
- **Transition critical facilities to function off the grid:** Explore how to take Austin and Travis County's critical facilities off the energy and water grid. The first step in this process would be to address government owned buildings as an example for best practices in the City and County. This is both a sustainable practice and increases disaster preparedness. This would minimally allow the ability to provide external sources of energy and water should the grid fail.
- **Planning for investment in resilient infrastructure:**
 - **Developing shared priorities for infrastructure investments:** Evaluate shared resilience priorities of diverse government agencies and departments in order to establish where shared goals are.
 - **Conducting an assessment of assets:** Expand an assessment of government assets to determine the current state of government infrastructure. Determining the current state of government infrastructure will assist in developing an argument for capital investment and help to bridge the gap between goals and funding.
 - **Considering priorities for investment:** Establish priorities for investment by considering costs and benefits associated with projects. Consider the options for assessment; amongst those options, consider which are cost effective now, which are necessary for their life-saving nature, which should be utilized in new construction. This will help uncover which specific projects should be pursued and help the best projects be prioritized.
 - **Establishing co-benefits of infrastructure projects enhancing resilience:** It is often hard to fund forward looking infrastructure projects, especially in non-disaster times. By establishing co-benefits, additional benefit and additional funding can be established, which reduces burden of the cost of projects.
 - **Providing opportunities for leaders to hear information about the resilience philosophy:** Allow decision makers opportunities to be brought into the benefits and necessities of resilience. This will help to create buy-in for forward leaning concepts with co-benefits, and ultimately a more enhanced culture of resilience throughout Austin and Travis County.
- **Considering the network impacts on traffic:** Roadway infrastructure should be considered during discussions of hazard events. There are national examples of major cascading impacts of traffic jams from traffic not being considered when decisions related to preparedness are made (e.g. early school release).
- **Integrating the resilience hub concept throughout the region:** The Office of Sustainability has been investigating resilience hubs, community facilities that are designed to support residents in their own neighborhood by providing resources and services before, during, and after hazard and threat events, as a method of building resilience in the region. Strategies for funding and implementing resilience hubs should be further developed. This would allow for dual use structures to enhance resilience.

Community Assets

Schools

Currently, AISD schools may have some focus on resilience, but a major challenge is that their first priority will be children, teachers and education – which leaves limited resources for resilience building. Leaders in the school system do not prioritize disaster preparation, therefore when hazard events occur, they are under-prepared and often unwilling to utilize resources to assist them. AISD is underprepared for hazard events. During this incident, they did not have enough information to understand the extent to which Austin High would be affected with its proximal location to the water. Moreover, AISD was not capable of individually addressing the impacts of the boil water notice with their capacity to boil water and serve food. A consortium of schools exists to support with regional school district preparedness, but AISD is the only district to participate in preparation and activations. Moving forward, Austin and Travis County should consider:

- **Understanding the full extent of services schools perform:** AISD emphasized that schools provide three meals a day for many students. Additionally, they allow parents to go work in the community. When AISD schools close, this sends a rippling impact throughout the City as employees have to stay home from work, and children may miss meals they traditionally depend on. Schools are also bound by a calendar, therefore becoming more able to function outside of their day to day norms in off-seasons, though with a reduction in personnel to support supplemental operations. Fully understanding the extent of services schools perform will help the City and County prioritize and plan for hazard events and more broadly understand the cost and impact of their decisions.
- **Considering need:** Schools had a lack of understanding of their need in this situation. Schools should include planning for various types of infrastructure disruption or failure during hazard events to in turn communicate need to Austin HSEM and Travis County OEM better.
- **Encouraging additional participation in the school consortium:** Gaining additional buy-in from school consortium members would help create collaboration and support towards greater preparedness throughout the region.
- **Utilizing schools as a method to promote community resilience:** Schools have constant contact with a large quantity of community members. Schools should be utilized to promote community resilience, prevent public panic, and help communities understand the government's role and plans during hazard events. Schools are a particularly great opportunity to promote resilience amongst community members for whom language is a second language as students are able to pass along information to their parents.

Health Care Facilities

There were 13 hospitals affected by the boil water notice. By law, hospitals in the State of Texas are required to have 500 gallons of water, or 12 gallons of water per patient bed, stored on site. However, not all hospitals have this on site. During the incident, ensuring hospitals had sufficient water was seen as an initial immediate need and high priority. Surgeries were cancelled during the first days of the boil water

notice, until they could work with vendors to determine if they could use their sterilization equipment. Moving forward, Austin and Travis County, in conjunction with the local hospital community, should consider:

- **Retrofitting health care facility infrastructure:** The majority of hospitals did not have a method to accept bulk water from a tanker. Retrofitting hospitals to be able to accept and store large quantities of water will directly improve preparedness. The necessity of water pressure should be considered.
- **Identifying need:** Hospitals had a lack of understanding of their need in this and other critical infrastructure loss situations. Hospitals should include planning for infrastructure loss during hazard events to be able to communicate need to Austin HSEM and Travis County OEM better. Moreover, other care facilities, such as nursing homes, should be accounted for better during incidents.

Food Establishments

Food establishments (restaurants, cafés, bars, etc.) were heavily impacted by the boil water notice. Based on limited discussions with this community, Austin HSEM and Travis County OEM observed that many were not prepared for this type of incident, resulting in the establishments closing until the resolution of the event. The full extent of the impacts on restaurants or the economy overall has not been determined, or, if it has, it has not been widely shared. Moving forward, Austin and Travis County should consider:

- **Conducting an impact assessment to the business community:** The extent of the impacts of the boil water notice on the business community are not well known. The City and County should complete a comprehensive assessment of the impacts of the boil water notice on the business community. Currently these impacts are not well understood, there was a lack of communication with food establishments during this boil water notice. Completing an impact assessment will aid in creating additional concrete corrective actions to enhance resilience and may further provide information needed to request state and federal support in future cases, like SBA disaster assistance.
- **Expanding the impact assessment for other hazard events:** The extent of the impacts of hazards and threats in general on the business community are not well known. The City and County should complete an assessment to understand the potential impacts and cascading impacts of other hazards on the business communities. This includes a database of microenterprises (especially home-based businesses) vulnerable to hazards and threats. Targeted outreach should then be implemented based on the results of this assessment.
- **Inviting additional community partners to the planning table:** There is limited interaction between Austin HSEM, Travis County OEM, and EOC representatives and the business community. The City and County should invite members of BOMA, the restaurant association, and/or chambers of commerce to become partners for resilience building in Austin and Travis County. Utilize their knowledge and connection to fill the gap in knowledge for the cascading impacts from this incident and to prepare for future incidents.

Correctional Facilities

There are several current issues with preparedness at the County correctional facilities, such as not having a plan and method of quickly evacuating inmates. Approximately 2,300 – 2,400 inmates were affected in the boil water notice incident and correctional facilities were unable to boil enough water for their inmates. County correctional facility personnel used trial-by-error to determine the best source of bottled water for their facilities. Moving forward, Austin and Travis County should consider:

- **Evaluating the preparedness of correctional facilities:** County correctional facilities discovered issues with their location and their ability to respond to hazard events during this incident. This event uncovered the value of conducting a comprehensive evaluation of the preparedness of City and County correctional facilities.
- **Developing a correctional facility evacuation plan:** Correctional facilities are not easily evacuated. Travis County has some regional agreements in place to redistribute inmates should the situation arise that inmates needed to be moved. Additionally, Travis County Sheriff's Office could work with the courts to get inmates released who are pre-trial or are close to completing their sentences. A comprehensive evacuation plan inclusive of these contingencies would increase the preparedness of correctional facilities and decrease the stress of a hazard event.

Connection between Preparedness and Resilience

Currently the City and County are working to bridge the gap between preparedness and resilience in order to create a more comprehensive program. There are currently examples of Regional, County, and City initiatives that are engaged to move towards resilience. Regionally, a Recovery Resilience Workgroup within the Homeland Security Taskforce at CAPCOG has been newly developed. The goal of this taskforce is to educate regional emergency management leaders about best practices for recovery resilience, in order to maintain communities that will recover faster. There are currently four to five counties participating from the COG. The City of Austin conducted resilience exercises several years ago where the aftermath of a power outage was considered. Austin Water is also now required to do a vulnerability assessment and ERP. Moving forward, Austin and Travis County should consider:

- **Supporting the Recovery Resilience Workgroup at CAPCOG:** Increasing participation in conversation between emergency management professionals and experts on the impacts of cascading disaster impacts will directly increase preparedness and improve recovery efforts to directly impact regional resilience.
- **Enhancing the resilience assessment conducted by the City of Austin:** Expand the resilience assessment already completed in order to be more comprehensive and to address a revised definition of resilience. Goals and metrics related to the resilience assessment should be developed to minimize gaps identified in the assessment and work towards improving resilience of the City and County.
- **Establishing a resilience initiative for Austin and Travis County:** This would involve identifying the lead of the program, for example a Chief Resilience Officer, who would have enough authority

to oversee the resilience efforts of the City and County. This would include implementation and assessment of resilience-related activities.

- **Developing a risk and resilience exercise initiative:** Repeat and enhance resilience exercises that were previously conducted. This will improve brainstorming of previously unknown potential impacts of disaster and also help agencies and departments prepare for potential incidents.
- **Utilizing technology to improve preparedness:** The City should fund a dedicated GIS position for emergency management. This would assist the City to understand the impact of climate change, natural hazards, and man-made threats using the best practices and best tools for the most effective decision making. This position would work collaboratively with agencies and organization in order to assist them to understand the geospatial impacts of hazard events. The City and County should also consider utilizing emergency management software for critical information and response management.
- **Building on the Office of Sustainability's Climate Resilience Action Plan for City Assets and Operations:** The City and County should build on the Austin Office of Sustainability's efforts to evaluate and prepare City Assets and Operations for climate change. This should include a broader definition of resilience and integration with additional plans and policies.
- **Integrating resilience into policy:** Preparedness guidance is often defined by policy, such as building codes, and can often determine project types that get funded. The City and County should work to create pro-resilience policies to create more resilient buildings and infrastructure in the region.

Integration of City and County Planning Efforts

Existing City and County planning already incorporates resilience thinking. During the Discovery Workshop, a variety of relevant plans were discussed, including: The City and County Hazard Mitigation Plans, the Water Forward Plan, the City Assets and Operations Plan, and Business COOP Plans. Currently, the City and County complete Hazard Mitigation Plans separately and on a separate schedule. The City has collaborated with the Office of Sustainability to utilize new climate projections in the mitigation plan, however that is the limit of the collaboration. Moving forward, Austin and Travis County should consider:

- **Increasing familiarity with currently available plans:** Planning affecting the resilience of Austin and Travis County is happening; either directly or indirectly. Conducting a comprehensive analysis of the existing plans is a critical step for understanding how planning can be integrated with resilience in the region. Travis County is in the process of completing such an analysis; this should be completed and updated. This should also be considered for the City of Austin.
- **Understanding interconnection between existing plans:** Through analysis or exercise of plans, Austin HSEM and Travis County OEM, in coordination with relevant agencies/departments need to understand all of the cascading impacts of plan operations, including interdependencies amongst the plans. Consideration of individual COOP plans is a particularly relevant area for analysis given this specific incident.

- **Increasing the breadth of pre-disaster recovery planning:** Pre-disaster recovery planning should be utilized as a core tool for defining short-term, interim, and long-term priorities for recovery. These goals should be directly tied into the resilience goals for the City and County. Moreover, pre-disaster recovery planning can tackle the issue of disaster boundaries and provide a framework for regional recovery that is targeted towards resilience.
- **Utilizing hazard mitigation planning as a tool for resilience building:** Hazard mitigation planning is a tool for generating resilience. At the federal level, there is a shift in funding from recovery to mitigation. The City and County have many opportunities for utilizing the mitigation planning process to generate a more resilient region. This includes:
 - More closely collaborating with the Austin Office of Sustainability throughout the planning and plan maintenance process
 - Coordinating the City and County hazard mitigation plan update timelines to generate a more regional outlook on mitigation measures and resilience
 - Integrate additional agency, departmental, and organization stakeholder partners in the planning process in order to develop a more comprehensive, actionable plan

Appendices

Survey Summary Analysis

Response Stakeholder Survey

As part of the after-action process, the Planning Team invited all identified key stakeholders and actors in the response to the Colorado River flooding to participate in an online survey, which solicited targeted information about the role each respondent played in and asked respondents to rate and comment on critical components of the response, such as communications, resource management, and training. Not every respondent was asked to answer every question; instead, certain questions were included or excluded based on the answers provided to certain other questions earlier in the survey. Therefore, although a total of 114 respondents participated, the number of responses is not uniform across each individual question. A summary of the results of the online survey are captured in this appendix and are organized by the order in which the questions appeared in the survey.

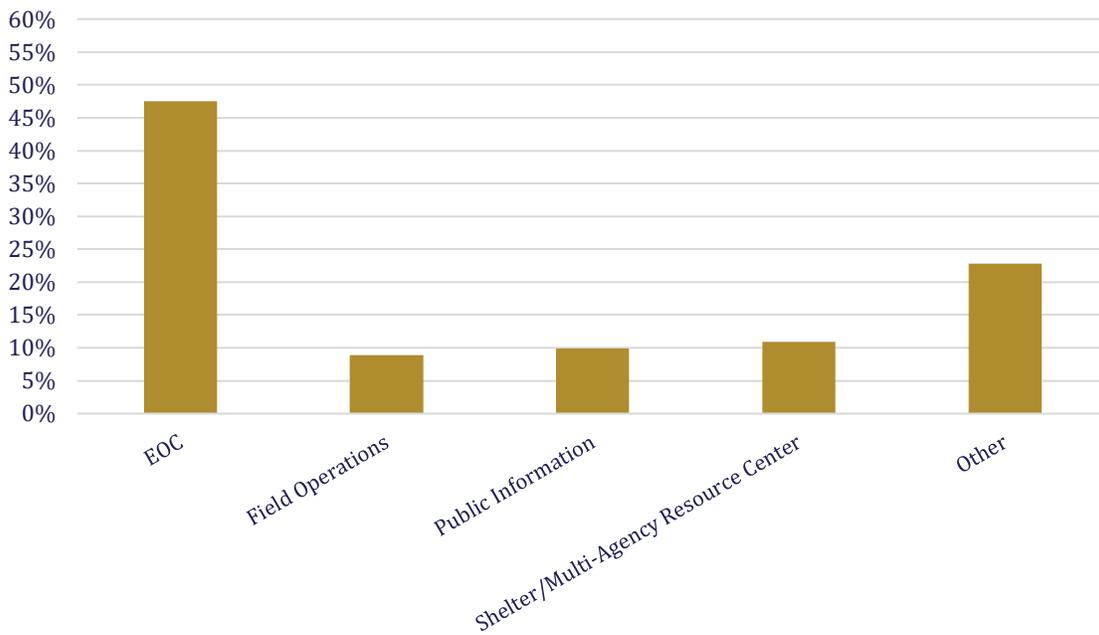
Role During Colorado River Flood Response

Respondents were first asked whether they were involved in the response to the Colorado River flooding. The intent of this question was to filter out respondents who were only involved in the boil water notice response. Of the 114 total participants to the survey, 70 indicated that they were involved in the response to the Colorado River flooding (61.4 percent), while 44 indicated they were not (38.6 percent).

Respondents were then asked where they served during the flood response. There was a total of 101 responses to this question as respondents who served in more than one location were able to select all that applied. These responses are summarized in Figure 1.

Figure 1: Response Stakeholder Survey

Where did you serve during the Colorado River Flood response? Please select all that apply.



Respondents were asked to identify their primary roles during the Colorado River Flood response. While responses varied, most fit into one of seven themes:

- Direction and Control (15 responses)
- Planning (11 responses)
- Logistics (four responses)
- Information Operations (13 responses)
- External Site Operations (13 responses)
- Recovery (three responses)
- Liaison (14 responses)

Participants in the Colorado River flooding response were asked if they were provided with sufficient information to effectively serve in their respective roles. Of the 74 responses received, 64 indicated that the information they received was sufficient (86.5 percent), while 10 indicated they received insufficient information to effectively serve in their respective roles (13.5 percent). Nine of these negative responses provided clarifying information, some of which are summarized below as entered by the respondents.

- This hasn't been done before in Austin. We knew water was coming in to our site, and we knew we needed to get water to the pods. We developed a plan and adjusted it as needed.
- Late in receiving it [information] or not in dual languages to inform the community.
- There wasn't any communication about the environment, possible weather, shelter or food for volunteers.
- POCs & roles with ESDs for evacuation were not clear.

Respondents were then asked how they had received the notification to mobilize for the Colorado River Flood response. Respondents were afforded the opportunity to select all methods that applied to them. From the 75 respondents to this question, 124 responses were received. These responses are summarized in Figure 2.

Figure 2: Response Stakeholder Survey

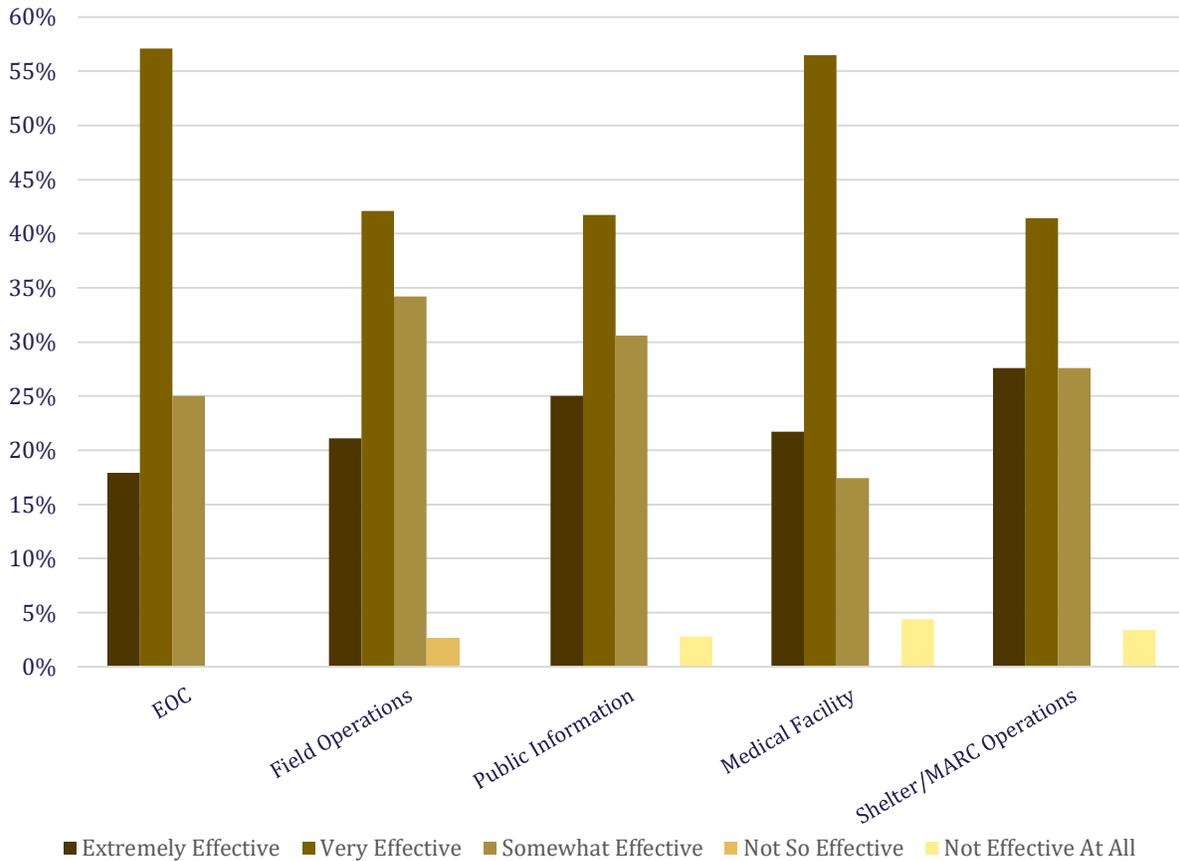


Operations and Direction and Control

Respondents were then asked to rate the effectiveness of operations at their respective sites during the Colorado River Flood response. Respondents were given the opportunity to rate the effectiveness for each site they served at. Responses for each site are summarized in Figure 3.

Figure 3: Response Stakeholder Survey

How would you rate the effectiveness of operations at your site(s) during the Colorado River Flood response? Please answer for each site you were assigned.



Respondents were given the opportunity to provide clarifying information, some of which is summarized below as entered by the respondents.

- Central Texas Food Bank was very effective in our operations of distributing water.
- Although we [POD site] ended up in a level parking lot with sufficient space, we were located in the far NE of Austin. Turnaround time from dispatch to delivery to restock would have been quicker and more efficient if the main distribution center was more centrally located.
- I thought the EOC was very well organized and response was extremely timely.
- Austin Water Department Emergency Operations Center - very effective.

- As Lead Trauma Service Area for EMTF-7 CATRAC coordinated and notified response agencies for deployment of Ambulance Strike Teams, MIST (Medical Incident Strike Teams), and AmbUS resources to flooded areas.

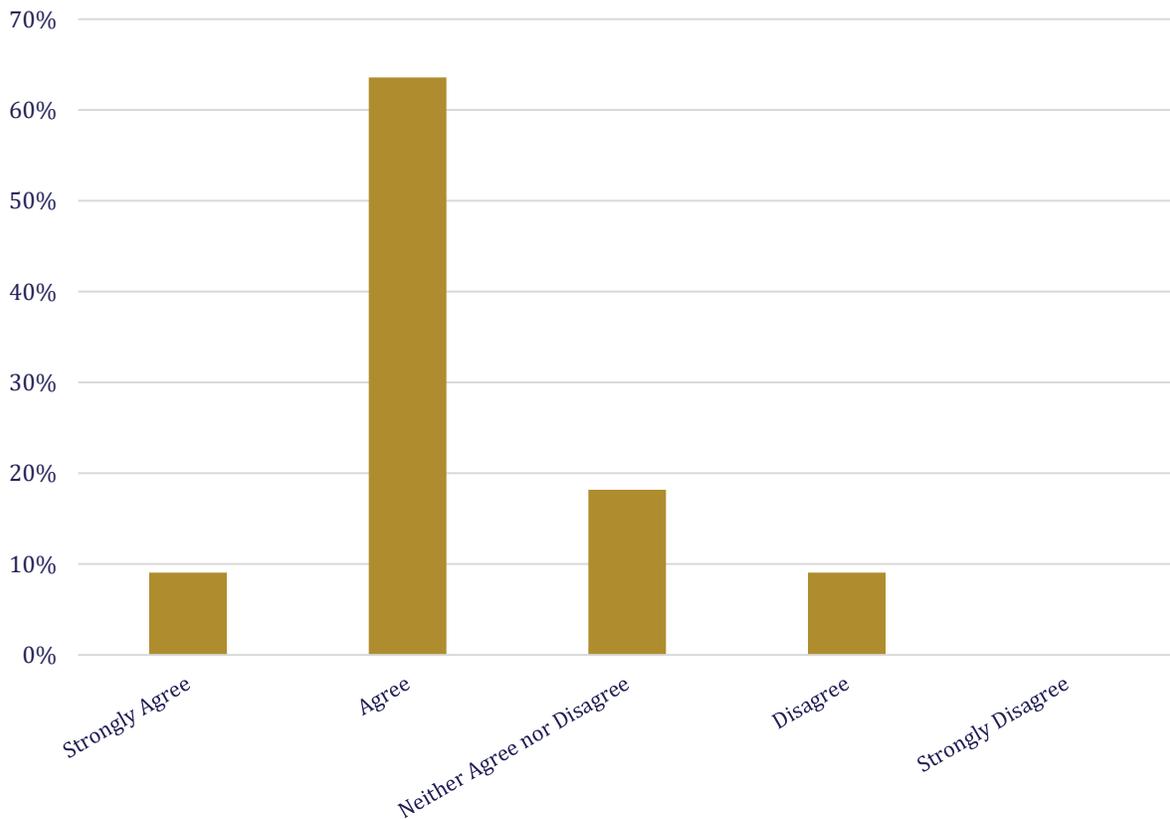
Respondents were then asked to provide some areas of improvement they observed while at their respective sites during the Colorado River Flood response. Some of the selected responses are listed below, as entered by the respondents and separated by the respective sites.

- EOC (26 responses):
 - Increase utilization of WebEOC, awareness of IAP process, assign liaison with LCRA.
 - We need to make sure we have EOC training for all staff that come to the EOC.
 - Logistics personnel need more training and exercises. A written process is needed. Proper procedures need to be used for incoming requests.
 - Clearer announcement that PODs were being set up.
 - Training of staff in the Incident Command Structure.
 - Delegate objectives to operational teams.
- Field Operations (10 responses):
 - Leaders need to be identified.
 - More communications, better shelter for the elements, food for volunteers.
 - Centrally located main distribution site.
- Public Information (nine responses):
 - Making certain there is one POC for providing info to elected officials.
 - Clear Chain of Command and On Call Schedule, Clearer communication about posts, Use of Emergency Info Page.
 - Dedicated County PIO representation.
 - Though the process to send a public health alert message (BWN) was previously discussed and agreed upon - that process did not work as planned. There was a significant delay in the BWN being sent by Austin HSEM.
- Medical Facility (four responses):
 - Increase water conservation plan reserves.
 - Getting an up to date list of long-term care facilities was difficult.
- Shelter/MARC Operations (nine responses):
 - Site headcount information.
 - Approval of debris removal and pertinent questions prior to hosting MARC, Shelters being set up without public health knowledge.
 - More advertisement of the MARCs could have helped our low turnout.
- Other (six responses):
 - Better communication between outside agency was needed.
 - Create a standardized process for tracking meal receipts and flooding hours from the onset of the incident.

Respondents were asked if they agree or disagree, and to what scale, with the statement that “The information sharing between agencies was adequate during the Colorado River Flood response”. These results are summarized in Figure 4.

Figure 4: Response Stakeholder Survey

Do you agree or disagree with the following statement: The information sharing between agencies was adequate during the Colorado River Flood response.



Respondents were asked to provide some of the strengths in information sharing that were observed. Some of these strengths are summarized below, as entered by the respondents.

- Communications have improved so much over the years, it shows a strong connection between recognizing what is important information for each agency to gather in order to effectively communicate.
- The situation report at the end of the day was extremely helpful in preparing briefings to the court.
- The conference calls are helpful. And being present at the EOC is always the best way to know what is going on.
- The initial MARC planning meeting was very informative and set the stage for the successful implementation of the MARCs.

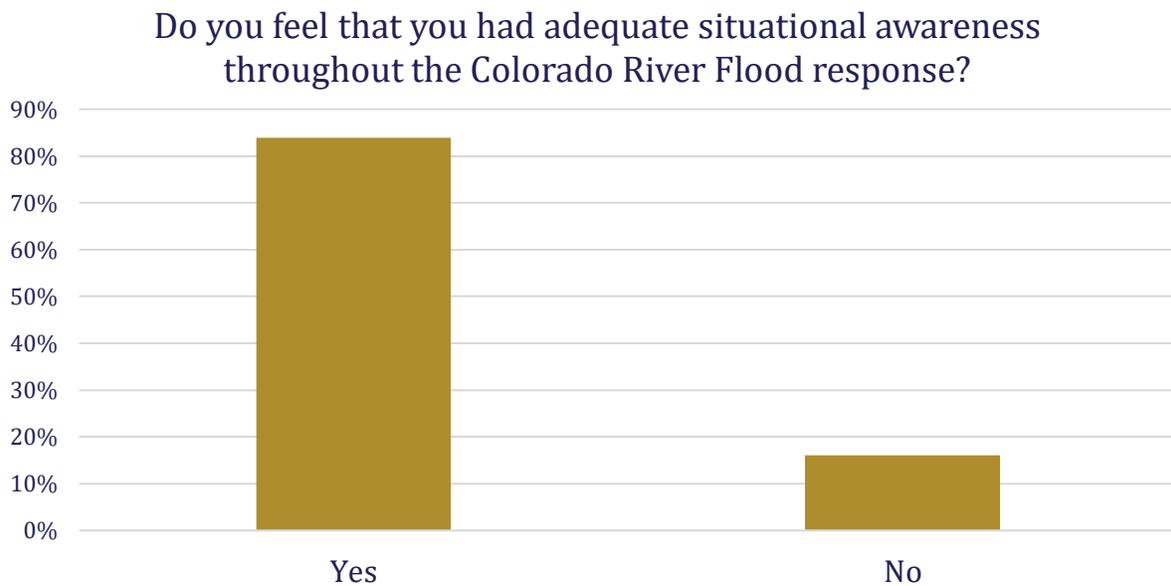
- APH DOC and EOC kept each other well informed.
- WebEOC was used a lot by many agencies, so it was easy to stay up-to-date with their actions and progress.
- Good relationships between agencies helped information flow.
- The side-by-side collaboration and cooperation between Travis County and City of Austin was a decisive factor in overall effectiveness of the response.

Similarly, respondents were asked to provide ways in which information could have been better shared. Some of these suggested improvements are summarized below, as entered by the respondents.

- The biggest issue identified was a lack of accurate and updated information on the GIS/technical side of operations from the Austin Energy and Austin Water maps that would have been a better resource had the data for potentially affecting public works (Schools for example).
- Having a big board with the issues and the agency assigned to it, clearly identify leaders on the field.
- Certainly, we could be using WebEOC more effectively to communicate with the State and among local governments in the region.
- It would help to ensure that all decision makers are in the room during planning. It is challenging when meetings are held, plans are made, and an absent decision maker then changes the plan.
- Educating and training staff on their specific roles and responsibilities during an incident is critical.

In line with information sharing, respondents were then asked if they had adequate situational awareness throughout the Colorado River flooding response. These responses are summarized in Figure 5.

Figure 5: Response Stakeholder Survey



There were 15 comments from respondents providing clarifying information, some of which are summarized below, as entered by the respondents.

- It's always difficult to get as much situational awareness as one would like but we needed: -Better A/V in the EOC -Mapping of the area that could be impacted (and put on the screen in the EOC), with ability to add flood scenarios -Knowledge of risk, map of critical infrastructure and key assets, awareness of impacts if those CIKR are affected # of meetings in EOC was good and helped increase information sharing and awareness among key positions in EOC.
- In logistics, keeping up with information is difficult. There are no written procedures so different people do things differently. WebEOC is not always used properly. A status report generated by WebEOC cannot be effective if the requests are not updated.
- Medical operations with site presence was not activated.
- I worked in the EOC daily and still felt as if I didn't know what was truly going on.
- I really appreciated that Austin HSEM's notifications prior to the public boil water advisory included reaching out to ASO as our operations were significantly impacted.

Transition from Flood Response to Boil Water Notice Response

Respondents were asked if they were involved in the transition from the flood response to the boil water notice response. Of the 104 responses received, half indicated that they were involved in the transition and the other half indicated they were not.

For the respondents that answered affirmatively, they were then asked to identify strengths they observed in transitioning from the flood response to the boil water notice response. Some of these are summarized below, as entered by the respondents.

- EOC was up and active for other issues (F1 and flooding) so the transition seemed pretty seamless [numerous responses indicated this].
- Staff in all agencies mobilized quickly and began communications.
- Getting information about water PODs was quickly dispersed.
- The media spread the word pretty effectively.
- Adapting in a dynamic environment, developing response plans on short notice.
- The change in focus was obvious and the tasks were clearly defined of where we should focus time and energy.
- It was impressive to see the teams move from the original crisis to the follow-up crisis late in the day Sunday. Everyone was tired and mentally moving on from the flood activation but got right back in gear when the boil notice became necessary and inevitable.
- County purchasing dept was present in Logistics to assist with purchases and transport.

Respondents were then asked how the transition could have been improved based on their observation during the response. Some of these are summarized below, as entered by the respondents.

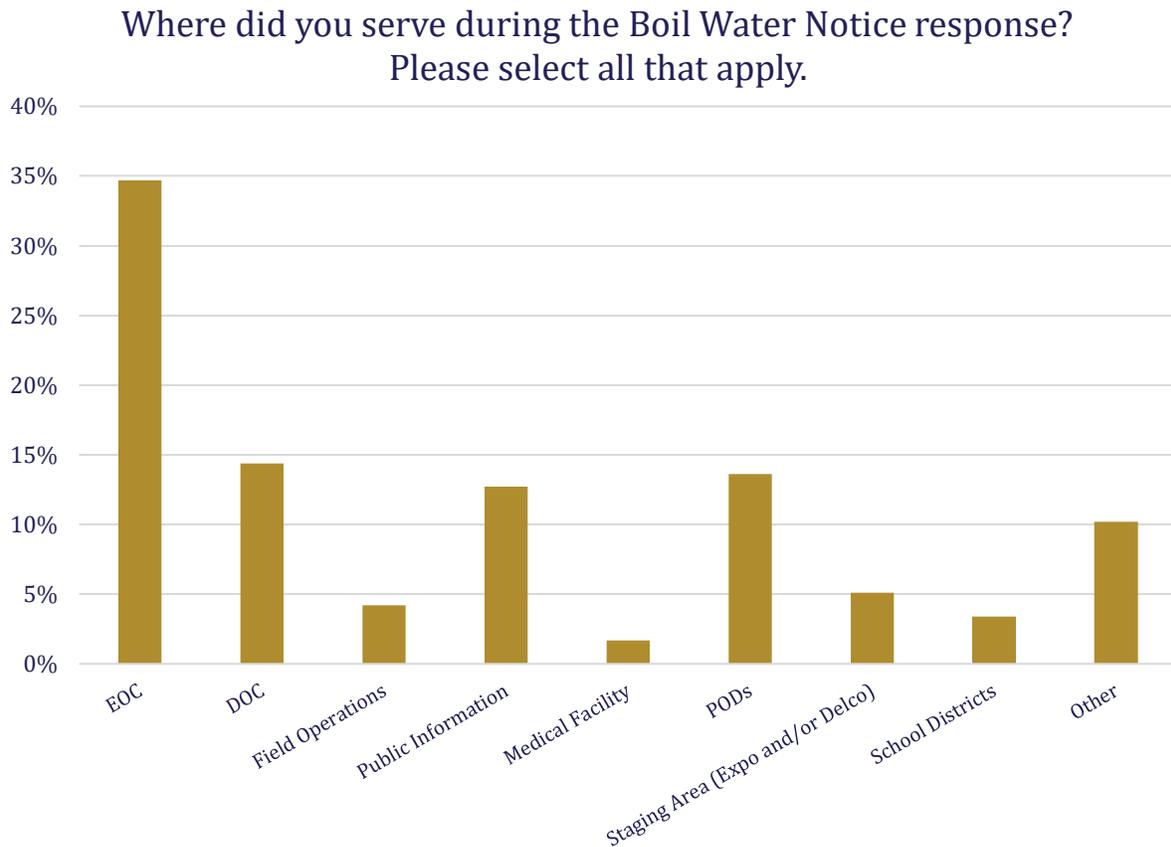
- Need to understand that this was not a separate incident - this was a complex incident, within and incident. The BWN was a direct consequence of the flood.
- Selected pre-storage facilities.
- Transitions in overall management of the event between COA and Travis County were not well coordinated or communicated between the two entities.
- There was a lack of clarity around roles and responsibilities. In particular, related to setting up traffic control at the distribution sites, and staffing the expo center and distribution sites.
- Families with little social media presence, no televisions or internet service were at a disadvantage to receiving the news to boil water.
- Agencies need to have EOC staffing schedules ready to go and initial reliance on NGOs needs to be realistic (they can't mobilize and start operations quickly enough by themselves).
- City HR Department presence in EOC would have been helpful.

Role During Boil Water Notice Response

All respondents to the survey were then asked whether or not they were involved in the boil water notice response. Of the 103 responses received, 75 (72.8 percent) indicated that they were involved while 28 (27.2 percent) indicated they were not involved.

For those who answered affirmatively, they were asked where they served during the boil water notice response. There was a total of 118 responses to this question as respondents who served in more than one location were able to select all that applied. These responses are summarized in Figure 6.

Figure 6: Response Stakeholder Survey



Respondents were asked to identify their primary role during the boil water notice response. While the 73 responses received varied in specificity, most fit into one of nine themes:

- Direction and Control (11 responses)
- Planning (eight responses)
- Logistics (seven responses)
- Public Information (13 responses)
- POD Operations (14 responses)
- Purchasing (two responses)

- Liaison (15 responses)
- Staffing (two responses)
- Staging Area Operations (one response)

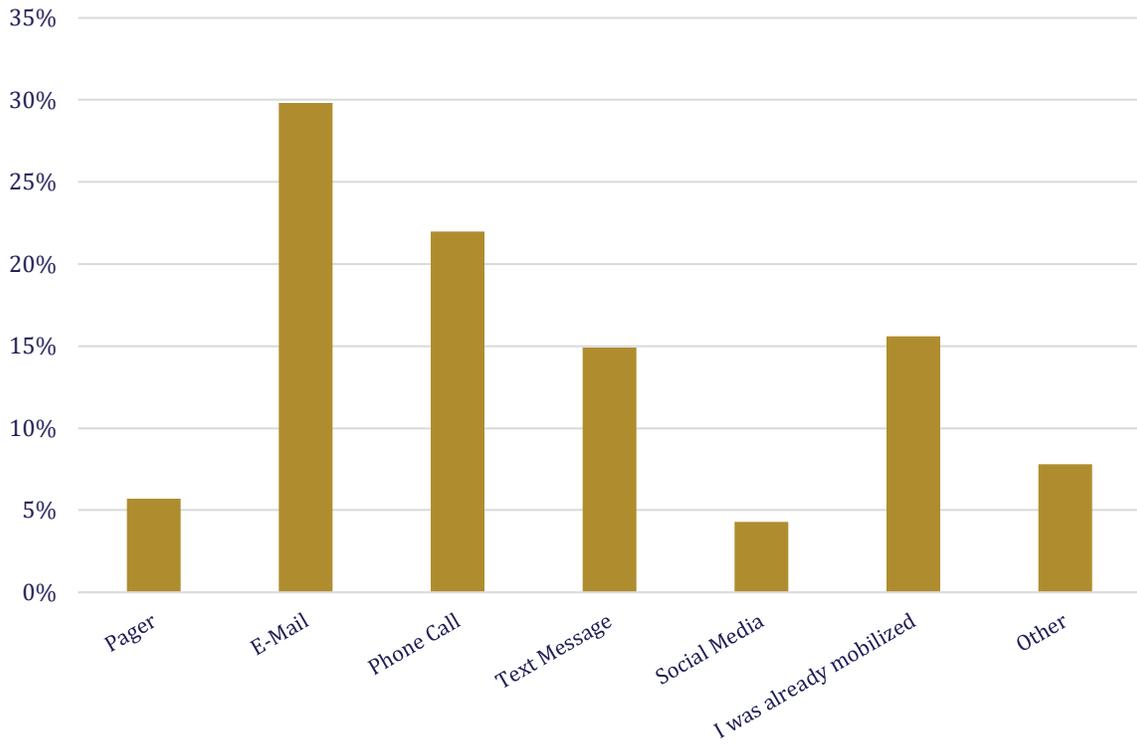
Participants in the boil water notice response were asked if they were provided with sufficient information to effectively serve in their respective roles. Of the 73 responses received, 57 indicated that the information they received was sufficient (78.1 percent), while 16 indicated they received insufficient information to effectively serve in their respective roles (21.9 percent). Participants that responded negatively were given the opportunity to provide clarifying information, some of which are summarized below, as entered by the respondents.

- There was a lack of clarity around roles and responsibilities. We were planning traffic control, and APD and AFD were doing some planning, but there was not coordination. Also, not having HRD at the EOC was a huge problem and led to confusion around staffing needs, particularly at the Expo Center.
- WebEOC is not always used properly. Updates are not always done so it's hard to keep up with requests. WebEOC request status reports are useless if the data is not there.
- I was not given a sufficient briefing of the expectations for the position.
- The initial communication on the locations of the water distribution sites was inaccurate. This caused scheduled water handlers to be dispatched to the wrong locations. There was inconsistency in the requests for the numbers of people needed at each location.
- I am the coordinator of shelter managers for my department, however instead of communications of activation and needs coming through me so we can track our employees time, my employees were being contacted directly...this caused a lot of confusion.

Respondents were then asked how they had received the notification to mobilize for the boil water notice response. Respondents were afforded the opportunity to select all methods that applied to them or indicate if they had already been mobilized from the Colorado River Flood response. From the 72 respondents to this question, 141 responses were received. These responses are summarized in Figure 7.

Figure 7: Response Stakeholder Survey

How did you receive a notice to mobilize for the Boil Water Notice response? Please select all that apply.

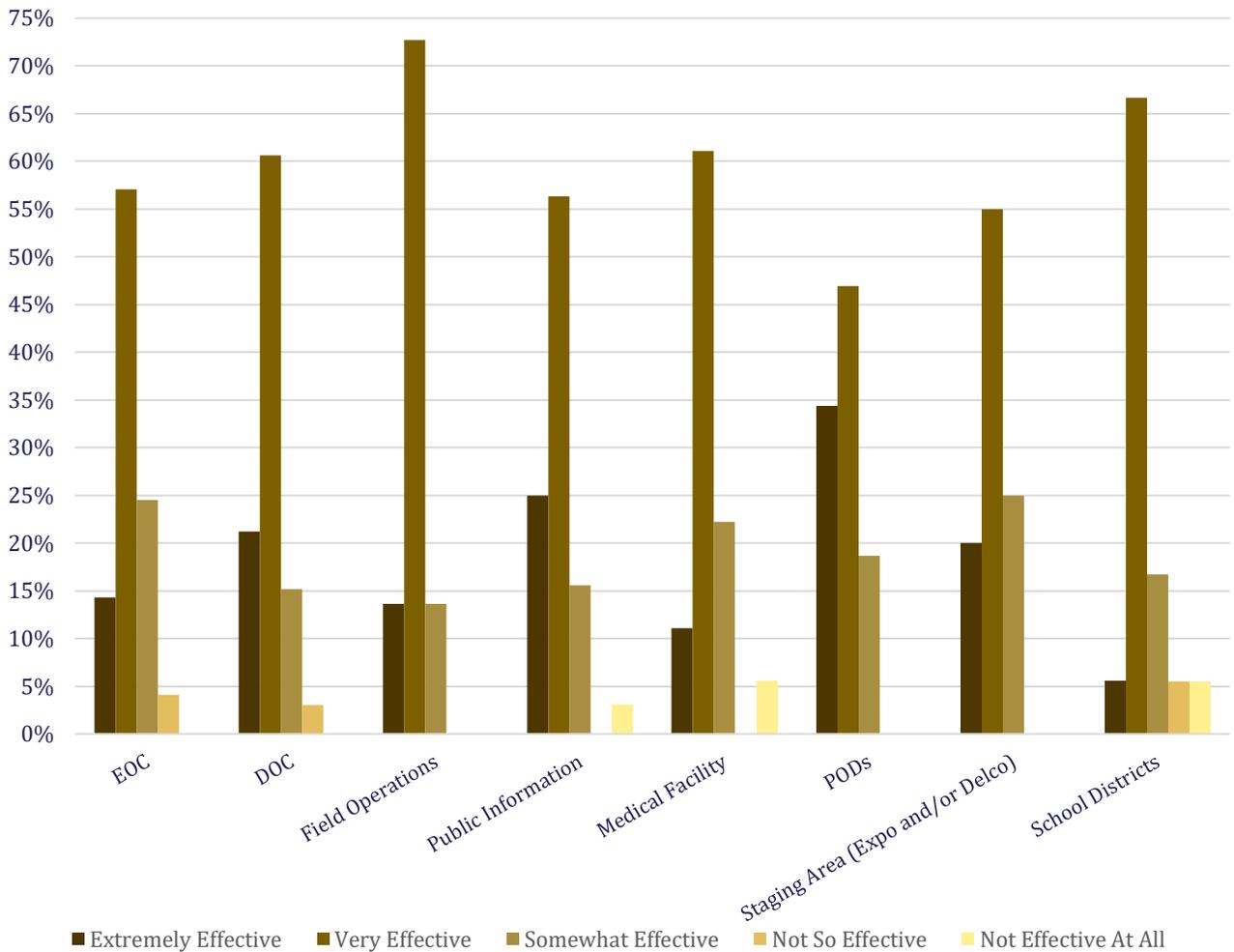


Operations and Direction and Control

Respondents were then asked to rate the effectiveness of operations at their respective sites during the boil water notice response. Respondents were given the opportunity to rate the effectiveness for each site they served at. Responses for each site are summarized in Figure 8.

Figure 8: Response Stakeholder Survey

How would you rate the effectiveness of operations at your site(s) during the boil water notice response? Please answer for each site you were assigned.



Respondents were then asked to provide some areas of improvement they observed while at their respective sites during the boil water notice response. Some of the selected responses are summarized below, as entered by the respondents and separated by the respective sites.

- EOC (20 responses):

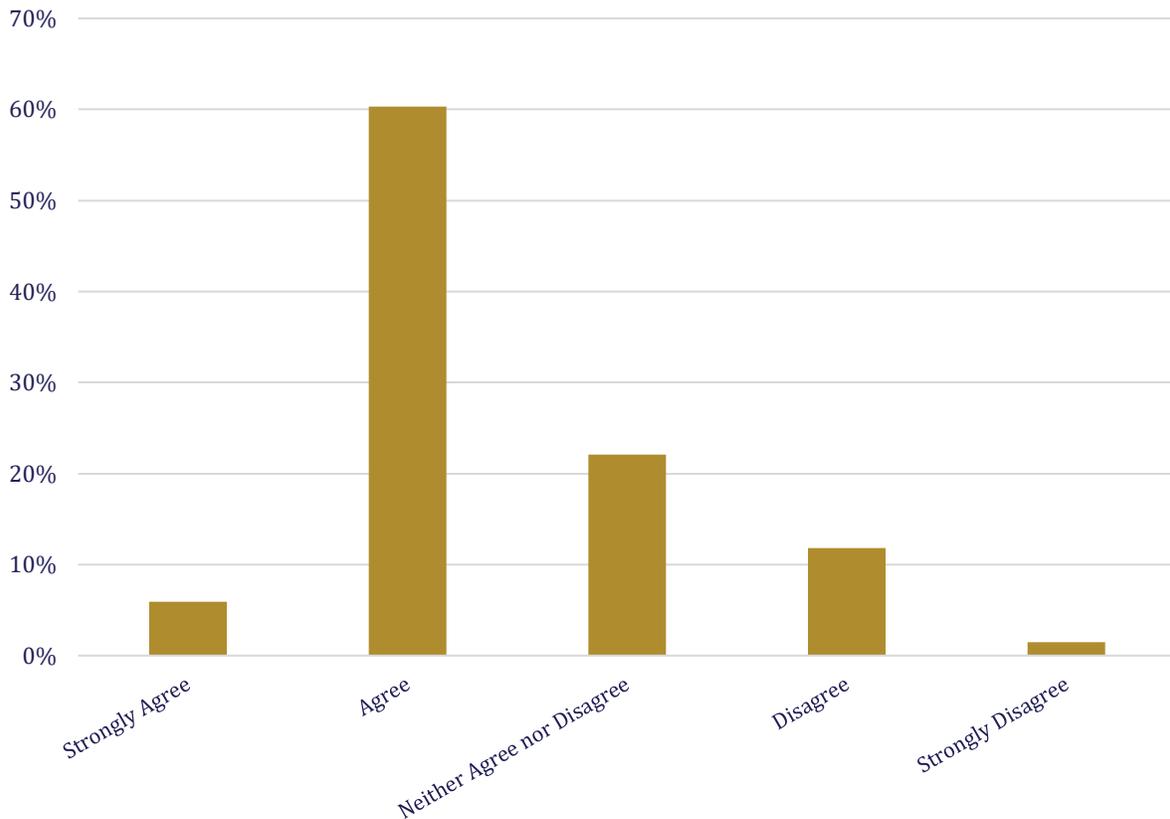
- Logistics adaptations and communications throughout the response.
- Use WebEOC, have written procedures, follow them, train responders in their specific role. Don't make them work their regular job after a 12-hour shift in the EOC.
- Training of staff in the Incident Command Structure; need for more flexible purchasing capability for Travis County OEM.
- Better coordination with Williamson County and Williamson County ISDs affected by water outage.
- Needed more clarity on the final decision makers and the decisions made.
- DOC (seven responses):
 - Caution in using terms like "undetermined", "handful", "couple" to express the potential duration of an incident. This leaves room for a broad interpretation by the public, private sector, school districts or other government agencies resulting in confusion.
 - DOC could have had better communication with APH sites when requesting water for their staff and clients.
 - Enhance communication strategies, establish dedicated DOC facility.
- Field Operations (two responses):
 - Greater command and control of water logistics.
- Public Information (10 responses):
 - Clearer Information and Chain of Command, More timely information.
 - It was unclear on a few occasions who was making decisions and who was in charge. Additionally, requests for information from other departments and elected officials became overwhelming at points during this event.
 - Coordinating consistent messages to public i.e. number of minutes to boil water from Austin Water and Austin Public Health to food establishments.
- PODs (11 responses):
 - Clarity around who is planning traffic control is needed.
 - Better communications to the volunteers about possible environment, shelter and weather. Also, provide food or snacks to volunteers.
 - HRD was engaged late in the process and this created challenges with fulfilling our role. Also, needed clarity on who was ultimately responsible for confirming the number of resources needed at each distribution location and the roles.
- Staging Area (Expo and/or Delco) (six responses):
 - Clarity around who is in charge and who is coordinating staffing needs.
 - We [POD] were in the NE corner of Austin. A more centrally located distribution center would have been more efficient.
 - Lack of coordination of forklift operators created problems.
- School Districts (three responses):
 - More updated information/locations on schools is needed for future incidents where potentially hazardous conditions would affect this sector. I am currently in the process of collecting and organizing such information.
 - Need to be informed in a timelier manner.

- Other (four responses):
 - Stakeholder notification.
 - Medical Operations Center - Lack of knowledge by healthcare facilities on the use of ICS forms. Hospitals not clear on ability to accept alternate water sources to buildings.

Respondents were asked if they agree or disagree, and to what scale, with the statement that “Information sharing between agencies was adequate during the Boil Water Notice response”. These responses are summarized in Figure 9.

Figure 9: Response Stakeholder Survey

Do you agree or disagree with the following statement:
Information sharing between agencies was adequate during
the Boil Water Notice response.



14 respondents provided clarifying information, some of which are summarized below, as entered by the respondents.

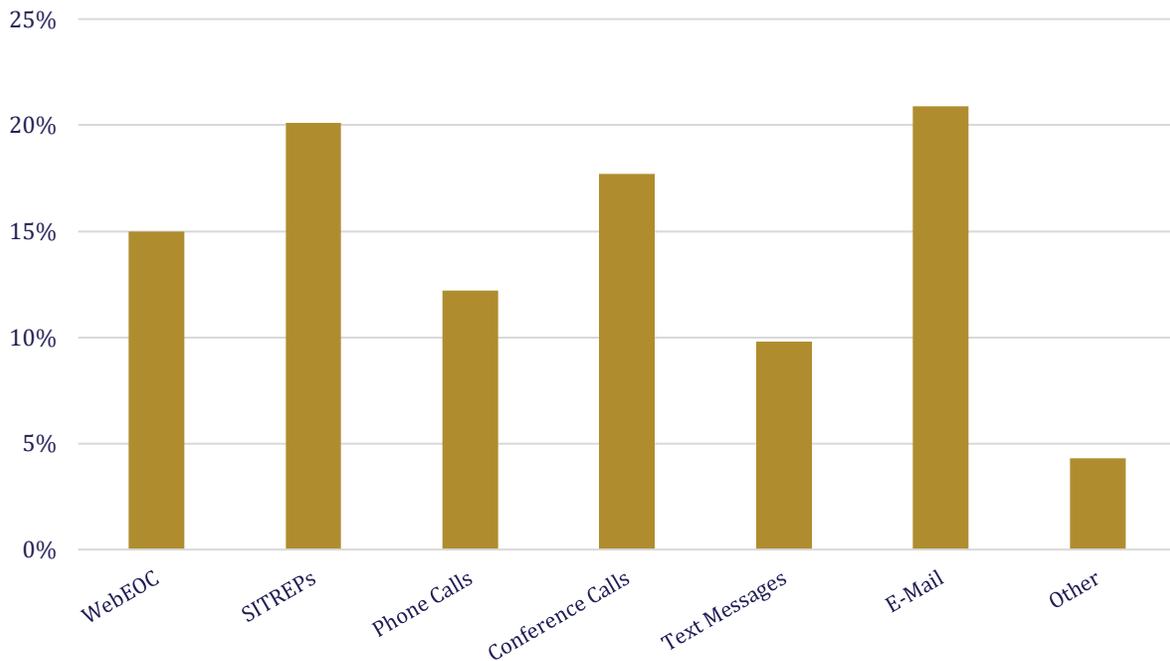
- We struggled significantly with HRD being the point of contact for staffing needs, but they were not in the EOC and not aware of the staffing needs. We received conflicting messages, and this led to problems with staffing and overworked staff.

- Listened into multiple conference calls where Williamson County was not included in situation updates or needs assessments.
- Information sharing could have been a little bit better. The key messages were not shared to all executives or speakers on these issues. We could have done a better job making sure all agencies were on message.
- Information regarding potential timelines and steps to be taken by residential and commercial customers was either slow/late in coming or nonexistent.
- Better communications are needed between the various agencies on-site at the PODs.

Respondents were then asked by what methods information was shared about the boil water notice response with them. They were given the opportunity to select all methods that applied. Of the 69 respondents to this question, there were 254 responses received. These results are summarized in Figure 10.

Figure 10: Response Stakeholder Survey

By what methods was information about the Boil Water Notice response shared with you? Please select all that apply.



Respondents were asked to provide some of the strengths in information sharing that were observed. Some of these strengths are summarized below, as entered by the respondents.

- Situation reports and EOC communications.
- Having representatives in the EOC makes it easier for information to be shared.

- Updates to the community, information gathering to plan for the needs of clean water, professionalism within the EOC.
- Many of the agency's reps knew each other prior so working together was easy.
- Once up and running and water was being distributed, ordering of pallets of water and situation updates became timelier.
- Communicating disposition of distribution sites.
- WebEOC was a very efficient way to share information between various agencies.
- As with the flood response, I observed strong, friendly, positive, and transparent information sharing between County and City.

Similarly, respondents were asked to provide ways in which information could have been better shared. Some of these suggested improvements are summarized below, as entered by the respondents.

- A better understanding of who the key players were in this type of event.
- Pre-determined storage and transportation needs.
- I recommend looking at how to use WebEOC more effectively across the region and in cooperation with the State.
- HRD needed to be present.
- Inform ALL school districts, not just Austin ISD. It should not be Austin ISD's responsibility to inform other districts.
- During initial stages of response and after lead coordination roles were established, better coordination with all aspects of IC and C&G staff between Williamson County and City of Austin could have occurred through regular inclusion in planning meetings and conference calls. The dispatching of a department liaison to CTECC attempted to bridge this gap, however further improvement in this area could be achieved.
- Earlier coordination of response policies.
- All impacted agencies and decision makers should be in one room during the planning and operational decision makers. When this does not occur, we are wasting resources.

Water Distribution

Respondents were asked whether they were involved with the response at the water distribution sites. Of the 69 respondents, 25 responded “Yes” (36.3 percent), while 44 answered “No” (63.7 percent).

For those who answered affirmatively, they were then asked to list strengths they observed at the PODs. Some of the selected responses are summarized below, as entered by the respondents.

- Communications between them [PODs] and AFD.
- Quickly assembling an overview to discriminate to each site for the basic needs/requirements per POD to operate and interagency communications.
- Effective traffic control, signage, quick distribution of water, and logistics for staging. Kelly Reeves had a real-time water distribution tracking spreadsheet that was integrated with google forms for minute by minute water distribution and zip code tracking of areas served by the POD site. This helped establish very accurate burn rates and establish future needs.
- Good locations were selected. Media communication was effective. Once received, water supply was plentiful.
- Excellent turnout at the COTA POD by County employees and outside volunteers. Everyone worked hard and was friendly, focused on good customer service.

Similarly, respondents were also asked how the PODs could have been improved. Some of the selected responses are summarized below, as entered by the respondent.

- Identify types of schools and a point of contact that may be potentially affected by similar situations in the future that should be updated on an annual basis. More site security per POD to ensure access points and assets are better monitored/controlled.
- If POD sites became overwhelmed, improvements to the distribution operation could have been improved with multiple lanes serving multiple vehicles concurrently. This was ultimately not needed at Kelly Reeves but was observed for future planning operations.
- Consultation with APH on POD operations. We are tasked with this response for meds. Not so much a weakness but we now know that many city employees are capable of running such operations too.
- Needed clarity on who was ultimately responsible for confirming the number of resources needed at each distribution location and everyone's roles.
- More efficient movement of water from staging areas to the PODs.
- Better communication regarding over staffing/under staffing to allow for adjustments.

Respondents were also asked whether they were involved with the boil water notice response at the water staging areas, Expo Center and/or Delco. Of the 69 responses received, only seven answered “Yes” (10.1 percent) and 62 answered “No” (89.9 percent).

Those that answered affirmatively were then asked to identify the strengths observed at the water staging areas. There were six responses, some of which are listed below as entered by the respondents.

- Unified Command at Delco RSA had great communication and information sharing and fluid operations.
- The command post was well-established for all parties to share information.
- The existence of the staging areas was key in the planning.

Similarly, respondents were asked to identify ways in which the water staging areas could have been improved. There were seven responses, some of which are summarized below.

- Internal emergency operations plans for school districts should be updated to plan for future PODs that are flexible to accommodate multiple asset needs/incident types.
- Have a plan in place that allows for clear chain of command at the emergency response sites. It should be clear to everyone that the site manager is directing the employees (not their day-to-day supervisor) while they work at the site...Have a plan in place to ensure employees are fed and have access to restrooms when they are working at a remote site...Develop a clear plan for communicating critical information between the EOC and the distribution/staging sites.
- A heavier security presence could have helped. People stealing cases of water became an issue. Better outfit the command posts with food, water, coffee, etc.
- The initial space limitations at the Expo Center significantly slowed down the operations and caused a backlog of trucks waiting to be unloaded.

Respondents were then asked whether they were involved with water access/distribution at alternative locations during the boil water notice response. Of the 69 responses received, 17 indicated they were involved at alternative locations (24.6 percent), while 52 indicated they were not (75.4 percent). Some selected alternative locations included:

- Congregate living centers.
- Long-term care facilities.
- Nursing homes and assisted living facilities.
- Homeless shelters/programs serving persons experiencing homelessness.
- Correctional facilities.
- Austin-Bergstrom International Airport.

Respondents were asked to identify strengths observed at alternative locations. Some selected responses are summarized below, as entered by the respondents.

- When I was in the EOC the Ops chief told us Long-Term Care Facilities were a priority and came in and checked on us often to see updates that were needed to ensure that water was available. Also, easily explained process for pick up or if delivery was needed what was needed for the delivery to occur (for example to the ARCH).
- Spring water conservation plan in place and recently updated and reviewed.
- Sharing of storage space and water between different healthcare systems. Excellent working relationship between different agencies such as Austin Fire Department and Healthcare facilities to problem solve issues that came up in water distribution.

- Procurement securing large water tanks to be at the Correctional Facility and having bulk water distributed.
- City made pallets of bottled water available to city departments which was helpful for our field staff.

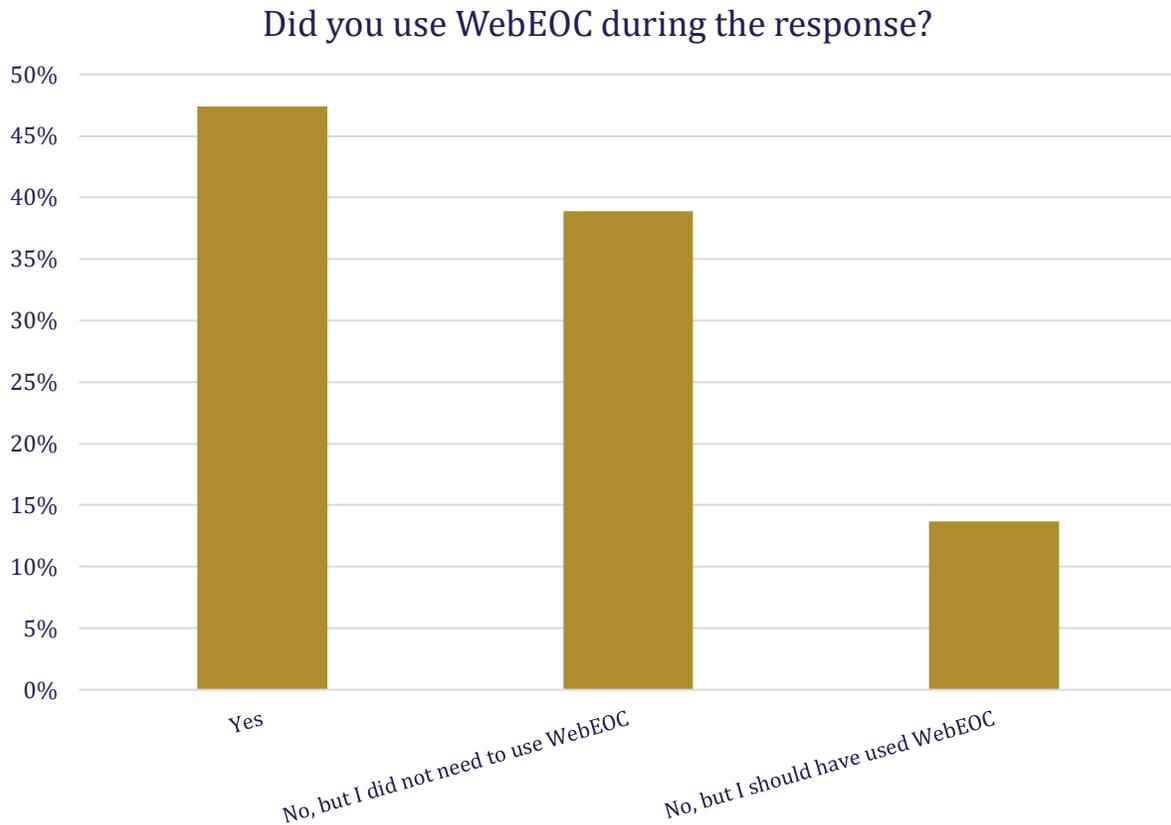
Similarly, respondents were then asked to identify ways in which water access/distribution could have been improved at alternative locations. Some selected responses are listed below, as entered by the respondents.

- Parmer [location]: We wish we knew when water would be delivered, especially on the first day of operations.
- The old Home Depot location on I.H. 35 was bombarded with people trying to get in to that location. The access road was so heavy with cars coming from all directions. Maybe have traffic control help out.
- Knowledge of locations requiring vehicles with lift gates for water placement. Pre-knowledge of water requirements for different facilities. Knowledge of water supplies on site. Better coordination of incoming water requests across regions from different agencies to minimize excess water after the event has ended.
- Clearer communication to facilities that need to pick up their own water because some assumed water could be delivered when we did not have that capacity.
- Better understanding of handling of potable water for commercial/food serving facilities.

WebEOC

All respondents were asked whether they used WebEOC during the response. Of the 95 responses to this question received, 45 indicated that they used WebEOC (47.4 percent), 37 indicated that they did not need to use WebEOC (38.9 percent), and 13 indicated that they did not use WebEOC, but they should have used it during the response (13.7 percent). These responses are summarized in Figure 11.

Figure 11: Response Stakeholder Survey

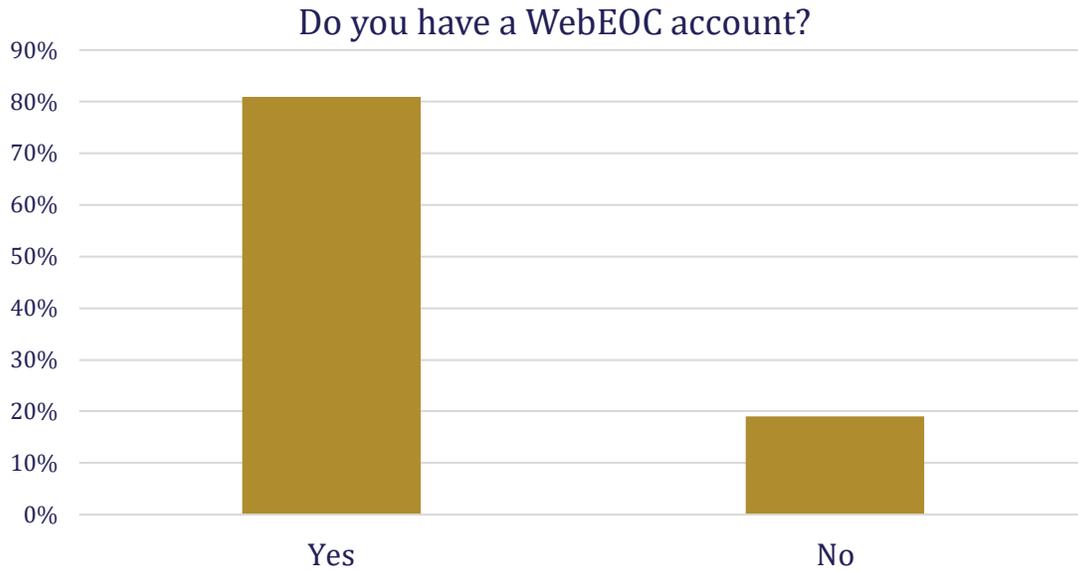


Respondents were given the opportunity to comment on WebEOC usage. Some selected responses are summarized below, as entered by the respondents.

- This area needs lots of training.
- Team manager is on WebEOC, As the point person, I was not.
- WebEOC had locked out accounts randomly. I did not have access during the first week of the flooding event.
- Other employees were making entries for our agency.

Participants who either answered “Yes” to using WebEOC or “No, but I should have used it” were then asked whether they have a WebEOC account. These responses are summarized in Figure 12.

Figure 12: Response Stakeholder Survey



Respondents were asked to list some of the strengths with WebEOC observed during this incident. Some of these strengths are summarized below, as entered by the respondents.

- It's one central repository for all response activity.
- Real-time updates on other area command agencies that may be too much information to share during an operational brief, as well as high importance updates in between briefings were easily accessible.
- Common operating picture and provides situation reports and documentation of the event.

Similarly, respondents were asked to list some of the areas for improvement to WebEOC they observed. Some of these are summarized below, as entered by the respondents.

- More training opportunities so users can access full utility.
- More use and education on the utilization of the resource request page.
- It should be used for entering and submitting STAR requests (to the State, for resources). It should be used across the region, by all local CAPCOG EOC's, so that we all have the same situational awareness.
- The biggest problem I see with WebEOC is that it needs to be used regularly (daily) or folks forget how to use it. Then, we get into incidents and it's not being used widely and lacks sufficient information - so folks use other platforms, like smartphone applications. Need to improve some boards too - to make them more useful.

Respondents were asked to list some potential enhancements to WebEOC that would better enable them to accomplish their duties. Some of these enhancements are listed below, as entered by the respondents.

- I need to know what its capabilities are, but I believe resource tracking needs to be more robust. It is not currently used as the main tracking tool for resources. People enter in resource information after the fact. We should be able to use it to return resources to their owners, as well as to track costs.
- There was a GIS dashboard used by Travis county that would be helpful in providing visual information. Not sure if it can be incorporated.
- WebEOC and EMResource should auto-populate each other in the bed resources area.
- Ability to reset your account without having to find an administrator. The person listed on the CAPCOG contact list was no longer our contact but luckily still worked for the city and still had rights to update the account. (This was actually for F1 but played into Boil Water since I was already at the EOC) Had I not already reset my account for F1 I would have had to for EOC response.
- Is it available for use on cell phones - that could help for staff in the field?

Resource Management

All respondents were asked to list some of the strengths they observed regarding the process by which personnel were being assigned. Some of these are summarized below, as entered by the respondents.

- Good collaboration among City departments to identify and dispatch individuals comfortable with the duties required.
- Employees were well training in incident command. Previous desk top training exercises were value added. Organizational boundaries did not get in the way.
- Staff was able to receive their schedule in advance of the day they were assigned.

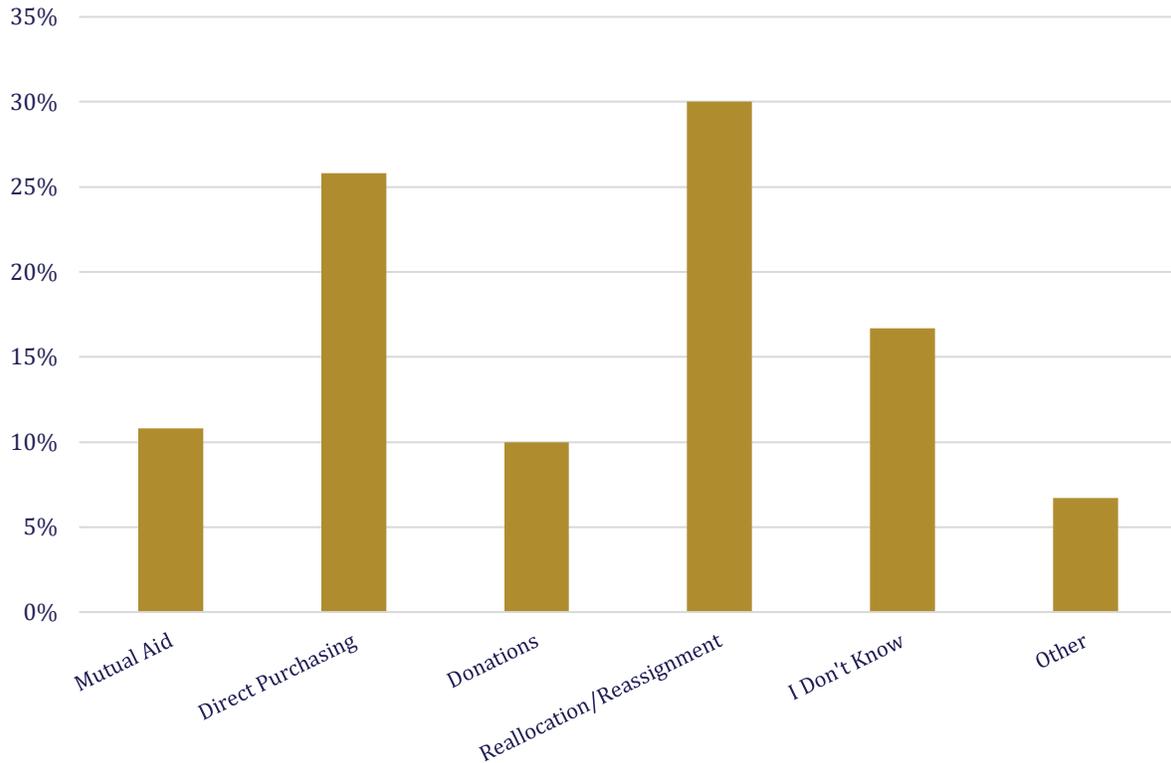
Respondents were then asked in what ways the personnel assignment process could have been improved. Some of these responses are summarized below, as entered by the respondents.

- Many times, people are assigned based on availability and willingness to work. May or may not translate into how adept they are with the ways of the EOC. More EOC training with a "qualification" to be able to be assigned to the EOC should be explored.
- Pre-identify personnel from other agencies who can fill in and support HSEM/OEM personnel. Make arrangements with their home agency to use them as needed.
- A Safety Liaison needs to be utilized and that position can assist with scheduling.
- Have a clear point of contact for recruiting staff city-wide. This contact needs to have representation in the EOC to ensure they have a pulse on the current needs. HRD was designated the point of contact for staffing the distribution and staging sites. However, communication break downs were occurring when HRD was not aware of the current staffing needs. A city-wide emergency response staffing plan be created that draws on the expertise of all departments.
- Focused discussion regarding the specific personnel requirements should occur early in the planning process and engage all City departments who employ individuals with those skill sets/roles.
- Have volunteers in place before an emergency. Ask for volunteers now, have a training for several types of emergencies/disaster. Keep an updated list and review every 3-6 months to make sure volunteers are still interested or work for the agency. Have a cell phone list to gather individuals quickly for a briefing, assigning locations and shifts and provide a quick refresher on what volunteers are supposed to do.

Respondents were asked to identify the mechanisms for obtaining resources, including personnel, utilized by their respective agency/department. They were given the opportunity to select all mechanisms that applied. Of the 74 respondents to this question, there were 120 responses received. These responses are summarized in Figure 13.

Figure 13: Response Stakeholder Survey

What were the mechanisms for obtaining resources (to include personnel) used by your agency/department? Please select all that apply.



Respondents were asked to list the strengths in obtaining and tracking emergency resources and costs they observed during the response. Some of these are summarized below, as entered by the respondents.

- Departments have become very familiar with disaster tracking. Initially a reporting code was not set up while the magnitude of the event was still being assessed. Departments were overall fairly flexible and able to use and switch from internal task orders to a citywide reporting code.
- Guidance from personnel in the logistics section was awesome. Additionally, the ease of the digital Forms in WebEOC to document and submit forms will always be an upgrade from pen and paper.
- I followed the chain of command to request services. If I needed to elevate a request, it was sent to the DOC and ultimately the EOC if needed. I did submit requests for translation of communications via this route.

Respondents were also asked to list the ways in which obtaining, and tracking emergency resources and costs could have been improved. Some of these are summarized below, as entered by the respondents.

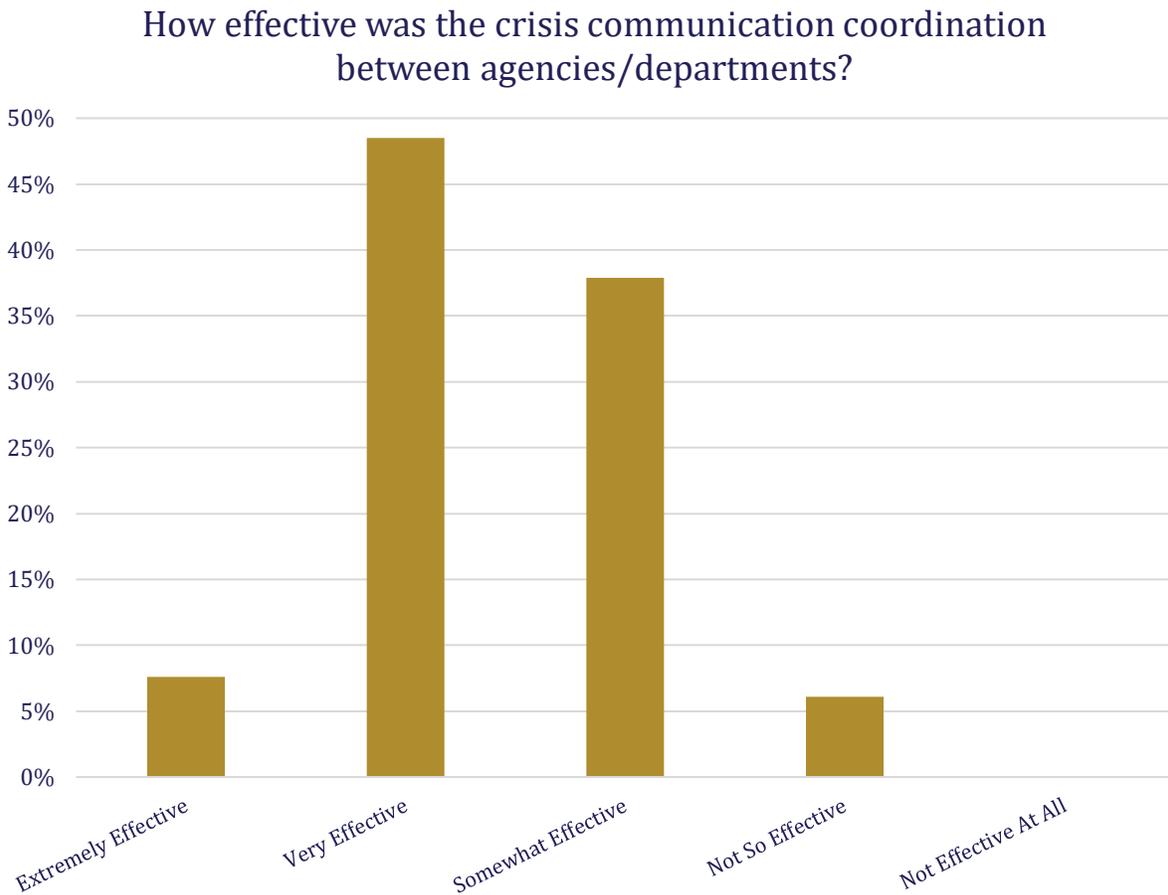
- We need a way to figure out the extent of resources being used in real-time during the event. We do not have good overall situational awareness of what resources are where and how much it is costing. We need some kind of program to track this, along with tracking of personnel so we are not relying on assigned employees to sign in/sign out, report their own time and activity manually.
- County needs to create a code that is county wide and we need to come up with a mechanism for better tracking equipment usage.
- WebEOC should be useful for accomplishing this.
- Pre-identify vendors for basic necessities and have contracts already approved and in effect.
- Have a pre-planned process and have work orders in place for disaster and emergency responses. Have supervisors and managers familiar with that process. Conduct table top exercises at least every couple of years for this kind of response.

Communication and Public Information

Respondents were asked whether their agency/department had sufficient information to answer requests for information regarding the response. Of the 38 responses received, 32 indicated “Yes” (84.2 percent), three indicated “No” (7.89 percent), and three indicated “No, but their agency department directed the request to another agency/department” (7.89 percent).

Respondents were then asked how effective the crisis communication coordination was between agencies and departments. The 66 responses received are summarized in Figure 14.

Figure 14: Response Stakeholder Survey



Respondents were asked to list strengths in the crisis communication coordination between agencies and departments they observed during the response. Some of these are summarized below, as entered by the respondents.

- Being in the EOC, we were able to directly coordinate with PARD, AFD, APD, and others and work to be on the same page.
- PIOs were available and capable of quick information sharing.

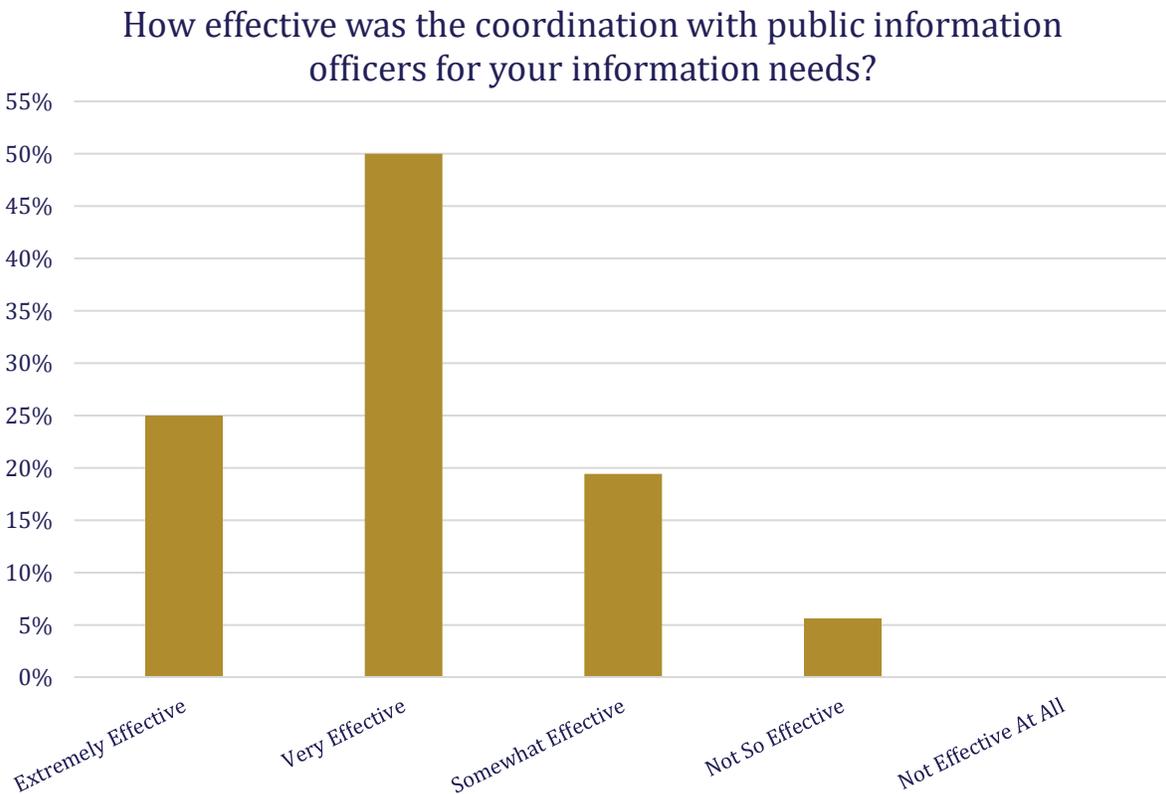
- Communication from HSEM, City Manager and Assistant City Manager provided information that was needed and useful. Identified employees were willing to be re-assigned.
- Pre-existing relationships with other EOC responders helped greatly in getting information to and from other agencies.

Respondents were also asked how crisis communication coordination between agencies and departments could have been improved. Some of these responses are summarized below, as entered by the respondents.

- It was sometimes difficult to get updates in between scheduled conference calls, and these updates (e.g., when water trucks will arrive) are important to our staffing of the sites.
- SOPs for water boil events of both types: line break/ service interruption; and Citywide turbidity-based events.
- Understanding the roles and responsibilities when the EOC is activated is important for all executives and city council members. Also, a point of contact for council to go for information about and beyond what is being provided to the public needs to be established.
- More table top and functional exercises involving departments besides the public safety agencies.

Respondents were asked to rate the effectiveness of the coordination with public information officers to meet their information needs. The 36 responses received are summarized in Figure 15.

Figure 15: Response Stakeholder Survey



Respondents were asked to list strengths regarding communication with external stakeholders they observed during the response. Some of these are summarized below, as entered by the respondents.

- News outlets appear to have the information as soon as it was available.
- Schools notified families through their out calling system, which brought in people for water.
- Press releases, website updates, and social media seemed to suffice.
- APH–Environmental Health Services Division utilizes Constant Contact for communicating electronically with permitted facilities and stakeholders. Distribution lists were already in place.

Respondents were also asked how communication with external stakeholders could have been improved. Some of these responses are summarized below, as entered by the respondents.

- JIC concept needs to be strengthened.
- All messaging should come from the JIC.
- Maintenance of accessible, up-to-date contact lists for each type of stakeholder; better info regarding which agency is responsible to maintain which contact list.
- Having a clear policy surrounding the use of reverse 911 would be important for future emergencies.
- Sending out a Warn Central Texas text early on the morning of Monday, Oct. 22 would have helped spread the word more quickly.

Recovery

Respondents involved in recovery operations were asked to list strengths they observed during the recovery operations. Some of these responses are summarized below, as entered by the respondents.

- MARC was set up well and organized with lots of resources.
- The MARCs had a good representation of varying agencies.
- Predetermined and existing cost codes.
- Good coordination among teams in the field.

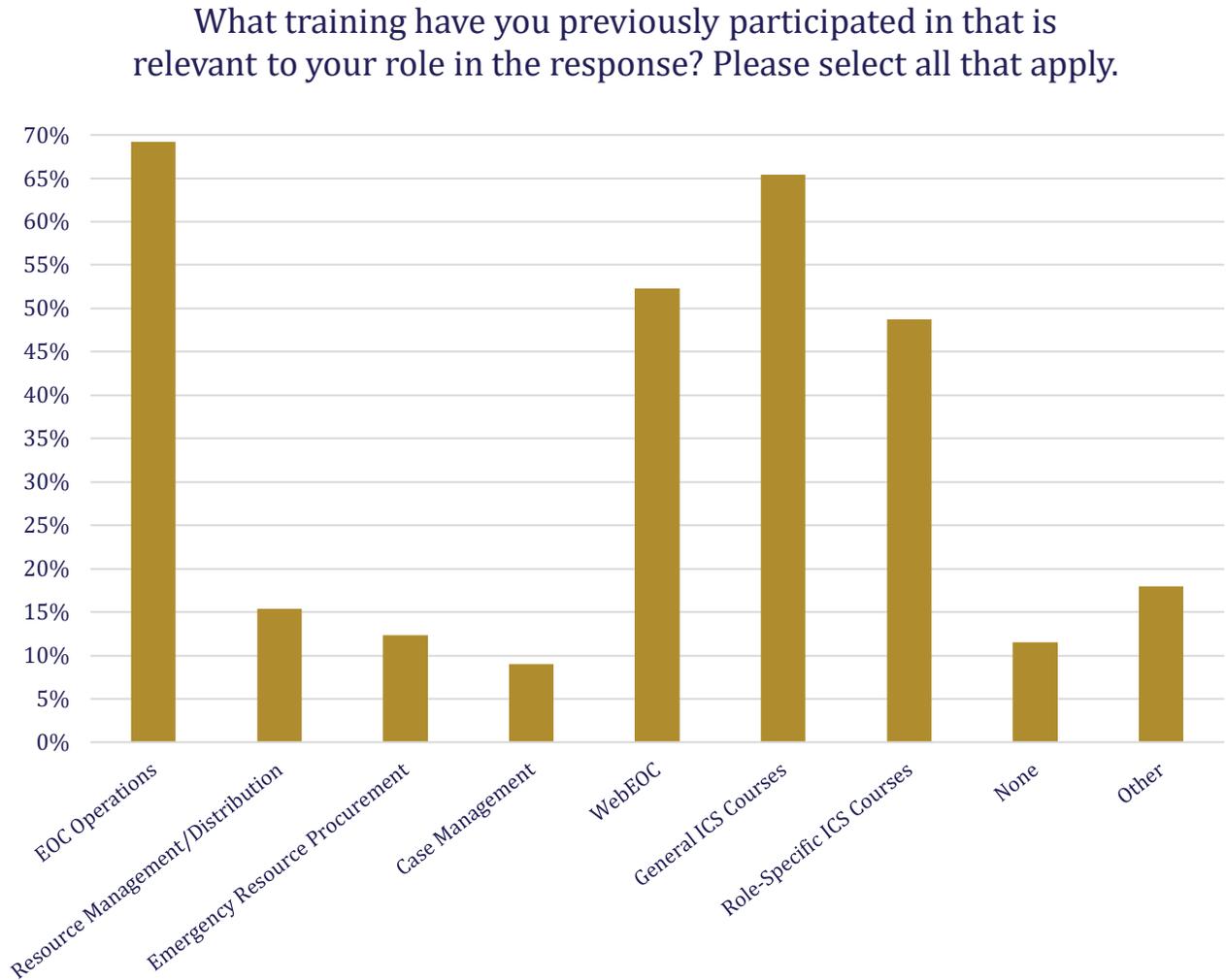
Respondents were also asked how recovery operations could have been improved. Some of these responses are summarized below, as entered by the respondents.

- MARC: More planning lead time to prepare for the MARC deployment and allow for better community awareness of the MARC. Also, more clarity and quantity of posted signage to inform community of MARC location and directions. Door-to-door: Would have provided more complete services to community if door-to-door assessment, information dissemination and emotional/spiritual care could have been planned and conducted.
- We need real-time reporting on expenses, more COA personnel involved in managing the disaster Finance function, a financial disaster policy and procedures, and mutual aid procedures.
- Have a pool of finance personnel available to assist other agencies as needed.

Training

All respondents were asked to identify the types of training they had received prior to the response that were relevant to their respective roles in the response. They were given the opportunity to select all the types of training that applied. Of the 78 respondents to this question, there were 236 responses received. These responses are summarized in Figure 16.

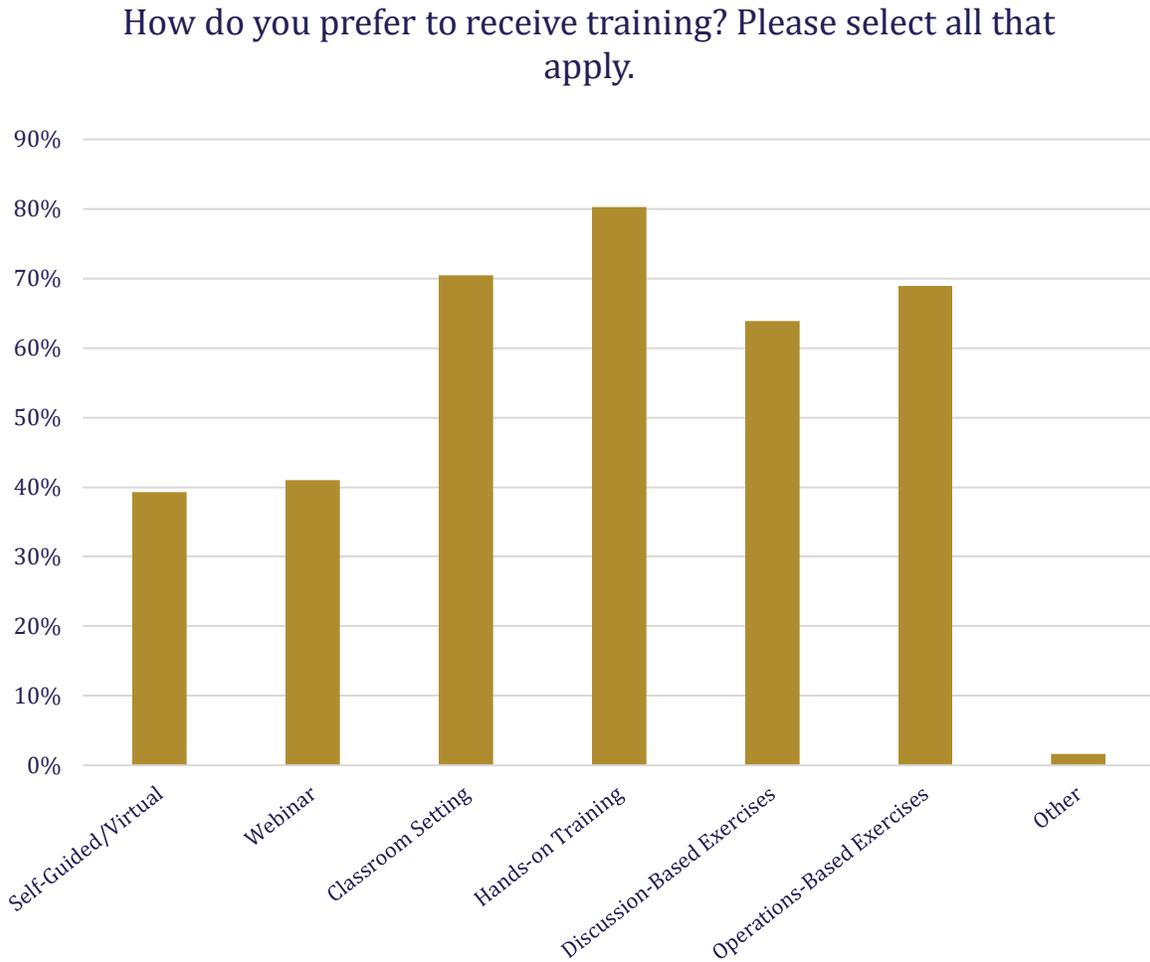
Figure 16: Response Stakeholder Survey



Respondents were asked if they desired to participate in future training/exercise initiatives based on their experience during this response. Of the 76 respondents who answered, 62 indicated they desire additional training/exercise participation (81.2 percent).

Respondents were then asked how they prefer to receive training. They were given the opportunity to select all methods of training that they prefer. Of the 61 respondents to this question, there were 223 responses received. These responses are summarized in Figure 17.

Figure 17: Response Stakeholder Survey



Respondents were then asked to identify stakeholders that do not traditionally participate in training/exercises that they believe should be included in future training/exercises. Some of the responses are listed below, as entered by the respondents.

- Elected officials and media.
- HRD needs to be present.
- Volunteer groups and vendors.
- All city departments that don't traditionally manage emergency incidents.
- County staff from Auditor's Office, Purchasing, HRMD, FMD.

Action Prioritization Ranking

Overview

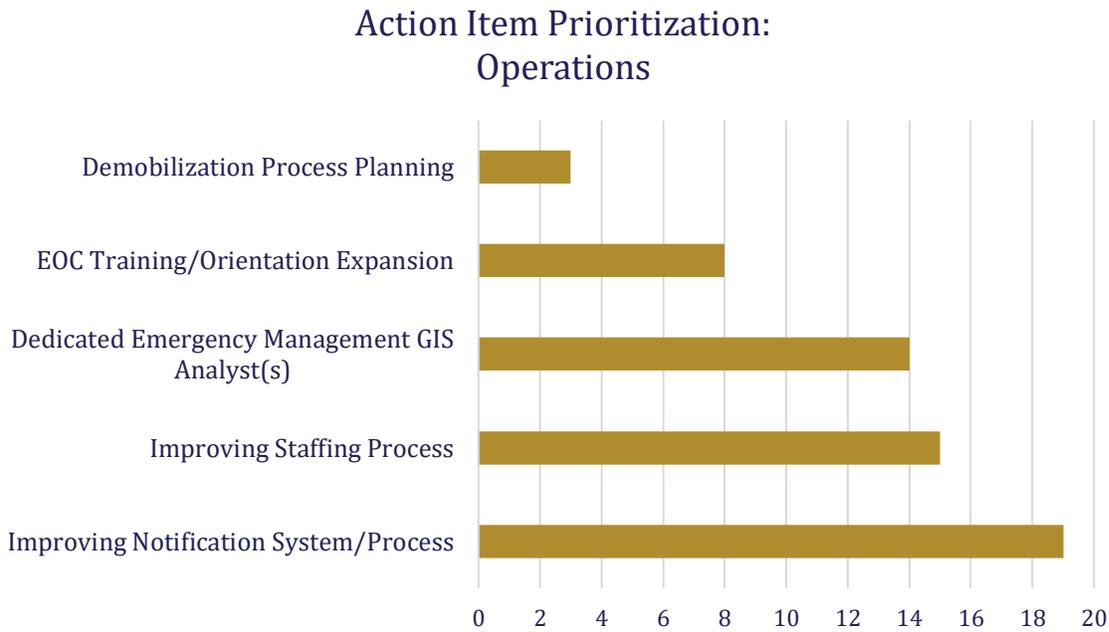
As part of the after-action process, the Project Management Team invited stakeholders and actors to participate in a series of 8 Focus Area Meetings to discuss critical elements of the response. At the conclusion of each Focus Area Meeting,³ participants were provided a menu of three to six key action items identified during the meeting and were asked to select one or two action items which should receive priority over the others. The results of these polls are captured in this appendix and are organized by Focus Area.

³ Polls were not conducted at the end of the Water PODs and Community Assets and Infrastructure Focus Area Meetings.

Operations

Discussion at the Operations Focus Area Meeting indicated that potential action items include improving the notification system and/or process for activation and mobilization, improving the staffing process for the EOC, having dedicated emergency management GIS analyst(s), improving and implementing EOC training and orientation, and improving the demobilization process planning. Of the 59 responses to the poll received, 19 indicated that improving the staffing process for the EOC should be a priority action item for the City and the County. Figure 18 summarizes the responses to this poll.

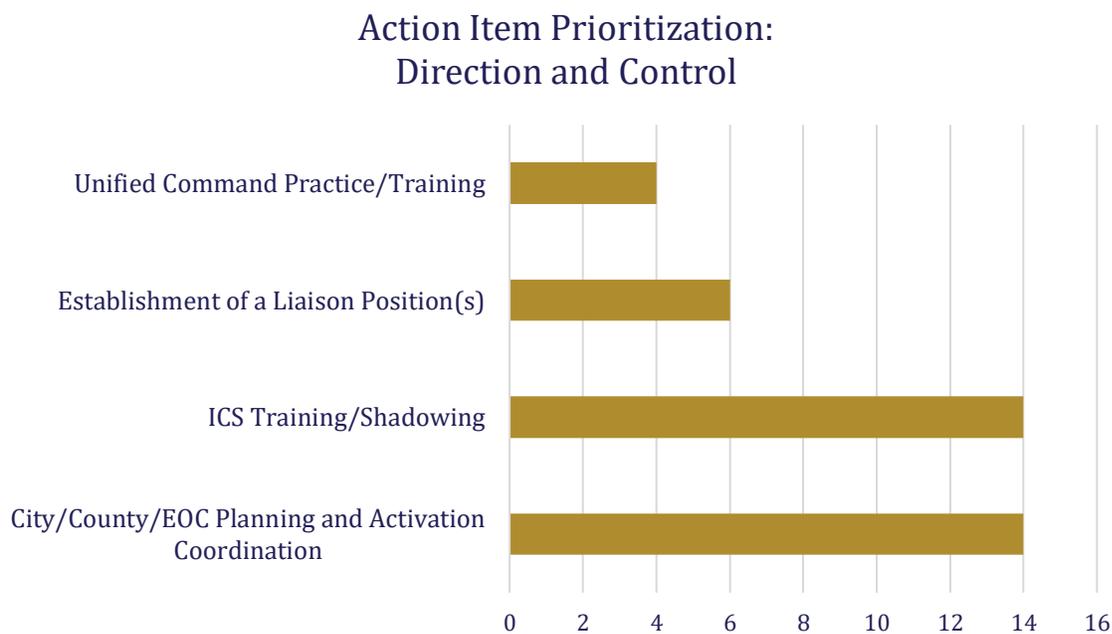
Figure 18: Action Item Prioritization: Operations



Direction and Control

Discussion at the Direction and Control Focus Area Meeting indicated that potential action items include improving the planning and activation coordination of the EOC by the City and the County, more emphasis on ICS training and role shadowing, establishing additional liaison positions with various partners, and increasing practice and training on unified command during incidents involving multiple departments and agencies across multiple counties and cities. Of the 38 responses to the poll, 14 indicated that improving the planning and activation coordination of the EOC by the City and the County should be a priority action item for the City and the County. Similarly, 14 responses also indicated that the City and County should place more emphasis on ICS training and role shadowing. Figure 19 summarizes the responses to this poll.

Figure 19: Action Item Prioritization: Direction and Control



Resource Management

Discussion at the Resource Management Focus Area Meeting indicated that potential action items include establishing a process for reassigning employees, preparing for and securing contracts for response operations, outlining and clarifying a resource request process in the EOC, expanding the current donations management policy, and improving resource tracking. Of the 38 responses to the poll received, 16 indicated that preparing for and securing contracts for response operations should be a priority action item for the City and the County. Figure 20 summarizes the responses to this poll.

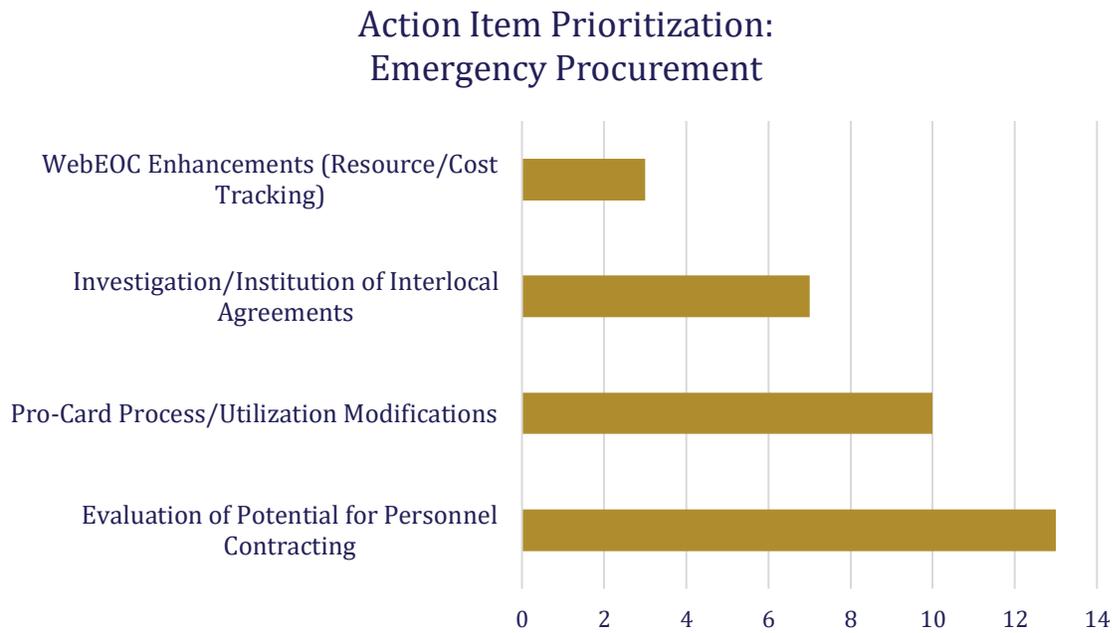
Figure 20: Action Item Prioritization: Resource Management



Emergency Procurement

Discussion at the Emergency Procurement Focus Area Meeting indicated that potential action items include exploring enhancements to WebEOC such as resource and cost tracking, the evaluation of potential for personnel contracting, investigating existing interlocal agreements and/or the institution of new interlocal agreements, and modifying the current Pro-Card process and utilization. Of the 33 responses to the poll received, 13 indicated that evaluating the potential for personnel contracting should be a priority action item for the City and the County. Figure 21 summarizes the responses to this poll.

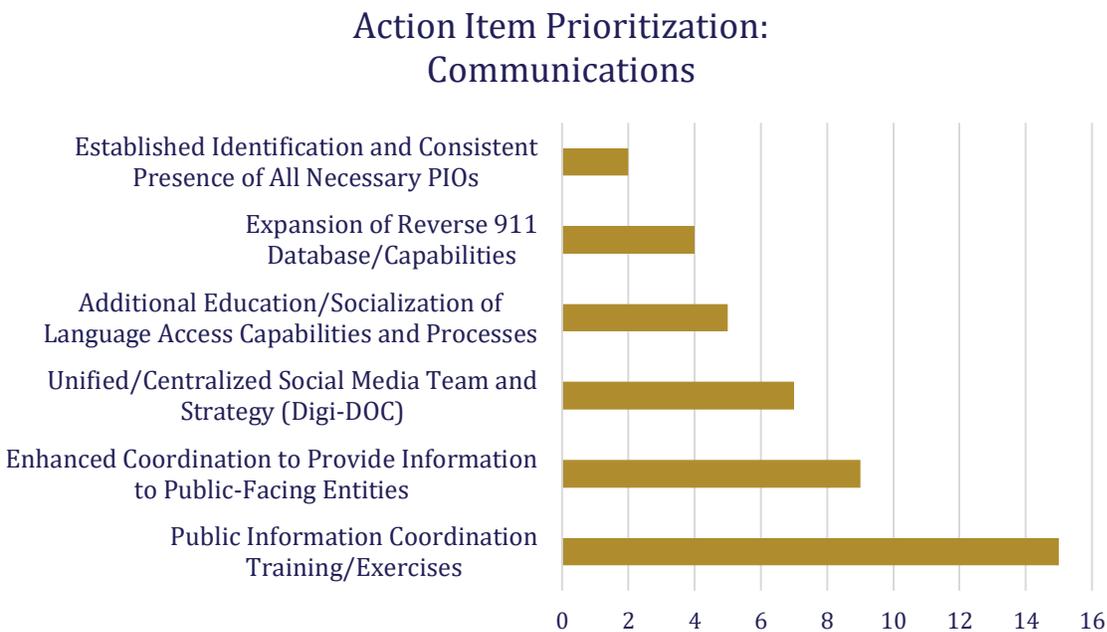
Figure 21: Action Item Prioritization: Emergency Procurement



Communications

Discussion at the Communications Focus Area Meeting indicated that potential action items include establishing a unified or centralized social media team and strategy, having additional education and socialization of language access capabilities and processes, enhancing coordination to provide information to public-facing entities, increasing public information coordination training and exercises, expanding the reverse 911 database and capabilities, and establishing the identification and consistent presence of all necessary PIOs. Of the 42 responses to the poll received, 15 indicated that increasing public information coordination training and exercises should be a priority action item for the City and the County. Figure 22 summarizes the responses to this poll.

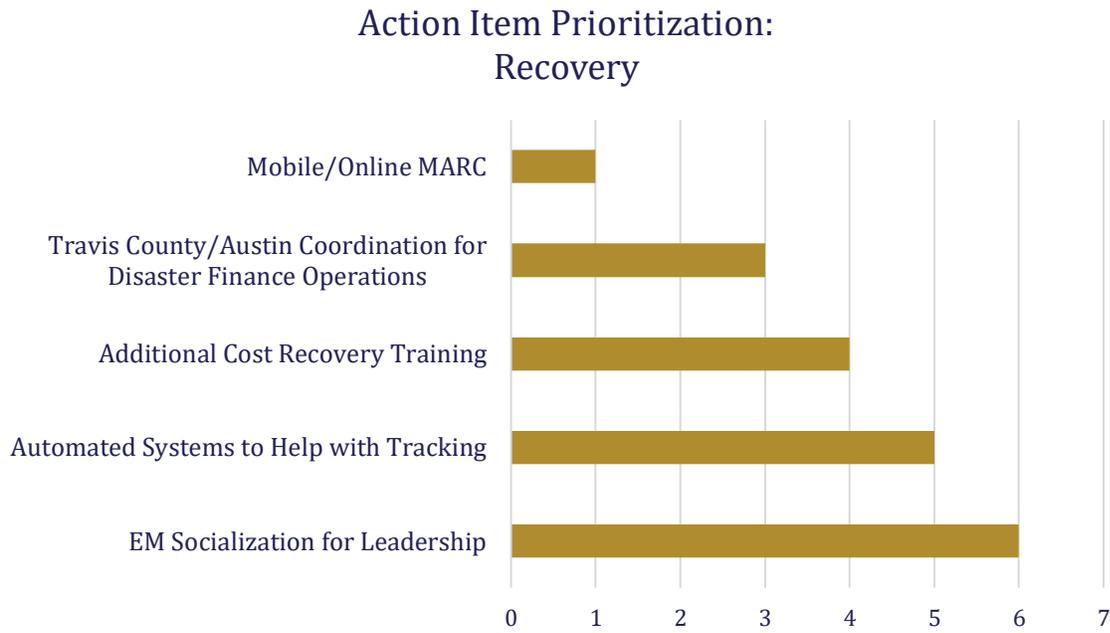
Figure 22: Action Item Prioritization: Communications



Recovery

Discussion at the Recovery Focus Area Meeting indicated that potential action items include having additional cost recovery training, establishing automated systems to help with tracking, improved coordination between Austin and Travis County for disaster finance operations, providing emergency management socialization for leadership, and establishing mobile and/or online Multi-Agency Resource Centers. Of the 19 responses to the poll received, 6 indicated that providing emergency management socialization to personnel in leadership positions should be a priority action item for the City and the County. Figure 23 summarizes the responses to this poll.

Figure 23: Action Item Prioritization: Recovery



Acronyms and Abbreviations

Acronym	Meaning
AAC	After-Action Conference
AAR	After-Action Report
AFD	Austin Fire Department
AFN	Access and Functional Needs
AISD	Austin Independent School District
APH	Austin Public Health
ARC	American Red Cross
CAMOC	Capital Area Medical Operations Center
CAP	Corrective Action Plan
CAPCOG	Capital Area Council of Governments
CATRAC	Capital Area Trauma Regional Advisory Council
COOP	Continuity of Operations
CPIO	City of Austin Communications and Public Information Office
CTECC	Austin/Travis County Combined Transportation, Emergency & Communications Center
CTM	City of Austin Communications and Technology Management
DDC	Disaster District Committee
DOC	Department Operations Center
EMI	Emergency Management Institute
EOC	Emergency Operations Center
ERT	Emergency Response Team
ESD	Emergency Services District
FEMA	Federal Emergency Management Agency
GIS	Geographic Information Systems
HR	Human Resources
HRD	City of Austin Human Resources Department
HRMD	Travis County Human Resources Management Department
HSEM	City of Austin Office of Homeland Security and Emergency Management
IAP	Incident Action Plan

Acronym	Meaning
ICP	Incident Command Post
ICS	Incident Command System
IMT	Incident Management Team
JIC	Joint Information Center
LCRA	Lower Colorado River Authority
MACC	Multi-Agency Coordination Center
MARC	Multi-Agency Resource Center
MOU	Memorandum of Understanding
NGO	Non-Governmental Organization
NIMS	National Incident Management System
PIO	Public Information Officer
POD	Point of Distribution
PPD	Presidential Policy Directive
RSA	Regional Staging Area
SitRep	Situation Report
SOP	Standard Operating Procedure
STAR	State of Texas Assistance Request
TCEQ	Texas Commission on Environmental Quality
TCOEM	Travis County Office of Emergency Management
TDEM	Texas Division of Emergency Management
TNR	Travis County Transportation & Natural Resources
VOAD	Voluntary Organizations Active in Disaster
WTP	Water Treatment Plant

Attachment:

Austin Water – Colorado River Flood 2018

AUSTIN WATER – COLORADO RIVER FLOOD 2018

OCTOBER 16 THROUGH 29, 2018

AFTER ACTION REPORT/IMPROVEMENT PLAN

REPORT FINALIZED MARCH 25, 2019

HANDLING INSTRUCTIONS

1. The title of this document is **Austin Water – Colorado River Flood 2018 - After Action Report, Improvement Plan**.
2. The information gathered in this document is a review of the emergency response and coordination efforts conducted by Austin Water. It is not a technical review of operational conditions, decisions, or performance; which will be completed by another division. This document does not review response efforts conducted by any other department of the City of Austin or Travis County.
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Executive Summary

On Tuesday, October 16, 2018, heavy rains and flooding to the west and north of Austin were creating a potential flood hazard for facilities and locations owned and operated by Austin Water. Though all Austin Water facilities were aware of and preparing for the possible flooding, specific planning was focused on and being conducted by the Longhorn Dam operators.

On Thursday, October 18, the Handcox water treatment plant began to notice an increase in raw water turbidity and began making adjustments to their treatment process. The storm was so concerning that the utility pre-staged its Department Operations Center (DOC), placing it on standby, in anticipation of flooding. On Friday, October 19, water treatment plants were still operating normally, but AW operations staff reported high source water turbidities at all three water treatment plants. On Saturday, October 20, the situation was worsening, and the decision was made to activate the Incident Management Team (IMT) and DOC on Sunday morning, October 21, to provide coordination, planning, and support. Eventually, the incoming raw water was so inundated with particulate matter that the plants were unable to meet operational demands. The Director of Austin Water, in consultation with the Incident Manager and IMT, made the recommendation to issue a Boil Water Notice (BWN) Sunday evening.

Austin Water communicated situational awareness and the decision to issue the BWN with City of Austin executive leadership and the City Emergency Operations Center (EOC). Austin Water began disseminating the BWN information on their social media outlets on Monday, October 22. The BWN was in effect until Sunday, October 28. AW suspended DOC operations on Monday, October 29.

The purpose of this report is to analyze this incident, identify strengths to be maintained and built upon, identify potential areas for further improvement, and support development of an improvement plan.

Methodology

This report was developed by staff from the Austin Water Emergency Management program. Information was gathered from all response participants by conducting group forums. We spoke with each individual facility or program area involved including, Pumping and Reservoirs, Longhorn Dam, Davis Water Treatment Plant, Ullrich Water Treatment Plant, Handcox Water Treatment Plant, Department Operations Center/Incident Management Team participants, wholesale customers, and the AW Executive team. Additionally, anyone who was not able to or did not attend one of the

forums was provided an opportunity to speak with EM program staff personally, to report their feedback, or to provide written feedback. All feedback obtained was summarized into this report and Improvement Plan.

SECTION 1: INCIDENT OVERVIEW

Incident Details

Incident Name

Colorado River Flood - 2018

Type of Incident

Flood Incident – resulting in Boil Water Notice

Incident Start Date

October 16, 2018

Incident End Date

October 29, 2018

Duration

Approximately 13 days

Location

Greater Austin area of Central Texas

Responsible Agency

Austin Water

Program

Water Treatment Operations

Mission

Manage water treatment and distribution operations in response to heavy rain and flood
Maintain production and delivery of potable water for consumption and fire suppression capabilities

Participating Organizations

Austin Water

Responding Organizations

Austin Parks and Recreation Department

Austin Police Department

Austin Public Works

Texas Commission on Environmental Quality

SECTION 2: ANALYSIS OF OPERATIONS

Major Strengths

The major strengths identified during this incident are as follows:

- A strongly coordinated effort ensured public safety, with no verified reports of serious illness or death attributable to consuming City-provided water.
- Austin Water IMT members and operations staff responded quickly and provided a full-throated effort to address the effects of the heavy rains and flooding that were experienced during this incident.
- A constant water supply and a pressurized system were maintained throughout this incident, ensuring fire suppression capabilities and an uninterrupted availability for customers.
- Prior training in the Incident Command System, the establishment of a department IMT, and previous exercises aimed at developing a utility-wide understanding of the application of that system resulted in a well-coordinated and effective response.
- Technical applications for coordinated communications, specifically Skype and the contracted service “SendWordNow” (a mass communications application), were extremely useful for information sharing and situational awareness.

Focus Area Feedback

South First Street Support Center:

Longhorn Dam Operations:

Tuesday, October 16, 2018 marks the day Longhorn Dam (LHD) operations became aware of pending weather issues associated with this incident. They began receiving weather and operational updates from the Lower Colorado River Authority (LCRA) and the National Weather Service (NWS). Updates from LCRA were relative to the dams upstream of the LHD, and contained forecast and flow information, and operations status related to the pending heavy rains. NWS was reporting weather forecasts and a Flash Flood Watch in the Hill Country.

LCRA River Operations began placing status update calls to LHD as operational changes occurred. These calls went directly to the Dam Operator, at their work station, and did not always get relayed to a supervisor. The Superintendent for LHD contacted LCRA River Operations and coordinated information flows more efficiently, ensuring contact with him when updates were made.

LHD utilized email, text, and phone calls to communicate with AW and the DOC, which seemed to work well. However, as the incident progressed, other information sharing platforms were introduced, causing confusion. Specifically, the smartphone

application “WhatsApp”. Not all participants had this platform, which was a noted deficiency.

Prior to activation of the DOC, LHD coordinated requests for support and status updates through the AW Emergency Management team. Once the AW DOC was activated, resource coordination went through the DOC and worked very well. LHD was able to communicate their needs and the DOC/IMT was responsive. Food procurement for staff on 12 hour shifts were difficult for LHD operations and they suggest having the IMT coordinate ordering and delivery of all food for all response personnel, regardless of location.

The DOC used Skype for video conferencing with remote locations, to include the South First Street Support Center, LHD Operations, and treatment plants. LHD reports having a poor understanding of Skype operations at the beginning of this incident, but felt that they became more proficient as the incident progressed. They liked the audio/video capability but request more Skype specific training in the future. The current DOC configuration (set up at time of incident in a conference room) presented difficulties with audio feedback, too many people in the room and other technical issues. At the outset of the incident, status conferences were too long and did not follow a standard protocol for each call. LHD recommends setting agendas for calls and sharing agendas with all participants prior to the calls.

DOC and IMT activation were very beneficial for LHD staff as they responded to this incident. Centralized command and coordination eased their planning burden and they appreciated knowing what was happening throughout the rest of the utility. They felt like the activation followed their previous training and exercise experiences and are very supportive of a continued training effort. They echo sentiments in favor of a full-time dedicated DOC with improved technical capabilities.

At one point during this incident, LHD personnel reported threatening contact with civilians at the dam site. They requested enhanced police patrol and contact, through the DOC. Austin Police Department did respond to the dam and provided information and assistance to LHD personnel. No arrests or other police interventions were made. Austin Parks and Recreation Department also assisted in this effort by providing barricades for use at the dam site. They also utilized a portable trailer, supplied by City Fleet Services, to coordinate on-site operations and provide shelter. This resource was very valuable but was needed at multiple locations within the city. LHD Management suggests a permanent trailer be purchased by AW for their future use.

Pumping and Reservoirs:

The Pumping and Reservoirs (P&R) division was receiving weather warnings and informational updates as they came into the South First Street Support Center. The

updates contained Flash Flood Warnings from NWS and dam operations information from LCRA. It did not contain alerts, warnings or other information relative to water quality on the Colorado River. P&R first became aware of water quality issues on Thursday, October 18 when Handcox Water Treatment Plant (Handcox) reported elevated raw water turbidity. P&R worked with all AW treatment plants to ensure sufficient pressure in the distribution system throughout this incident.

P&R also appreciated the activation of the DOC/IMT for coordinating response efforts. They reiterate concerns with Skype difficulties including audio feedback, and poor understanding of technical operations of the platform at the beginning of the incident. They also request expanded Skype training, and conference agendas to improve reporting processes.

P&R concurred with LHD staff on need to have food and other resources coordinated through the IMT, emphasized the value of prior Incident Command System training and exercises, and appreciated the efforts of the IMT within the DOC.

Albert Davis Water Treatment Plant:

Plant management and staff were preparing for possible impacts from the storm. On Thursday, October 18, they received information from Handcox on increased raw water turbidity. As turbidity rose, the plant staff became overwhelmed with issues related to treating the water. DOC activation and coordination helped them by providing response objectives and requested support resources. Some specific examples were the IMT requesting assistance from other AW divisions when Davis overflowed a grit trap and when they experienced printer issues. The IMT was able to provide timely and supportive assistance.

Davis did report issues at the outset with some logistical needs. When original requests were made for bottled water and food at the plant, the logistics section seemed to place the request back onto the plant. This was eventually fixed and the DOC support proved very beneficial.

Davis reported some issues with command and control at the outset of the activation. Davis, and other field entities were using a smartphone application called “WhatsApp” to share information, but the DOC was not. The plants felt like the app was a good communication platform, but it presents many problems. Davis Superintendent requests a single information sharing platform to upload documents and provide situational awareness.

Davis staff felt there was some early confusion as to who was in charge of the overall activation. The Water Operations Manager, who normally serves the IMT as an Operations Section Chief, took over supervision of the Ullrich plant. Davis staff felt like this created a bit of a void for them with regard to who was directing their response activities. Once the IMT and Incident Manager were established, that seemed to clear up. DOC operations were viewed as very helpful, especially when coordinating support

resources.

Skype status calls were beneficial, but were a bit clunky at the beginning. Each Incident Manager would run the calls slightly differently, and there was a learning curve for use of Skype. Once the calls became more formatted, and plants were asked for specific information prior to the calls, they felt like the calls went more smoothly and flowed better. It is suggested to develop a set agenda for these calls in the future. The DOC set-up, in Waller Creek Center room 104 contributed to issues on the calls. There was distracting background noise and a lack of privacy during the calls. Davis staff felt reassured by Director Meszaros' presence during status calls.

Davis did experience some wireless internet issues during the incident. Most staff were on mobile devices and Wi-Fi was less than optimal at some times. They would like to have their on-site Wi-Fi strengthened in the future.

Albert Ullrich Water Treatment Plant:

Plant leadership and staff had been watching news updates related to incoming weather and were receiving National Weather Service updates from Emergency Management. Staff altered their scheduled activities that week due to the potential for flooding at the plant. They report good information sharing between plants and the DOC, when activated, but had poor familiarity with the WebEOC platform.

Plant leadership reports challenges with recording and passing along information regarding activities at the plant. On-shift personnel were more focused on operations, and were not adequately recording what was being done in real time. No one served as a scribe or recorder at the plant level. Most information was being noted on a whiteboard and turnover briefings were lacking substance and accuracy. Much of the real time operational planning was being done "by the seat of the pants" at the plant level.

Operations and plant leadership said they felt like the DOC was not adequately listening to their reported inability to meet operational demands. Plant operators and line supervisors were frustrated by the demands put upon them by the DOC. They said they tried to communicate difficulties in maintaining production levels with elevated turbidity, however plant shutdowns still occurred. The technical aspects of this process are discussed in the Austin Water Technical AAR and are not detailed in this report. The reported communications difficulties are noted here as response gaps and as an opportunity for improvement with future responses.

Skype calls were beneficial and were a great way to share information across all treatment plants and operations areas. Once those calls got into full swing, this plant felt like they had a better understanding of what was occurring across the utility. They also report having little experience with the platform and request additional training and use during exercises to increase their proficiency with the tool.

Resource coordination through the DOC was very helpful, but communication

lacked a bit. In one case Ullrich had requested assistance from AW pipeline services, but were not informed that resources were en route to them. They also request greater support from the Logistics Section for personal resources like food and water.

There was a single safety issue during response operations. A lock-out/tag-out “near-miss” occurred while an electrician was working on a piece of electrical equipment. No injuries were sustained and the incident was reviewed by the AW Safety group.

This plant also reports wireless connectivity issues and requests upgrades to their on-site capabilities. Most, if not all, plant personnel were using mobile devices and experienced difficulties throughout the incident.

Leadership at this plant reports limited experience with the ICS and requests additional training and exercises. They would also like to see improvements in situational awareness tools, specifically the ability to display SCADA information on a big screen and a single site for information sharing.

Berl Handcox Water Treatment Plant:

This plant receives raw water from intakes in Lake Travis and were the leading indicators of potential problems with the incoming water. They recognized this on Thursday October 18 and shared that information with plant leadership at both Davis and Ullrich. This is an important fact to understand for possible future incidents.

This plant seems to be the genesis for using the information sharing platform, “WhatsApp”. They relied heavily on the application for communications within the plant and with the other two plants and pumping operations. They report that email and text messaging were less effective, as staff were rarely at their computers to receive email. Texts have limitations on how many people can effectively be included in a given message group. The “WhatsApp” application is more user friendly, was quicker, and allowed them to share operational updates. This plant’s staff reports low understanding and competency with WebEOC, which they did not use during the incident.

Handcox staff felt like the Skype status conference calls were very helpful, but would like to receive more training on Skype and would like a more defined agenda for use during conferencing. They also reported that having the calls so close to shift change proved challenging. They suggest reviewing the possibility of setting another schedule for these calls.

Staff at Handcox request more internal communications to enhance situational awareness. They suggest expanded use of the Send-Word-Now application to provide information within the utility. They were not aware that the BWN was being recommended, and so were not prepared for that internally, until they saw it on television.

Handcox staff were very concerned with having Operational Directions in writing, to alleviate confusion and set direct operational parameters. They did not feel like they

were receiving written Operational Period Objectives, but were more being told – do what you have to do to stay online. Staff failed consistently to record operational orders or actions taken, on either ICS form 214 or any other format.

Handcox requested expanded and improved support from the Logistics Section. Specifically Handcox wanted administrative support, someone to help with documenting time worked, and scribing decisions and historical data, and assistance with obtaining fuel and food. This was the first time this plant had interfaced with an operational DOC and they did not fully understand what the DOC/IMT could do for them. Their geographical distance from the DOC made some logistics needs a challenge. They would like to be more involved in process and procedure as the Logistics Section is upgraded and improved.

Austin Water Department Operations Center/Incident Management Team:

Two after action sessions were conducted for the DOC/IMT staff to provide feedback from this incident. The consensus of opinion was that IMT staff had a low understanding of the possibility for negative impacts from this rain incident, prior to activation of the team. The primary issues first associated with the flooding were occurring in another county and turbidity issues were not predicted, so many IMT staff were not anticipating the activation of the AW DOC.

IMT staff with prior training and exercise experience felt like they were largely prepared for DOC operations and were relatively comfortable with the activation. Many AW personnel were called into service at the DOC without prior training and exercise experience. They generally reported a steep learning curve and nervousness with serving in new positions or in the organized ICS structure. All have requested continued training and exercises going forward.

Skype was a great tool for status conferencing, but there were learning curves for some staff on the IMT. It is requested that Skype training be made available for all AW personnel. The DOC set-up was not conducive to effective Skype meetings because there are too many people in the background and too much background noise. When a permanent DOC is developed, consider a more private area for Skype meetings. Many of the laptops brought into the DOC by IMT members were not adequately prepared for Skype and required formatting, which slowed the process. When the permanent DOC is developed, laptops for each IMT position should be in place, energized, and receiving the appropriate software updates.

WebEOC was not adequately utilized during this activation. The DOC Managers were posting updates ad hoc, but were not coordinated with the Incident Managers to post uniformly throughout the incident. EOC Representatives also posted intermittently during the entire activation, but updates and information within those updates were not generally coordinated. WebEOC training for all AW IMT staff should be conducted going forward.

Some IMT positions were understaffed, and some had not been thoroughly developed for this response. For a number of positions, EOC Responder, DOC Manager, and Plans Section, we were forced to bring in staff without previous training in these positions and provide them with “Just-in-Time” training to fill roles. Some Sections were not fully developed, necessitating the creation of units within those sections at time of response. Specifically, the Plans Section Situation Unit was constructed on the fly by bringing in Systems Planning division staff and assembling equipment and space. The Logistics Section was also put together at time of response. All ICS Sections should be evaluated and necessary units developed, going forward.

There were a few notable “Single-Points-of-Failure” as well. A special liaison with TCEQ, outside the normal Liaison Officer role, was established to work through the boil water conditions and to determine what benchmarks would need to be met in order for us to rescind the order. Only one AW member was able to meet this need sufficiently, and ended up working every day of the activation. Also, the Wholesale Customers staff member was a single source of contact between the utility and our wholesale customers. Both of these positions should be better developed, to include depth for response or identified AW staff who can serve as back-ups.

It was also noted that we utilized all three pre-designated Incident Managers for the duration of this activation. Further development of this and other critical positions should be considered going forward.

Executive Team:

An information feedback session was held with the Austin Water Executive team. Members felt that communications and status updates were lacking at the outset of this activation. Some Executives are not on the IMT and so did not receive timely updates. We need to develop better messaging and include all Executive team members when activations occur and when providing updates to DOC activities.

Incident Managers became aware that staff were using the “WhatsApp” platform for group messaging. This application is not an authorized communications platform for official utility business or use. IMT members and Emergency Management staff will work with AW IT personnel to develop better mass communications strategies. It was suggested that we work with the Capital Area Council of Governments (CAPCOG) to further develop WebEOC boards which could be used for communications during activations. We will also work with the IT division to further develop Skype capabilities and training.

All Executive team members were in full agreement that a permanent and dedicated Department Operations Center is necessary and a priority. The current DOC setup, ad hoc in Waller Creek Center room 104, presents a number of challenges to managing a crisis response. The physical setup of the room is not conducive to proper

planning, having quiet and confidential status conferences, unit level discussions, monitoring of situational awareness, etc. The Emergency Management group is actively working on an in-house solution which will provide a dedicated and properly equipped space for a permanent DOC.

Incident Managers recommend developing status call agenda templates for future activations. Share the agendas with all concerned parties so that conferences are more streamlined and efficient. Then, utilize those templates for all status conferences and stick to the agendas.

The Executive Team would like to see development of more interactive maps which could be used for customer coordination and strategic incident response planning. All would also like to see continued ICS and IMT training and exercises. All who have attended training and exercises in the past, list that experience as relevant and very beneficial in their ability to respond during this incident.

Executive Team members also recognized the threat of single-point-failure in the Regulatory Liaison and Wholesale Customer positions. They would also like to see more interaction or development of a liaison position for contact with the Lower Colorado River Authority (LCRA) as well.

Wholesale Customers:

The AW Wholesale Customers Program Manager conducted several feedback sessions with our wholesale customers. These were primarily phone conference calls. These groups reported positive impressions of the response, praising the Program Manager and noting that she may be a single-point-failure during responses, as she does not have identified back-up for response operations. There was praise for our rapid response and amount of communication overall with wholesale customers during this incident, however we were a little slow at the outset of the incident.

Most of the complaints voiced by our wholesale customers were related to the regulations for rescission of the BWN, as determined by the Texas Commission for Environmental Quality (TCEQ). Our program manager and our environmental liaison officer were the conduits between TCEQ and our customers. These two positions should be further developed, with the generation of specific units within the AW IMT, and included in future training and exercises.

Noted Needs Improvements

Throughout the incident, several opportunities for improvement were identified and recommendations for improvements are noted by general category below.

Notifications

- Notification of activation for AW IMT members was reported as generally

sufficient, however, many participants reported being under informed as to the concerns for storm consequences and preparedness steps taken by the utility.

- It is recommended that AW Emergency Management develop protocols for alerting all AW personnel when DOC/IMT activations are made.
- Currently, pre-incident awareness messages are shared at the Executive, Operations Management, and Division Management levels, and include certain specific groups like Safety, Security and PIO. It is recommend that these groups forward all pre-incident updates, alerts, and messages throughout their chains of command, to all subordinate personnel.

Communications

- Skype for Business was used as an application for conducting meetings during this response, by the AW IMT, for the first time. There were issues with creating invitations to meetings, sound and video coordination, and general Skype use. AW personnel are generally not aware of Instant Message/Group Messaging. Absent an official communications platform, personnel utilized the free messaging application, WhatsApp. This platform is not consistent with accepted mass communications standards. It does not provide for open records requests, is an open source application, and is not sanctioned for use by AW.
 - It is recommended that the AW IT Division prepare and disseminate training specifically related to Skype use, to include use on personal devices, like tablets and smartphones. It is also recommended that AW computers/laptops that would be used during responses be continually updated for these applications.
 - It is recommended that AW CIO develop policy for mass communications processes and defines acceptable platforms for communicating information which contains operational data, orders, reports, and other information as specified.
 - It is recommended that AW Emergency Management and AW IT develop an information sharing SharePoint site for response communications and better situational awareness. This would be used in coordination with the AW IMT and DOC.
 - Most AW personnel are not familiar with WebEOC and how to use that platform. It is recommended that WebEOC training and use be expanded to include plant and field level supervision and all IMT

members.

Incident Command System/Incident Management Team

- Gaps were noted during this response, including shortages of pre-trained personnel and under-developed units, within many of the ICS Sections that were activated. There is not a permanent and dedicated DOC for use during incident activations, which adds difficulty to the incident management process. Undefined triggers delayed the process of activation and implementation of mitigating actions. Many responders, throughout the utility, lack sufficient understanding of the application of incident command principles.
 - It is recommended that a dedicated and permanent DOC be established for use during training, exercise, and response activities. The DOC should be equipped to support each IMT position, and have all necessary audio/video connections to ensure situational awareness.
 - It is recommended that the IMT adhere to ICS principles, including the production and distribution of an Incident Action Plan for each operational period containing written incident objectives, and assignments and contact information for all active positions. Incident Management should be alert to operational restrictions, always remembering the SMART principle of objective development.
 - It is recommended that AW Emergency Management develop activation and alert triggers to aid in pre-incident decision making. These triggers should allow for earlier identification and activation for mitigation actions.
 - It is recommended that the IMT is expanded to include detailed units within the Logistics and Planning Sections. This expansion should include the identification of personnel to staff each unit and necessary training to provide sufficient service. This should also include identifying non-traditional units such as Environmental Liaison and Wholesale Customer.
 - Special consideration should be made regarding the Situation Unit within the Planning Section.
 - Special consideration should be made regarding development of Logistical support units with the Logistics Section.
 - It is recommended that the AW Emergency Management team continue to provide in-house ICS training and IMT exercises. Exercises should not be limited to past experiences within the utility but should also include scenarios which might possibly occur in the future.
 - It is recommended that DOC status conference calls be conducted by

agenda, which is pre-developed and disseminated to all remote locations participating with the IMT. This agenda should include timing, required information, reporting order, follow-up and other information as needed.

SECTION 3: CONCLUSION

The complex and swift-moving nature of disasters make them challenging to deal with. These challenges are even greater when major events take place in metropolitan communities where hundreds of thousands of people will be adversely affected. Anticipation, planning and preparation are key to the safety of people, the protection of property and infrastructure, and to ensuing recovery of the community. It takes a multitude of resources and cooperation to manage such events.

The 2018 Colorado River Flooding in central Texas and the subsequent exceptionally high raw water turbidities locally were historical incidents that were unpredicted. The severity of this situation necessitated Austin Water, in conjunction with external partners, to issue a Boil Water Notice in the eleventh largest city in the nation. This was truly an unprecedented event.

The seven-day boil water notice and continuous flood control dam operations impacted over a million residents. Despite the enormity of this endeavor, throughout this incident there were no verified reports of serious illness or death associated with consuming City-provided water.

Under the direction of Greg Meszaros, Austin Water's Director, the utility's Incident Managers, and the Emergency Management Team, this report sets out to analyze this incident, identify strengths to be maintained and built upon, identify potential areas for further improvement, and support development of an improvement plan.

The lessons learned from this incident will help the City of Austin and other communities better prepare for potential disasters like floods and poor raw water quality in the future. It should be noted that some of the early lessons are already being applied to Austin Water's Emergency Management activities, dam operations, and treatment facilities including:

- Improving notification and alerts
- Advancing water quality predictions
- Improving resource planning and logistics
- Increasing readiness training
- Expansions in IMT staffing
- Improving internal and external communications
- Creating a comprehensive emergency response plan

Austin Water is exceedingly grateful to our staff and all the agencies within the region that collaborated on multiple initiatives to ensure a positive outcome for all effected. The utility has begun to identify and has started working on treatment, operations, and service delivery enhancements specific to flood and turbidity related incidents, and to overall emergency response. Infrastructure and process improvements have begun and are in the proposal, evaluation, planning, or implementation stages throughout the utility, and will continue. Austin Water is committed to reviewing and improving our processes and procedures, and to continuing to provide the highest quality services for residents and visitors.

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for Austin Water as a result of the Colorado River Flood 2018 incident. These recommendations are drawn from the After Action Review.

Recommendation	Capability Element	Primary Responsible	Agency POC	Start Date	Completion Date
Develop protocols for sending alert notifications utility wide, including all internal stakeholders	Notifications	AW EM	Chapman, C	November, 2018	June 1, 2019
Develop information sharing platform to improve situational awareness during incidents	Communications	AW EM – AW IT – AW PIO	Chapman, C	November, 2018	June 1, 2019
Develop policy/protocols for mass communications and social media – use of smartphone applications	Communications	AW CIO	Stewart, C	November, 2018	June 1, 2019
Develop and disseminate Skype training to include use on laptops, smartphones, tablets, workstations, etc.	Situational Awareness	AW IT	Stewart, C	November, 2018	June 1, 2019
Provide WebEOC training for AW personnel	Situational Awareness/ Communications	AW EM	Chapman, C	November, 2018	June 1, 2019
Develop a dedicated Department Operations Center for AW	Command and Control	AW EM	Chapman, C	November, 2018	Mar 31, 2020
Continue to provide ICS training and exercise for all IMT and other staff as required	Training	AW EM	Chapman, C	November, 2018	Review Annually by Oct 1
Expand IMT staffing to include Situation Unit and Logistics, and to create depth across entire IMT	Command and Control	AW EM	Chapman, C	November, 2018	Apr 30, 2019

Develop pre-incident “Triggers” to enhance early activation and mitigation decision making for use in all-hazards planning	Command and Control	AW EM	Chapman, C	November, 2018	Apr 30, 2019
Develop IMT Meeting Agenda templates for use during activations; provide training on use	Command and Control	AW EM	Chapman, C	November, 2018	Apr 30, 2019
Mitigate single point failures in Environmental Regulation and Wholesale Customer Services for IMT	Command and Control	AW EM	Chapman, C	November, 2018	Apr 30, 2019

APPENDIX B: ACRONYMS

FOR OFFICIAL USE ONLY (FOUO)
 AFTER ACTION REPORT/IMPROVEMENT PLAN

Table B.1: Acronyms

Acronym	Meaning
AAR	After Action Report
AW	Austin Water
BWN	Boil Water Notice
CAPCOG	Capital Area Council of Governments
CIO	Chief Information Officer
DOC	Department Operations Center
EM	Emergency Management
EOC	Emergency Operations Center
FOUO	For Official Use Only
ICS	Incident Command System
IMT	Incident Management Team
IP	Improvement Plan
IT	Information Technology
LCRA	Lower Colorado River Authority
LHD	Longhorn Dam
NWS	National Weather Service
P&R	Austin Water Pumping and Reservoirs
PIO	Public Information Officer
SCADA	Supervisory Control and Data Acquisition
SMART	Specific, Measureable, Action, Realistic, Timely
TCEQ	Texas Commission on Environmental Quality



Corrective Action Plan



HSEM
City of Austin Office of Homeland Security
and Emergency Management



Corrective Action Plan

EOC					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
Operations					
1	HRD has proactively initiated the development of an EOC activation SOPs. Input on the SOP for EOC activation by HRD should be provided by HSEM to provide context to an EOC activation. Similarly, an EOC activation SOP should be developed with input from TCOEM.	1.19	HRD		05/2020
2	Maintain full operations of the CAMOC during incidents.	1.5	COA and TC		11/2019, Ongoing
3	Develop and conduct a standardized EOC informational briefing as personnel are assigned to the EOC.	2.20	HSEM, TCOEM		11/2019
4	Conduct an operational period briefing of the Incident Action Plan (IAP) at the beginning of each operational period.	2.21	HSEM, TCOEM, and AFD		11/2019, Ongoing
5	Evaluate and modify the SitRep utilized during this incident for use as a standard during future operations.	3.3	COA and TC		11/2019
Coordination					
6	Continue to foster the relationship between City and County staff for enhanced coordination in future EOC activations.	1.3	COA and TC		11/2019, Ongoing
7	Work with lifeline critical infrastructure stakeholders (e.g. water, energy, transportation) to develop proactive and preventative trigger points to mitigate cascading impacts.	1.4	City/County Public Works, Austin Water, Austin Energy, LCRA, TNR		05/2020
8	Continue to post the call and meeting schedule daily in the EOC to maintain EOC staff situational awareness.	1.8	COA and TC		11/2019, Ongoing

EOC					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
9	Align the activation levels and interagency coordination between HSEM and TCOEM in the context of a joint EOC.	1.9	HSEM, TCOEM		05/2020
10	Although political and organizational differences between the City and County complicate the development of joint emergency response plans, collaboration between HSEM and TCOEM should occur to make the language and processes of each more uniform, such as providing clarification on respective activation and staffing levels in the context of a joint EOC.	2.14	HSEM, TCOEM		05/2020
11	Compile a list of available logistics resources that are ready to use in an emergency. Develop a gap analysis in order to develop sources for resources that are not readily available. Develop the EOC's role as a MACC and catalog available resources by agency.	4.3	HSEM, TCOEM	City/County Procurement Departments, HRD, HRMD, Central Texas VOAD	11/2019
12	Maintain good coordination with state and federal staff during EOC activations.	6.10	HSEM, TCOEM		11/2019, Ongoing
13	Document, clarify, and socialize the process for engaging intergovernmental relations staff in the EOC with elected and appointed officials.	6.11	EOC Sections		11/2019
14	Meet with State personnel in a non-disaster setting to better understand State processes in an emergency, to include mutual aid.	6.12	HSEM, TCOEM		11/2019
15	Evaluate the potential allocation of space in and around the EOC to be inclusive of a JIC, and to support GIS needs.	6.22	COA and TC		05/2020
16	Build a pre-identified list of available resources that each VOAD would be able and willing to contribute to future responses.	7.2	Central Texas VOAD	HSEM, TCOEM	05/2020

EOC					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
<i>Training</i>					
17	Planned logistics exercises should include City and County HR. City and County Purchasing Offices and Finance Departments are currently discussing plans to hold a joint logistics exercise.	1.21	HSEM, TCOEM, City/County Purchasing Offices, HRD, HRMD		05/2020, Ongoing
18	Conduct EOC orientation, coordination, and training. Those eligible for training should include staff who are not expecting to work in the EOC. This should include scripted “just-in-time” training to allow staff training during an activation.	1.26	HSEM, TCOEM		11/2019, Ongoing
19	Facilitate planning meetings and exercises that bring regional partners together outside of emergency incidents. This will help to continue building upon established working relationships to enhance communication and coordination effectiveness in future responses.	2.1	HSEM, TCOEM		05/2020, Ongoing
20	Continue to provide EOC training to regular employees who activate to the EOC. This training should be additionally offered to untrained employees who will eventually be activated to the EOC as they progress in their careers.	2.11	HSEM, TCOEM	All EOC Partners	11/2019, Ongoing
21	Conduct regular training on EOC roles, specifically tailored to joint Austin-Travis County EOC operations for EOC personnel. This training should highlight the process for demobilization to ensure adequate staffing is maintained and/or positions can be quickly reactivated if required.	2.19	HSEM, TCOEM		11/2019, Ongoing
22	Facilitate tabletop discussions and associated planning on complex incidents (e.g., Branch Tactical Planning), command roles and functions (e.g., Unified Command versus Area Command; Area Commander versus Incident Commander), and staffing.	2.16	HSEM, TCOEM		05/2020, Ongoing

EOC					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
23	Facilitate exercises to practice communications procedures during incident response involving multiple agencies and departments across multiple cities and counties.	2.22	HSEM, TCOEM		05/2020, Ongoing
24	Continue to encourage training on and utilization of ICS and NIMS to the utmost degree possible. Additionally, facilitating exercises utilizing ICS will help relevant City and County personnel have a better understanding of ICS during responses.	2.8	HSEM, TCOEM		11/2019, Ongoing
Demobilization					
25	Create a more transparent demobilization process for the EOC. While all EOC representatives cannot be included in the demobilization planning process, the demobilization plan should be communicated to all in the EOC, and some allowance for feedback should be made. Additionally, the demobilization process should include demobilization of mutual aid resources.	1.39	EOC Sections		11/2019

Technology					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
Personnel Management					
26	Explore a similar technology to what Williamson County used to track check in and out times of personnel at POD sites in order to provide accurate real-time tracking of staff at external sites.	3.5	HSEM, TCOEM	CTM, TC ITS, City Controller's Office, County Auditor, APH, TC HHS, CATRAC, HRD, HRMD	05/2020

Technology					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
27	Explore automated check-in/check-out systems for utilization in the EOC. This will ensure more accurate personnel time and compensation tracking.	7.18	HSEM, TCOEM, CTM	HRD, HRMD, City Controller's Office, County Auditor	05/2020
GIS					
28	Expand GIS capability for application during incidents and planning.	1.1	CTM (GIS ERT), TNR, TC ITS	HSEM, TCOEM	05/2020, Ongoing
29	Simplify the process of sharing and updating data with the GIS ERT for the production of maps and other geospatial information.	1.2	CTM (GIS ERT), TNR, TC ITS	All City/County Agencies, LCRA, State, CAPCOG, Regional Partners	11/2019, Ongoing
30	Work with City and County GIS staff to ensure there is mutual knowledge of relevant datasets.	1.34	CTM (GIS ERT), TNR, TC ITS	All City/County Agencies, CAPCOG, LCRA	11/2019, Ongoing
31	Establish a dedicated emergency management GIS analyst position in order to have a greater ability to utilize GIS as a tool for emergency management, resolve challenges in utilization of GIS during activations, and act as a liaison between the GIS ERT and the EOC staff.	1.35	HSEM, TCOEM	CTM (GIS ERT)	05/2020
WebEOC					
32	Establish a WebEOC controller position. They will be responsible for updating WebEOC with command and control decisions.	1.36	COA and TC		05/2020
33	Work with CAPCOG in order to update and improve WebEOC boards.	1.37	HSEM, TCOEM		11/2019, Ongoing
34	Review the assignment of WebEOC login information and remote access capability during an activation to promote collaboration and situational awareness.	1.38	HSEM, TCOEM		11/2019, Ongoing

Technology					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
35	Develop WebEOC boards for resource tracking. This should include automated tracking of resources, equipment, people, and costs to provide real-time information should be explored and developed. Implementing this will improve the demobilization process.	4.2	HSEM, TCOEM		11/2019
36	Personnel who require access to WebEOC should have the ability to receive adequate training on WebEOC. Additionally, these personnel should have accounts setup and are consistently utilizing WebEOC to input purchase requests. WebEOC should be utilized for purchase requests to help avoid double-ordering of supplies by providing situational awareness of current requests. Lastly, a process should be outlined for departmental operations centers to add their information in WebEOC in a way that provides extra logistical awareness but that is separate from EOC logistics.	5.11	Responding Agencies, City/County Departmental leadership		11/2019, Ongoing
37	Work with the CAPCOG WebEOC Administrator to modify "roles" in WebEOC to provide personnel with similar roles the same access. These roles should be preidentified and updated regularly outside of emergency incidents.	5.12	COA and TC		11/2019, Ongoing
38	Explore the use of GIS and WebEOC integration to support collecting and entering detailed information on serialized equipment into WebEOC to include last known location and status.	5.13	CAPCOG, CTM (GIS ERT)	HSEM, TCOEM	11/2019
39	Explore and/or create updates to WebEOC that can provide additional purchasing request task assignment and status information, as well as to provide a logistical overview for an operation that can be	5.14	HSEM, TCOEM, CAPCOG	City/County Purchasing Offices	11/2019

Staffing					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
<i>EOC Staffing</i>					
40	Identify additional EOC liaisons to work at external sites in order to improve communications, specifically during complex cross-jurisdictional events.	1.14	EOC Sections		11/2019
41	Clarify the role and expectations of City and County HR departments in the context of an EOC activation and their timeline in the EOC activation process. This will allow for staff in the EOC and City and County HR to prepare accordingly and ensure reassigned employees are certified, safe, and not overworked.	1.16	HSEM, TCOEM, HRD, HRMD		11/2019
42	Explore the creation of an "EOC Support Team" that is pre-trained for specific positions and can support meeting the needs of operational resource requirements.	1.18	HSEM, TCOEM	EOC Sections, City/County Agencies outside of Public Safety	05/2020
43	Staff representatives from HRMD in the EOC throughout the duration of emergency incidents.	1.23	HRMD, TCOEM		11/2019
44	Assign an EOC Staffing Coordinator who would act as a centralized employee to manage the task of reassigning employees.	1.24	HSEM, TCOEM, HRD, HRMD		11/2019
45	Develop a protocol for mobilizing a school representative from the Central Texas School Safety Consortium to serve in the EOC to ensure consideration is given to the impact of a given emergency on the selected representative's district.	1.25	HSEM, TCOEM		11/2019
46	Develop a staffing plan for activations in order to be better prepared for activation needs. This plan should include: a schedule, roles needed, and potential agencies/individuals to fill those roles. The City and County should consider using standby contracts to fulfill resource needs in the staffing plan.	1.28	HSEM, TCOEM		05/2020

Staffing					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
47	Encourage relevant agencies/departments to provide representation in the EOC in order to strengthen coordination during EOC activations.	1.7	HSEM, TCOEM	All City/County Agencies, County Executive, CMO	11/2019, Ongoing
48	Develop job action sheets with information on specific roles when assigning representatives to the EOC.	2.10	All City/County Agencies		11/2019
49	Develop operational structures for staffing activation that are clearly defined and communicated to EOC personnel in advance.	2.12	HSEM, TCOEM	EOC Sections	05/2020
50	Ensure that EOC personnel have appropriate decision-making authority and/or establish a process for rapid departmental approval for decision-making. Establishing and communicating this in advance will help facilitate decision making early in future responses.	2.13	CMO, County Executive	HSEM, TCOEM	11/2019, Ongoing
51	Consider the development of shift transition guidelines to accompany job action sheets and training initiatives.	2.23	COA and TC		11/2019
52	Consider staffing a safety officer in the EOC. Among items the safety officer should be responsible for are: (1) identifying whether reassigned employees need to have specific certifications, qualifications, be able to physically lift a certain weight, or any other criteria in order to perform the task being assigned to them; (2) identifying safety officers at all field sites to provide safety training and equipment to personnel; and (3) assessing EOC schedule to ensure adequate rest is provided to those involved in the operation.	3.16	HRD Risk Management Division/Office, HRMD - Risk Management	HSEM, TCOEM, City/County Fire Departments, City/County Public Works	11/2019

Staffing					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
53	Ensure that relevant City and County departments and agencies that staff personnel in the EOC have a dedicated team of personnel within their office who can respond to the EOC. This should also include exploring a policy whereby their regular positions are backfilled while they are deployed during the emergency. Utilizing consistent personnel will help build stronger working relationships, thereby increasing communication and coordination effectiveness.	5.2	CMO, County Executive	HSEM, TCOEM	05/2020
54	Continue to staff personnel from the City Fleet Services Department, as well as City and County Purchasing Offices, in the EOC during related emergency incidents.	5.3, 4.1	City Fleet Services Department, City/County Purchasing Offices	HSEM, TCOEM	11/2019, Ongoing
55	Involve relevant decision makers from City and County Purchasing Offices in responses from the beginning and ensure they are made available throughout the duration.	5.4	City/County Purchasing Offices leadership		11/2019, Ongoing
56	Request an Austin 3-1-1 presence in the EOC earlier to ensure they can communicate accurate, timely, and helpful information to the public.	6.16	HSEM, TCOEM		11/2019, Ongoing
57	Assign a public information representative to the EOC from applicable City and County agencies and departments to assist in more effective operational communication.	6.23	HSEM, TCOEM	CMO, County Executive	05/2020
58	Identify County employees to fill PIO positions during EOC activations.	6.24	County Executive, HRMD, County PIO	TCOEM	11/2019
59	Staff a Warning Officer in the EOC whose role is to document and understand the situation and produce public notices.	6.31	HSEM, TCOEM		05/2020

Staffing					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
60	Consider the use of a specific City/County translation services team who can activate with the EOC and devote time and resources to translation services. This team could consist of VOAD members if they have been certified through the language access program or vendors that the CPIO's office has already contracted with.	6.35	HSEM, TCOEM	CPIO, CPIO Language Access Program Coordinator, HRD, HRMD	11/2020
61	Coordinate and assign City and/or County staff to be a liaison between key external agencies to coordinate a seat in the host EOC as needed.	1.13	COA and TC		11/2019
62	Create a designation of "essential" or "critical" employees to ensure employees who are responsible for activating to the EOC understand their role.	1.29	COA and TC		11/2019
Reassignment of Employees					
63	Clarify the process of identifying and requesting reassigned employees in order to make the process easier and more streamlined.	1.15	CMO, County Executive	HSEM, TCOEM, HRD, HRMD	11/2019
64	Develop and make available a consolidated list of skill-sets by department to EOC staff in order to streamline the activation of reassigned employees in the field.	1.17	HRD, HRMD, CTM, TC ITS	County Auditor	05/2020
65	Include incident assessment processes in City and County EOC SOPs to assist them in assessing the need for organizing and contacting reassigned employees during the work day.	1.20	EOC Logistics and Planning partners		05/2020
Training					
66	Continue to build out agency director communication, to include emergency management training.	1.27	HSEM, TCOEM		11/2019, Ongoing
67	Include shadowing as a standard practice for responding agencies and departments.	1.6	EOC Sections		11/2019, Ongoing

Staffing					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
68	Train additional staff in operational command and control in order to augment existing trained staff (e.g. AFD) in the event they are not available for a future deployment.	2.4	EOC Sections		11/2019
69	Conduct training with POD managers regarding how to manage media relations.	6.3	HSEM, TCOEM		05/2020
70	Provide cost recovery training to City and County Finance personnel. Facilitate the coordination and communication of these personnel outside of emergency incidents through planning meetings and exercises, particularly the planned logistics exercise. Provide instructions on how to accurately read payroll reports and train on this in a non-disaster setting.	7.17	City/County Finance Offices		11/2019
71	Implement additional training for individuals filling the PIO positions. Consider implementing mutual aid and standby contracts for PIO support.	6.25	COA and TC		11/2019

Procurement					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
<i>Procurement</i>					
72	Review the lessons learned from this incident in order to have a better understanding of this purchasing process, to include contract language and restrictions, in advance of future emergency incidents. These lessons should be incorporated into future planning and operations.	2.17	City/County Purchasing Offices		11/2019

Procurement					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
73	Utilize internal resources in the short-term up to 48 hours, or until external resources from the State or private sector can be mobilized.	2.3	COA and TC		11/2019, Ongoing
74	Include clauses for the removal of byproducts in contracts.	3.17	City/County Purchasing Offices		11/2019, Ongoing
75	Clarify and formalize the resource request process for the Central Texas School Safety Consortium, whether or not the State is involved in the incident, in order to better support their disaster operations.	4.8	HSEM, TCOEM, Central Texas School Safety Consortium		11/2019
76	Consider the development of an interlocal agreement that authorizes procurement card usage and cost sharing between specific agencies and departments to facilitate purchasing requests. This agreement should allow personnel with purchase approval authority to authorize purchases on their procurement cards for personnel of a different agency or department and should contain points of contact for procurement card usage and authorization. The process of tracking receipts and attaching them to the relevant procurement card should also be addressed.	5.10	City/County Purchasing Offices	City/County Legal Departments	05/2020
77	Create lists of available resources and assets that are regularly updated and shared with others. Share reusable resources among departments before purchasing new resources.	5.15	City/County Purchasing Offices	HSEM, TCOEM	11/2019, Ongoing
78	Explore additional requirements contracts for routine use that have emergency clauses that can be tapped for chemical needs. For example, Austin Water has requirement contracts for their routine chemical needs. These contracts have an emergency provision that requires the contractor to provide 24-hour point-of-contact and an "emergency response" surcharge rate.	5.16	COA and TC		05/2020

Procurement					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
79	Mutual aid processes need to be better understood and a policy and process needs to be developed for accepting and providing mutual aid, to include approval, demobilization planning, legal, and cost recovery issues.	5.17	HSEM, TCOEM, City Law Department, City Controller's Office, County Auditor, City/County Purchasing Offices		05/2020
80	Enact an interlocal agreement that would establish the lead purchasing office for shared expenses.	5.6	City/County Purchasing Offices	City/County Legal Departments	05/2020
81	Establish purchasing authority and thresholds, as well as the process for increasing them, prior to the next emergency.	5.7	City/County Purchasing Offices	City/County Legal Departments	11/2019
82	During the Harvey response, personnel requesting resources filled out their own procurement forms which would then be processed by the City Purchasing Office. Continue to utilize this method, and supervisors need to ensure that their personnel know the correct processes for requesting resources and adhere to them.	5.8	HSEM		11/2019, Ongoing
83	Identify personnel who may need access to procurement cards in emergencies. Provide them with initial procurement card training, issue procurement cards, and provide annual procurement card refresher training.	5.9	City/County Purchasing Offices	City/County Legal Departments	11/2019
Standby Contracts					
84	Compile a list of external labor contracts and a list of MOUs should be readily available for use. Establish a trigger point for utilizing outside labor resources versus reassigned employees.	1.22	City/County Purchasing Offices	City/County Agencies with standby contracts	11/2019

Procurement					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
85	Explore standby contracts with vendors for bulk resource ordering containing emergency clauses and emergency contact information for high-priority resources to be on standby at all times of day throughout the year.	2.18	City/County Purchasing Offices	All City/County Agencies	11/2019
<i>Private Sector Coordination</i>					
86	Identify and coordinate with private sector community partners (e.g. H-E-B, Tito's Vodka, Wal-Mart) who may be able to provide assistance during future responses. Establish how communications will be handled in an emergency. Discuss the possibility of these partners becoming additional distribution points if needed.	2.2, 3.13	HSEM, TCOEM	City/County Purchasing Offices, City/County Logistics, City Economic Development Department, County Office of Economic Development & Strategic Investments, City/County Agencies with private-sector relationships	11/2019

Planning					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
<i>Coordination</i>					
87	Conduct an assessment and catalog City and County department/agency plans related to emergency management. HSEM and TCOEM should then utilize identified plans in future activations and develop a plan for updating this assessment.	1.31	COA and TC		05/2020
88	Facilitate planning meetings between counterpart departments and agencies in order to share understanding of their emergency plans, capabilities, and responsibilities in advance of emergency incidents.	2.15	HSEM, TCOEM	Responding Agencies	05/2020, Ongoing
89	Develop a joint plan on the distribution of commodities, to include elements of direction and control.	3.1	HSEM, TCOEM		05/2020
90	Clearly communicate gaps and deficiencies in resources (e.g., necessary signage and barricades) at external sites to the EOC. Additionally, consistent coordination should occur with all sites to ensure that other field sites do not have the same gaps or deficiencies, and that all sites have access to and knowledge of available resources and their locations.	3.11	Field site managers		11/2019, Ongoing
91	COOP should acknowledge agency and departmental staffing challenges during activations, accounting for staff that may be activated to the EOC or assisting with the disaster in some way even if normal agency and departmental operations are suspended.	1.30	All City/County Agencies		05/2020

Planning					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
<i>POD Planning</i>					
92	Review the POD plan produced by APH in order to produce a plan that is more flexible for numerous POD types, and to identify pre-determined POD locations, as well as considerations for just-in-time locations. Consider utilizing the Austin Office of Real Estate Services and the Travis County Facilities Management Department for support in the pre-identification of future POD locations.	1.32	COA and TC		05/2020
93	Create a checklist with considerations for POD sites. Knowing site layout requirements in advance can prevent logistical limitations and the need for significant changes when time is critical.	3.10	COA and TC		11/2019
94	Establish aligned POD procedures. Ensure that they are followed during operations. Institute "just-in-time" training for on the job training. Pre-identified personnel who may be involved in POD operations should, at minimum, complete and familiarize themselves with FEMA's EMI course IS-26, "Guide to Points of Distribution".	3.14	HSEM, TCOEM	Responding Agencies, ARC	05/2020
95	Develop and utilize POD manager kits to outline the staff and resources required to operate a POD (in a manner similar to the way existing shelter manager kits are organized and utilized).	3.15	COA and TC		11/2019
96	Provide a structure for POD demobilization. This structure should be integrated into a POD plan produced by these jurisdictions.	3.19	COA and TC		05/2020

Planning					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
97	Continue to identify and inspect potential POD sites for future use, with an emphasis on creating a running list of site characteristics and limitations and matching these characteristics and limitations to the type of POD site. Additionally, incorporating and utilizing GIS resources in the planning process will further improve future POD establishment and operations.	3.2	HSEM, TCOEM		11/2019, Ongoing
98	The methods of mobile distribution of resources should be understood for those individuals with limited ability to travel (e.g., homebound population) currently utilized and explore how to improve this process.	3.8	HSEM, TCOEM, APH	CTM (GIS ERT), TC ITS, Central Texas VOAD, CATRAC	11/2019
99	Consider the prioritization of resources based on community need for distribution to the community during incidents.	3.9	COA and TC		11/2019, Ongoing
Donations Policy and Procedure					
100	Explore a shared emergency donations policy. It should specify whether all donations will be handled through NGOs, VOADs, or other community partners.	2.5	COA and TC		05/2020
101	Continue to utilize a single approval authority/entity (i.e. the EOC) to direct donations. This will allow the EOC to accurately manage and track donations while preventing external sites from accepting potentially illegitimate donations.	2.6	HSEM, TCOEM	Austin Resource Recovery, City/County Legal Departments	11/2019, Ongoing
102	Revise the Donations Management Annex pre-disaster to identify which agencies, departments, and/or organizations will lead, and which will play supporting roles in donations management	4.4	HSEM, TCOEM	Central Texas VOAD, City Economic Development Department, City/County Executive Staff	05/2020

Planning					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
103	Expand the donations management policies of the City and County to include food and water safety standards.	4.5	HSEM, TCOEM	APH in conjunction with Central Texas VOAD	05/2020
104	TCOEM does not accept donations; rather the County directs donations to NGOs or VOADs. This option should be explored for the City for managing donations.	4.6	TCOEM		11/2019
105	Expand the donations management policy for facilities that receive direct donations, such as schools and hospitals, to account for these donations and educate decision makers about the importance of these policies.	4.7	Central Texas School Safety Consortium	ARC	05/2020
<i>Community Planning</i>					
106	Work with long-term care facilities, dialysis centers, and home health and hospice agencies to get them more involved in the Capital Area Public and Medical Preparedness Coalition and the CAMOC to be more prepared during incidents.	1.33	CATRAC, APH		11/2019, Ongoing
107	Increase communication and coordination with VOADs and nontraditional community partners both in advance of and during emergency incidents. Facilitate planning meetings and exercises to allow opportunities to understand available resources and capabilities, which will be beneficial for easily identifying surge resources when needed.	3.6	HSEM, TCOEM		05/2020

Planning					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
108	Aggregate the demographic assessments conducted by various departments and agencies in order to better understand the potential locations of greater need for assistance and where there may be a need to conduct more thorough demographic assessments to identify locations of vulnerable populations (not individuals). Implement a system to update this aggregated data on a quarterly basis. Organizations such as Meals-on-Wheels and CapMetro were stated examples of expanded sources for information on vulnerable populations.	3.7	City Office of Sustainability, City Neighborhood Housing and Community Development Department, APH	CTM (GIS ERT), TC HHS, CATRAC	05/2020, Ongoing
Recovery					
109	Update the City and County damage assessment plans to make sure businesses are assessed post incident.	7.22	COA and TC		05/2020
110	Damage assessment planning should incorporate an assessment of the unmet needs of the community (versus just infrastructure) to inform need for facilities and debris pick up and communication with VOADs to reduce duplication of efforts.	7.6	HSEM, TCOEM	Austin Code Compliance, TNR, City/County Public Works, Fire Marshal, Austin Resource Recovery, ARC	05/2020
111	Facilitate planning meetings with City and County agencies involved with debris removal and City and County PIOs outside of emergency incidents to gain a more comprehensive understanding of their debris removal procedures. Develop a joint plan on debris removal procedures for future responses.	7.20	Austin Resource Recovery, City/County Public Works, TNR	Austin Parks and Recreation Department, HSEM, TCOEM, CPIO	05/2020
112	Develop plans to track volunteer hours in the County. Familiarize County personnel on the supporting documentation required to track volunteer hour.	7.15	TCOEM, County PBO		11/2019

Communications					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
<i>Public Information</i>					
114	Provide proactive messaging to the media and public regarding acceptance of donations.	2.7	City/County PIOs		11/2019, Ongoing
115	Explore alternative options for distributing information about wait times at POD sites. This should include City and County websites and social media. An example of an effective system was the voter wait time map that Travis County produced during the elections that occurred at the same time as the Colorado River flooding and boil water response. As participants voted they were asked to report how long they had waited in line. This information allowed others to see approximate wait times at the various sites in real-time.	3.4	HSEM, TCOEM	CTM, TC ITS, APH, CATRAC, CPIO, 311, Transportation, City Fleet Services	11/2019
116	Identify public health information for internal agencies and departments, concurrently with that for residents and commercial businesses, to support continuity within government operations.	6.15	HSEM PIO		11/2019, Ongoing
117	Examine the use of a virtual versus physical JIC to ensure all public information-related operational needs are met in all phases of an incident.	6.26	N/A		11/2019
118	Continue to work towards the use of already existing warning tools.	6.28	COA and TC		11/2019
119	Utilize utility customer information for public notification (e.g., Austin Energy collaborating with HSEM and TCOEM staff to subscribe customers; work with APH to notify permitted buildings related to food safety standards).	6.29	HSEM, TCOEM	Austin Energy	05/2020

Communications					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
120	Establish a public communications plan inclusive of timely and proactive resource practices to mitigate potential infrastructure systems compromise.	6.33	Regional PIO group	HSEM, TCOEM	11/2019
121	Examine policies and limitations to notification systems. Modify existing systems or procure new systems to ensure there is a streamlined process of providing notification and information to AFN communities. If the current system is identified as appropriate, expand the registry for this system to include more of the AFN community.	6.36	HSEM, TCOEM	CATRAC, APH, CAPCOG	05/2020
122	City and County staff should use this incident as an example for simplifying complex information to the public and continue this practice.	6.4	All City/County Agencies		11/2019
123	Continue to utilize technical data when communicating with the public and media, involving agencies with subject matter expertise in a particular area in the development and dissemination of the communication.	6.6	COA and TC		11/2019, Ongoing
124	Keep the media apprised of the decision-making process related to operations in order to provide consistent messaging, when possible.	6.7	COA and TC		11/2019, Ongoing
125	Utilize accessible and relatable social media communication. This should include creative communication including videos and other visual communication.	6.8	All City/County Agencies		11/2019, Ongoing
126	Develop a proactive approach to social media. Assign employees to monitor social media. Social media monitoring should support agency coordination. Develop a digital operations center where this assigned employee would activate to.	6.9	Regional PIO group	CPIO	11/2019
127	Communicate information regarding debris removal to the public as early as possible, with an emphasis on identifying outreach methods to individuals in the impact area. This will help	7.21	City/County PIOs		11/2019, Ongoing

Communications					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
	alleviate debris build-up and make removal more manageable for TNR.				
128	Ensure that information regarding the recovery centers is advertised to the public early on in an incident. Follow-up through the entire recovery process to ensure the public receives regular information updates.	7.8	City/County PIOs		11/2019, Ongoing
129	Clarify the language used to direct the public during incidents, with consideration for the safety information required for their notices.	6.30	The EOC		11/2019
130	The simplified language disseminated to the public should be accurate and sufficient, in addition to the language that is being disseminated to meet regulatory requirements.	6.5	All City/County Agencies		11/2019, Ongoing
EOC Notification					
131	Strengthen and refine the EOC notification process, particularly in complex incidents where scaling-up and scaling-down is needed.	1.10	EOC leadership		11/2019
132	Use a multi-method form of notification including pagers for initial notification and email for large amounts of information. The list of those notified should be periodically updated.	1.11	HSEM, TCOEM		11/2019
133	Consider a process to inform all City and County staff when an activation occurs to create an understanding that the City and County are responding. From there, agencies that need to mobilize to the EOC can be communicated with.	6.13	HSEM, TCOEM		11/2019
Coordination					
134	Institute a practice of providing the information from external coordination calls to all EOC staff in executive briefings.	1.12	COA and TC		11/2019
135	The capabilities and practices to sustain regular communication between field sites and the EOC should be recorded in order to	2.9	COA and TC		11/2019

Communications					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
	provide an accurate situational awareness among response personnel. Moreover, automating this process should be explored.				
136	Collaborate with waste removal organizations to ensure the public has access to information on proper waste disposal methods and site locations.	3.18	City/County PIOs		11/2019, Ongoing
137	Continue to encourage regular communication and coordination between City and County department and agencies outside of emergency incidents, such as through planning meetings and exercises.	5.1	All City/County Agencies		11/2019, Ongoing
138	Maintain relationships with regional PIOs in order to maintain effective regional public information coordination.	6.1	CPIO		11/2019, Ongoing
139	Create a process of expediently informing agencies and departments of incident information, making note of information that is public or that is "For Official Use Only."	6.14	HSEM, TCOEM		05/2020
140	Continue to utilize third-party groups, such as professional associations, to assist in collecting and disseminating information. Communicating and coordinating with these groups outside of emergency incidents through planning meetings and exercises will increase efficiency during future responses.	6.17	COA and TC		11/2019, Ongoing
141	Consider the development and use of a communication diagram to map out audiences and message flow to support crisis communications.	6.18	COA and TC		11/2019
142	Improve the process of getting information approved by APH to send to and update Austin 3-1-1.	6.19	APH		11/2019
143	Continue to maintain strong relationships with the media in order to maintain public information dissemination channels.	6.2	COA and TC		11/2019, Ongoing

Communications					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
144	Coordinate with all public information partners (including digital) to ensure effective preparation for increased inquiries and web traffic.	6.20	HSEM, TCOEM	CTM, TC ITS, APH, CATRAC, CPIO, 311, Transportation, City Fleet Services	11/2019, Ongoing
145	Reevaluate the situational awareness protocols, including interagency communications, to establish communication channels for all operational areas during activations.	6.21	HSEM and TCOEM		05/2020
Language Access					
146	Develop a language access plan specific to the emergency management related activities. The language access plan should include measures for how responders should submit requests for translation support during incidents, as well as a management framework for language access support. This plan should be supplemented by pre-established standby contracts.	6.34	HSEM, TCOEM	CPIO, CPIO Language Access Program Coordinator	11/2020

Recovery					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
EOC Operations					
147	Monitor recovery operations. Continue to provide support throughout the recovery phase.	6.32	EOC Sections		11/2019, Ongoing

Recovery					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
148	Continue to engage City and County Finance personnel early in future responses. Continue to facilitate meetings and exercises outside of emergency incidents. Continue to proactively coordinate with State partners to ensure effective collaboration during response operations.	7.3	HSEM, TCOEM		11/2019, Ongoing
149	Explore where City and County finance processes and tools align so that the EOC Finance Officer can provide financial direction to representatives of both jurisdictions (rather than just communicating City of Austin codes and processes, as was the case in this event).	7.3, 7.4	City/County Finance Offices		11/2019
MARC					
150	Continue to encourage regular coordination and communication between personnel involved in MARC operations, to include regional partners, outside of emergency incidents, such as through planning meetings, workshops, and exercises.	7.1	HSEM, TCOEM		11/2019, Ongoing
151	Coordinate and consolidate the process for identifying the need of MARCs with VOADs and other partners so as to limit logistical needs, duplication of efforts, and confusion to the public.	7.10	MARC Work Group		05/2020
152	Collaboration between the City, County, and VOADs responsible for setting up MARCs should occur with other organizations that can assist in identifying areas with greater potential need for assistance (e.g., TNR can help identify which areas would most likely consist of primary residences versus areas that would most likely consist of non-primary residences). Utilize applicable data sets to determine the impacted areas and how that compares with identifying needs.	7.11	MARC Work Group	TNR, GIS ERT, CATRAC	05/2020
153	Explore and develop plans for establishing a mobile MARC, as well as having an online presence to provide information to the public.	7.9	MARC Work Group	HSEM, TCOEM	11/2019

Recovery					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
Damage Assessments					
154	Coordinate with partner agencies in advance to enable a cohesive process for determining impacted community members and assessing the unmet needs of the community.	7.12	TC HHS, APH	HSEM, TCOEM, Central Texas VOAD	11/2019, Ongoing
155	Facilitate damage assessment tabletop discussions and exercises outside of emergency incidents in order to improve coordination and communication among stakeholders, particularly VOADs and other regional partners.	7.5	HSEM, TCOEM	Central Texas VOAD	05/2020
156	Provide a brief of the debris management process to the EOC staff during activations.	7.19	All City/County Agencies		11/2019, Ongoing
Cost Recovery					
157	During the Harvey response, purchasing personnel had a flow chart to direct them on reimbursement policies and processes. Develop a similar tool template that can be modified for utilization during future incident responses.	5.5	City/County Purchasing Offices		11/2019
158	Develop a Disaster Cost Recovery Plan that clearly identifies all roles, responsibilities, triggers, and operations for cost recovery functions, beginning with pre-disaster activities, through conclusion of said activities (e.g., closeout activities). Train all pertinent departmental representatives on the plan and their specific responsibilities to ensure procedures are effectively implemented.	7.16	County Auditor, HSEM, City Controller's Office, City Purchasing Office	TCOEM, County Purchasing Office, HRMD, TNR, TCSO, HRD, City/County Legal Departments, Austin Resource Recovery, City Budget Office	11/2020

Recovery					
Rec. #	Corrective Action(s)	Report Location	Responsible Agencies (Primary)	Responsible Agencies (Supporting)	Target Completion Date
159	Additional emergency-focused financial capability outside of the EOC needs to be developed so that expense templates and instructions can be modified to the specific event and distributed city and county wide while the EOC Finance Chief is still activated in the EOC. Explore developing separate roles for providing city and county wide financial direction and tools versus creating the daily burn rate versus developing the Disaster Summary Outline versus providing financial support for Logistics. In a small event this can be one person, but in a large event this needs to be split out into multiple roles and for personnel to be trained in these areas.	7.4	CTM, City Purchasing Office, City Controller's Office, HSEM, County Auditor, TNR	TCOEM	05/2020
160	Explore automating cost tracking processes and utilizing contractors in order to reduce the burden of compiling supporting documentation for FEMA.	7.14	CTM, TC ITS	City/County Purchasing Offices, HSEM, TCOEM, City Controller's Office, County Auditor	05/2020