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Handling Instructions

Document Title: City of Austin and Travis County Winter Storm Mara After-Action

Document Control: The City of Austin and Travis County Winter Storm Mara After-Action Review (AAR) was developed to support the City of Austin and Travis County with identified lessons learned and opportunities for improvement and enhancement based on response operations during the North American winter and ice storm, unofficially referred to as Winter Storm Mara.

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In accordance with the Texas Department of Emergency Management (TDEM) criteria, this AAR contains a minimum of three (3) of the four (4) following conditions:

1. The jurisdiction’s community leadership and/or chief elected official, or a designated representative, identified in the jurisdiction’s emergency management plan participated;

2. At a minimum, four (4) Core Capabilities were evaluated;

3. A declaration of the local disaster was issued; and

4. The emergency response involved resources from outside the jurisdiction.

This document was prepared to be consistent with guidelines established by the federal Homeland Security Exercise and Evaluation Program (HSEEP).

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Winter Storm Mara - Overview

Beginning January 29, the National Weather Service (NWS) issued a Winter Storm Watch for Central Texas including Travis County. At that time, the forecast predicted limited ice accumulation of 0.10 inches in areas primarily west of the Austin-metro area. The Austin/Travis County emergency management teams began monitoring the storm.

On January 30, the NWS upgraded the area to a Winter Storm Warning with forecasted ice accumulation closer to 0.25 to 0.5 inches. In response, Austin/Travis County assembled a situational assessment team in the Emergency Operations Center (EOC) to monitor the conditions and coordinate preparedness and response efforts. That same day, the EOC was activated, and winter weather information meetings were conducted with agency and community stakeholders and the NWS twice a day. With the current cold weather, and the expected duration, the primary focus was to provide expanded overnight sheltering capacity and daytime Warming Centers for the unhoused.

During the January 31 morning weather information call, the NWS reported a shift in the weather forecast, with the storm moving further east and revised forecasts of possibly 0.5 to 0.75 inches of ice due to freezing precipitation expected to arrive in the Austin-metro area. In addition to sheltering for the unhoused, the focus was to send messages to the public to stay off the roads, have road crews prepare for sanding operations for road safety, and to increase response capacity to be prepared for potential collisions and traffic incidents.

Freezing rain and freezing temperatures arrived in the Austin metropolitan area in the early morning hours of February 1. Ultimately 1.04 inches of freezing rain fell, resulting in about 0.71 inches of ice accumulating on vegetation and power lines, hazardous travel conditions, a widespread loss of trees, and power outages across the region.

On February 2, an additional 0.20 inches of freezing rain fell prior to temperatures rising above freezing later in the morning. However, the extreme weight of the ice that had accumulated between February 1 and February 2 downed power lines and snapped utility poles and trees, resulting in the loss of electricity to at least 170,000, or 30%, of Austin Energy customers, and approximately 10.5 million trees were severely damaged or destroyed.

Temperatures remained at or below freezing from January 30 until February 2, when ambient temperatures reached 41 degrees, according to NWS data. On February 3, Austin and Travis County declared local disasters. By February 11, Austin Energy had restored power to all customers who could safely receive power. However, due to the massive efforts required to support recovery and restoration efforts, the EOC remained activated until February 20, 2023.

The primary focus of the EOC during activation:

- Shelter unhoused residents
- Shelter housed residents during extended power outages
- Food and water distribution to shelters and residents
- Transportation services to people who could not travel to shelters
- Support hospital system with transportation access, power restoration
- Support public critical infrastructure (e.g., fire stations) with power restoration
- Support medical care facilities (e.g., nursing homes, dialysis centers) with power restoration
- Provide information to community partners, elected officials, the public, and media.
- Provide daytime Warming Centers
- Support Council and Austin Public Health (APH) with Multi-Agency Resource Centers (MARC)
- Debris assessment, management and collection
- Cost recovery

On April 21, 2023, President Biden declared Winter Storm Mara, which occurred from January 30, 2023 through February 2, 2023, a Presidential Disaster.

The City submitted over $45 million of response and damage cost estimates. The Federal Emergency Management Agency (FEMA) was able to validate $37 million of the $45 million submitted. HSEM leads the coordination of cost recovery efforts with the State and FEMA.
Executive Summary

The extreme weather threats we are seeing now are different from the weather we saw 5-10 years ago. The weather events we are experiencing today are more intense, more complex, more extreme, and more demanding on local resources.

The rapid escalation of extreme weather events is forcing every level of government to rethink plans for how to protect the community, how to manage risk and emergencies, and how to identify investments needed to ensure resiliency.

Because the progression of extreme weather events is affecting every corner of the country, and beyond, in January 2023, the Federal Emergency Management Agency (FEMA) encouraged emergency managers to invest in infrastructure, including nature-based solutions, adoption of hazard-resistant building codes, and enhanced response capabilities.

State and local officials are continually working to better understand the evolving risk landscape - to reduce impacts and to help communities understand these risks and how to prepare for them. The norms that were known are quickly becoming less relevant.

This AAR describes the lessons learned from the City of Austin (“the City” or “City”) and Travis County (“the County” or “County”) winter weather activation during January and February 2023, also known as Winter Storm Mara. This report summarizes the observations gathered from a response-focused After-Action Survey, departmental debriefs immediately after the event, and AAR Conference Workshop that included multiple focus-group break-out sessions.

The AAR includes a comprehensive information-gathering process to illuminate City and County courses of action related to notifying, activating, responding to, and recovering from Winter Storm Mara. In the spirit of continual improvement and capacity building, this AAR will support the City and County in preparation for future winter weather operations and serve as the basis for improving community resilience. The response to Winter Storm Mara was a coordinated effort by the City of Austin and Travis County. These efforts were led by the City’s Office of Homeland Security and Emergency Management (HSEM) and the Travis County Office of Emergency Management (TCOEM).

Additionally, this report represents an assessment of the incident response through the lens of six key focus areas. The following focus areas were identified through the analysis of documents and feedback received from various stakeholders.

- Communications
- Planning & Preparation
- Operational Coordination
- Resource/Asset Management
- Technology & Infrastructure
- Shelter Management

This report also summarizes the impacts associated with Winter Storm Mara in Austin and Travis County, identifies strengths, and evaluates areas for improvement through 78 observations and recommendations. The next steps in this process for the City of Austin will be adding recommendations to the Community Resiliency Improvement Status Portal (CRISP) and continuing work toward a more resilient City.
Methodology & Observations

HSEM and TCOEM were assisted by a consultant, Riskonnect, to consolidate and analyze the Winter Storm Mara Response Survey information, hotwashes, and information submitted during a full-day facilitated AAR Conference. HSEM & TCOEM’s analysis identified strengths and weaknesses related to emergency response to Winter Storm Mara and captured lessons learned. The process for completing the Final After-Action Report involved a three-stage approach including data collection, data cleaning and transformation, and data analysis. This methodology was used in consideration of the Federal Emergency Management Agency’s (FEMA) Core Capabilities and five Mission Areas. Twenty-one (21) of the Core Capabilities were determined relevant to the four (4) phases of the event.

- PHASE 1: Pre-Event
- PHASE 2: Response
- PHASE 3: Cascading effects
- PHASE 4: Recovery and Restoration

Based on the evaluation of the data, six (6) focus areas emerged and were evaluated to capture strengths and weaknesses related to actions associated with the emergency response to Winter Storm Mara. The themes identified were:

- Communications
- Planning and Preparedness
- Operational Coordination
- Resource and Asset Management
- Technology and Infrastructure
- Shelter Management
**Timeline of Events**

**January 29, 2023**
- The morning of January 29, the National Weather Service (NWS) issued a Winter Storm Watch for Central Texas including Travis County.
- Western Travis County expected up to 0.10 inch of ice accumulation.
- No winter impacts were anticipated for downtown Austin.
- HSEM began monitoring event.

**January 30, 2023**
- NWS upgraded Winter Storm Watch to Winter Storm Warning.
- NWS expanded prediction of ice accumulation area from western Travis County to all of Travis County including Austin-metro.
- NWS increased forecasted amount to 0.25 to 0.5 inch of ice accumulation.
- HSEM and TCOEM convened a Situational Assessment Team and EOC activated.
- Four Cold Weather Shelters activated.
- Select bridges pre-treated.
- Austin Energy placed crews/resources on standby.
- City and County Departments report no unmet needs.
- Many schools announced closure for January 31.
- Communications: Press release issued notifying residents that NWS issued a Winter Storm Warning in effect until Feb. 1, warning of Icy Winter Weather Mix Forecasted for the Austin Area, and activating cold weather shelters. Web pages updated, media interviews conducted by multiple departments. Three New Flash Bulletins sent to Council providing social media posts and safety tips to share with residents.

**January 31, 2023**
- NWS increased forecasted amount to 0.5 to 0.75 inch of ice accumulation.
- Cold Weather Shelter availability extended to February 2.
- Texas Department of Transportation reported ice on roadways.
- Austin Police Department (APD) and Travis County Sheriff’s Office (TCSO) reported increase in collisions.
- Austin Energy worked with State energy officials related to emergency conditions.
- Austin Public Library (APL) opened warming stations.
- Schools announced closure for February 1.
- City of Austin suspends all regular non-essential operations effective 2 p.m. through Wed, Feb. 1.
- Communications: Press release on City closures, two News Flash Bulletins to Council, social media posts, Warn Central Texas messages.
February 1, 2023

- NWS extended Winter Storm Warning to February 2. Additional ice accumulation forecasted
- Shelter availability extended to February 3
- Cold Weather Shelter locations relocated due to power outages. CapMetro transported residents
- Austin Energy experienced first outages. 986 active outages with approximately 166,000 affected customers. Mutual Aid requested and arrived to assist with restoration efforts.
- Austin Fire Department (AFD) reported increased call volume for downed tree limbs and power lines
- Austin Travis County Emergency Medical Services (ATCEMS) reported increased call volume, provided assistance to unhoused residents
- Power outages took three hospitals off-line
- APH, 3-1-1 and Office of Resilience coordinated transportation of discharged patients (unhoused residents) to shelters
- Public Works Department (PWD) monitored roadways and removed debris
- Communications: Continued roadway safety messaging, media interviews, social media posts, webpage updates. Press release issued by Austin Energy about efforts to restore widespread local power outages. Three News Flash Bulletins sent to Council about widespread power outages, extending the suspension of City operations, transportation options to shelters and warming centers, carbon monoxide safety, and press conference scheduled for Feb 2.

February 2, 2023

POWER OUTAGE

- NWS cancelled Winter Storm Warning at 9:55 am. Temperatures rose above freezing
- EOC shifted focus to utility restoration progress and debris abatement
- Cold Weather Sheltering and warming centers remained available through February 3
- APD assisted with closed roadways for downed power and communication lines
- AFD reported reduced call volume.
- ATCEMS reported increased calls related to falls, carbon monoxide exposures and injuries from falling trees and cleanup activities
- Austin Water (AW) notified 40 residential customers of boil water notice and delivered water bottles to isolated outage
- Austin Energy continued restoration work and identification of high priority outages including a dialysis center, AW facilities, AFD facilities
- PWD continued to monitor roadways and clear debris from roadways
- Austin Resource Recovery (ARR) activated emergency debris contractors
- Communications: City of Austin and Travis County conducted press conferences at 9 a.m. and 5 p.m. to discuss winter storm response, power outages, and recovery efforts. Press conferences were simulcasted in Spanish and American Sign Language interpretation was provided. Six News Flash Bulletins sent to Council about road safety and updates on travel conditions, fire and carbon monoxide safety, falling debris due to ice, addressing rumors about Austin Water shutting off water, and press conference information. Press releases issued and web page updates made. Communications battle rhythm established an early morning press release, at least one press conference during the day, and a press release summary at the end of the day. Primary goal was to lean on morning, mid-day, and evening news cycles.
• City of Austin and Travis County signed local disaster declarations
• EOC continued to monitor utility restoration and debris management
• Austin Energy continued restoration efforts. Mutual aid crews from New Braunfels Utilities, CenterPoint, Bird, and CPS Energy assisted
• Austin Energy damage assessments continued. Customer accounts without power falls from approximately 120,000 to 80,000
• APH planned for MARCs
• Austin Transportation Department (ATD) assessed traffic signal lights and restored power
• ARR continued debris removal
• CapMetro continued to support sheltering operations
• Communication & Technology Management Department (CTM) continued to track outages at sites
• Parks & Recreation Department (PARD) continued to staff and support sheltering sites; assisted ARR with debris removal; provided staff to support Central Texas Food Bank food distribution
• Office of Resilience continued to advise City departments on community needs
• Travis County Health and Human Services assisted Central Texas Food Bank meal distributions
• Texas A & M Forest Service provided saw teams to assist in debris removal
• Central Texas Food Bank established two distribution sites; Austin Disaster Relief Network (ADRN) continued to receive requests for and provide assistance with debris clean up assistance on private property; Red Cross assisted shelter operations at the Marshaling Yard.
• Communications: Press release issued at 6 a.m. providing morning status update. Three press conferences held at 10 a.m. for general update, 3 p.m. focused on disaster declaration, and 5 p.m. for an operational update. One News Flash Bulletin issued to Council sharing information about carbon monoxide safety, water treatment plant updates, continued cold weather shelter and warming center operations, and safety with falling debris.
- Governor issued Proclamation of Disaster for Travis County
- EOC continued to monitor utility restoration and debris management
- Austin Code responded to 192 calls for service over the past 3 days. Code sourced additional staff for weekend response.
- APD assisted with closed roadways for downed power and communication lines
- AFD reported normal call volume with a steady number of downed wire calls.
- Austin Energy continued restoration work with mutual aid partners.
- ARR continued debris removal
- ATD remained staffed through night restoring traffic signal outages
- PWD continued to monitor roadways and clear debris from roadways
- Communications: Press release issued with morning status update, press conference held at 3 p.m acknowledging day 5 of power outage and uncertain timeline for power restoration. Continued social media and webpage updates. One News Flash Bulletin to Council summarizing Saturday’s activities and key safety messages to share with residents.
- Austin Energy requested security for restoration crews
- Austin Energy continued restoration efforts until February 11 when power was restored to all customers who could safely receive power
- EOC continued to monitor utility restoration and debris management
- Emergency Shelter at Marshalling Yard expanded.
- APD assisted with identification of traffic signal outages, provided security to Marshalling Yard.
- APH with Travis County expanded hours of Neighborhood and Community Centers.
- ARR and contracted crews continued debris removal city-wide
- ATD continued to monitor traffic signals, deployed temporary stop signs and monitored school beacons.
- Development Services Department (DSD) provided emergency repair resources, assisted with repairs permitting
- PWD continued debris removal operations
- Equity Office supported APH and Office of Resilience with MARCs. MARCs activated on February 8, 9, 10, 11
- Office of Resilience supported APH with MARCs and coordinated efforts with ADRN and Red Cross
- Travis County supported MARCs, assisted Central Texas Food Bank, distributed 14 pallets of water, began debris removal process
- Watershed Protection Department (WPD) asked residents to not block inlets with debris to prevent flooding
- ADRN and Red Cross continued to assist the community
- Communications: During the remaining period, press releases were issued every day providing morning updates, press conferences continued approximately once per day until Feb 8, and News Flash Bulletins were sent to Council each time an announcement was shared with media offering key messages to share with residents.
Winter Storm Mara - Incident Analysis

This section presents an assessment of the incident response through the lens of the six key Focus Areas. These Focus Areas are Communications, Planning & Preparation, Operational Coordination, Resource/Asset Management, Technology & Infrastructure and Shelter Management. This section summarizes the impacts associated with Winter Storm Mara in the City and County and analyzes, strengths, and areas for improvement for the whole community.

Some of the Observations and Recommendations reported in this analysis are, or may appear to be, duplicated within more than one Focus Area. This is because a specific observation or recommendation is relevant within each of those Focus Areas in which it is mentioned, and it was felt important to record and report them in this way.

Note: Austin Transportation Department and Public Works Department were separate departments at the time of Winter Storm Mara. As such, this report uses this naming convention. On March 24, 2023, the departments were consolidated to form the Transportation Public Works Department.

Focus Area 1: Communications

Effective communications during a significant city-wide emergency rely on having a clear operational posture as well as a real-time exchange of information, advice, and opinions between experts, officials, and people in the community who face hazards or threats to their comfort, health, or economic or social well-being. Throughout the course of the event, communications efforts performed well in some areas and poorly in others.

Strengths

- Prior to the storm’s arrival, the City and County established a good cadence and shared general information about the storm encouraging residents to prepare for winter weather. Communications relied on news interviews, news releases, and social media messaging.

- After the storm passed, which is when the recovery and restoration phase began, the City and County Incident Command teams internally facilitated continuous, around-the-clock updates that gave operational teams the necessary information to make decisions and sustain operational forces. This also helped inform communication to Council, the media, and the community and allowed the JIS to establish a communications battle rhythm with early morning press releases, press conferences during the day, and a press release summary at the end of the day.

- Using available technology such as MSTeams chats and emails, the City and County managed and maintained clear and concise communication between operational departments that helped coordinate and organize support. This facilitated the accuracy of information shared during scheduled morning and evening debriefs between departments and agencies.
• Department operations centers (DOCs) utilized daily virtual meetings with staff and contractors to gather information that was shared with the EOC.

**Key Areas Identified for Improvement (Opportunities)**

**Observation:** Communication protocols between the EOC and elected officials must improve. Triggering events should be created to determine when the EOC and Joint Information System (JIS) are activated and how all stakeholders are notified of the activation.

**Recommendation:** Develop an Emergency Communication Plan that includes new protocols for communications prior to and during an EOC activation.

**Observation:** During the time when only a situational assessment team was activated, a lack of Incident Action Plans and the inability to quickly coordinate multiple plans within the EOC led to complications and duplication of effort. Some department EOC representatives did not appear to have a clear understanding of their roles and responsibilities while in the EOC causing difficulties in the response.

**Recommendation:** Develop/enhance Emergency Management and Communication Plans to determine the protocols/documentation/reporting needed to establish EOC coordinated communications between the EOC and DOCs (internal) and the public (external). Ensure these plans are regularly maintained, distributed and are immediately available at time of incident to all required parties.

**Observation:** Different network infrastructures within some partner agencies challenged the exchange of information. Staff had to use redundant communication methods to ensure full situational assessment knowledge.

**Recommendation:** Investigate and implement technology or procedures to address non-compatible systems communications at time of emergency between the EOC, Department Operations Centers (DOCs), County entities and key outside entities.

**Observation:** There was a lack of system automation in the EOC that allows for communication through all channels and that can provide analysis or statistical data to ensure information is disseminated in a timely way. Information sharing relies heavily on staff and can compete against multiple other priorities in a response.

**Recommendation:** The City should invest in technology solutions in the EOC to provide a greater data sharing capacity and increased situational awareness for all stakeholders. The EOC and its IT partners should assess what mechanisms can provide for increased information sharing with minimal human intervention.

**Observation:** Leading up to the storm, City and County communicated ice storm updates and outage alert tips to the community. However, the City and County were unprepared for a "hurricane-level" ice storm. The magnitude of damage caused communication barriers and breakdowns immediately after the storm. For example, due to the complexity and volume of the outages, Austin Energy and other utility providers could not provide its customers with accurate estimated times of restoration.
**Recommendation:** The City and County should evaluate how to best communicate with its residents when digital and power-dependent platforms are unavailable. The City and County should endeavor to educate residential and business customers to better prepare for the most serious of natural and human-made disasters and to adjust recovery expectations as the City and County experience more extreme weather events. Residents should be encouraged to take appropriate proactive actions, including updating contact information, signing up for outage alerts, and preparing personal emergency kits and family emergency plans.

**Observation:** The time that lapsed between requesting messaging translations and receiving the translations hindered the accessibility of public communications. This led to a lack of engagement between the City and hard to reach communities.

**Recommendation:** The City should develop and document pre-scripted communication messages for multiple differing emergency scenarios that can quickly be accessed and amended to reflect the ongoing messaging requirements of the incident. These can be translated into multiple languages ahead of time and stored in the scenario message library.

Not all messages can be pre-planned and pre-translated. To supplement contracted translation services, identify, record, and track a comprehensive list of people (employees & volunteers) with different language skills.

**Observation:** Better information flow between affected departments and the JIS is needed to facilitate a more cohesive, City-wide communication effort. Departments often coordinated communications through their specific DOCs to provide timely updates and critical information. This process did not always include EOC and JIS, making coordination of comprehensive messaging and details harder to develop and push to the public.

**Recommendation:** Revisit and, if necessary, restructure EOC and Incident Command System (ICS) Planning & Coordination. Provide additional (ongoing) training on the operation of JIS and EOC to ensure all Public Information Officer (PIO) teams understand how they are supposed to function.

Additionally, the City Manager’s Office (CMO) should implement direction to all PIO teams requiring them to abide by JIS and EOC principles. City Public Information Officer (CPIO) and/or the JIS need to be empowered to call on department directors and PIO teams to coordinate and participate in joint messaging, announcements, press conferences, media events, and releases.

**Observation:** Immediately after the storm, as departments began assessing the storm’s impact, the City and County did not change communication tactics or share information about the severity of the storm’s impact despite the power outage impacting residents’ abilities to access messaging.

**Recommendation:** City and County should enter into Memorandums of Understanding for AM/FM radio and ham radio communication. City and County should evaluate other forms of low or no technology communication methods.

**Observation:** During the recovery and restoration from this event, a surge in the volume of 3-1-1 calls resulted in longer than normal wait-times and community frustrations.

**Recommendation:** Evaluate the City’s operational response and departmental
protocols/procedures; ensure departments work in partnership with Austin 3-1-1 to communicate with residents through 3-1-1 in a timely and accurate manner.

**Observation:** Sheltering availability information was unclear to residents.

**Recommendation:** An Operational Communication Plan should be in the comprehensive Shelter Management Plan. Ideally, the City should have separate facilities for unhoused residents, families, etc. The City should offer basic needs and services at congregate shelters. Residents need to know that hotel space is not guaranteed. The communications plan for sheltering must be clear, informative, and concise to avoid community confusion and uncertainty.
Focus Area 2: Planning & Preparedness

Planning & Preparedness is quoted in all five FEMA Mission Areas and has been identified as the common thread of Core Capabilities across all six AAR Focus Areas.

Planning and preparedness should become a continuous planning life cycle of development, review, approval, training, and exercising. This will make the City more resilient and efficient when responding to any kind of emergency or disaster.

Strengths

- HSEM PIO conducted winter-weather related pre-activities with the public regarding disaster preparedness, including a marketing campaign that reached over 2 million people in the City and County. HSEM implemented corrective action from Winter Storm Uri that called for the pre-positioning of critical supplies. Several of these, called Mission Ready Packages, were in position prior to this storm and were utilized for sheltering.

- Pre-existing departmental recovery and restoration plans were instrumental in executing MARCs quickly and efficiently.

- Some City Departments had prepared for resource challenges resulting from a significant weather event by activating emergency debris collection and collection monitoring contracts. Departmental vehicles were prepared and positioned prior to the storm event per existing plans.

- AFD planned for and used a proof of concept called squads-alternate emergency response units to respond to lower priority incidents. This model allows more fire engines and ladder trucks to remain in service for higher priority calls and reduces the queue of calls generated to fire dispatch.

- ATCEMS delivered oxygen tanks to people instead of transporting them to hospitals. This helped minimize emergency room patient load.

Key Areas Identified for Improvement (Opportunities)

Observation: Shelter types, locations and operating hours should be considered earlier in the event. There was uncertainty regarding daytime sheltering options, 24 hour operational shelters and congregate sheltering for the city at large.

Recommendation: The City and County should maintain documented and detailed shelter management plans that consider all needed shelter types including the needs of different communities such as residents with animals, unhoused residents, medically fragile residents, etc. Policy decisions should be made to determine triggers for prioritizing city-owned facilities for emergency use over day-to-day programming. Additionally, Travis County will need to plan for areas outside of City limits.

The City and County must also implement a program or system to categorize and document
the different types of available city and county shelters to include each facility’s amenities/assets and document and reference relevant MOUs. In addition, the City and County must continue hardening buildings identified as possible shelter locations, to include backup power, air conditioning, etc.

**Observation:** The City and County must improve community resilience. During the event, the City and County communicated ice storm updates and outage alerts tips to the community. However, the community was not provided with pertinent information regarding the nature and extent of the situation regarding power outages and restoration expectations.

**Recommendation:** The City and County should make improvements to their outreach and educational programs that empower the community to prepare for natural and human-made disasters. The program should be robust and include the education of different types of emergencies and appropriate proactive actions, such as signing up for outage alerts and highlighting the need for emergency kits and family emergency plans that consider sheltering.

**Observation:** Many medically vulnerable residents were without power during and after the storm.

**Recommendation:** The City should evaluate the process of supporting Medically Vulnerable Registry (MVR) customers during long-duration outages and educating the customers on additional self-preparation measures. The City should evaluate the MVR program and identify practical improvements to further aid medically vulnerable residents.

**Recommendation:** Implement a process to update and encourage the use of the MVR.

**Observation:** There is a widening disparity in effective continuity of operations plans (COOP) and training across city departments. A COOP addresses emergencies from an all-hazards approach that enables individual departments to perform essential functions for up to 30 days or normalization. These plans are adaptable and flexible.

**Recommendation:** Departmental COOP planning should be incorporated into a comprehensive program to ensure the execution of essential functions through all circumstances. The City and County should implement a formal COOP program to review and update existing Department COOP plans that have a direct correlation to the City’s mission essential functions. The program should include tabletop exercises and training.

**Observation:** Not all EOC representatives were familiar with a structured EOC ICS-National Incident Management System (NIMS) planning program. This knowledge is needed to understand roles and responsibilities, training, and the organizational structure in the EOC.

**Recommendation:** The City should create a comprehensive planning program to implement life-cycle procedures to review EOC plans and incorporate mandatory training, and an exercise program.

**Observation:** As long-duration outages upset customers, some power response and restoration crews experienced threats and acts of violence, which impacted restoration activities and durations.

**Recommendation:** The City and County should work to identify and implement procedures to protect utility response and restoration personnel. This should include specific procedures for ensuring field-level security of responding team members.
Observation: There was an unsustainable work posture for 24-hour response for field crews removing debris from rights-of-way. Unclear priorities and duplication of assignments compounded the problem of clearing debris from rights-of-way. In addition, more clear reporting instructions to the public (e.g. location information and photographs) would have assisted in the prioritization process.

Recommendation: City, County, and other support agencies should plan a coordinated deployment of resources to clear debris on rights-of-way by establishing a systematic approach to clearing debris that includes a shared map. In addition, a standard communication to the public should be developed to detail reporting requirements.

Observation: Improper maintenance of trees outside the right-of-way contributed to power outages, increased the amount of debris in roadways and other damage.

Recommendation: City and County should collaborate with arborists to educate the public on property owner responsibility regarding proper care for trees that are not near power lines but could pose a risk during extreme weather events.
Observation: Requests for volunteers/reassigned staffing were unclear.

Recommendation: Staffing requests need roles and duties pre-identified where possible. Tools are needed to quickly identify staff with certain skills, training, and licenses.

Observation: During this event, an unclear chain of command structure in multi-department efforts led to changing directives and duplication of assignments.

Recommendation: The City and County should establish a formal ICS training program for all departments to help clarify roles and responsibilities in a disaster event that allows for continuous training and practice to prepare for disaster events. In addition, the City of Austin EOC should create and share clear organizational charts establishing command and control for disaster related events that involve more than one department addressing a specific issue.

Working Together to Support Recovery

Unmet Need:
Residents needed assistance during the recovery process.

Solution in Action:
Austin Public Health coordinated with multiple partners, including COA Office of Homeland Security and Emergency Management, Texas Department of Emergency Management, Austin Energy, COA Office of Resilience, COA Equity Office, Travis County Health and Human Services, and the Austin Disaster Relief Network, to open Multi-Agency Resource Centers (MARCs) to provide services to the community.

A MARC is a single, “one stop shop” location where public and private organizations come together to provide assistance to those affected by disaster. The MARCs offered a single critical venue for the coordinated recovery of those affected by a disaster. The MARCs provided information regarding debris and damage assistance, emergency preparedness, financial information, mental health support, limited hot meals and more.

In addition, Austin Parks and Recreation Department provided access to shower facilities to individuals and families who did not have access to hot water. Austin Energy secured the use of multiple AT&T mobile charging stations for the events.
Focus Area 3: Operational Coordination

The need to establish and maintain a unified and coordinated operational structure that includes plans and processes that effectively integrate, manage, and communicate with all pertinent City departments, leadership, critical vendors, volunteers, and stakeholders and supports the execution of core capabilities is necessary for effective emergency management.

Strengths

- City resources restored thousands of power outages each day and facilitated the receipt and operational coordination of multiple mutual aid crews. Each day of the restoration, updates were communicated to the community through multiple platforms. In addition, private utility companies restored power in other parts of the County.

- The City and County excelled in responding to a multitude of escalating issues in several ways, including being able to arrange quick ad hoc chainsaw training, positive adaptability to new ideas and procedures (e.g., customer service request to grid method), and the extended use of technology to enhance department response and coordination. This approach ensured a smooth transition from reactive to proactive response leveraging key support from partners (e.g., AFD, Texas Forest Service, PARD, WPD, ARR, Texas Department of Emergency Management (TDEM)).

- Departments worked efficiently together and executed internal communications well. Daily meetings with City and County staff and contractors were very effective. Departmental coordination meetings worked well and this positively assisted managing interdepartmental communication and coordination. Acquiring access to Texas Department of Transportation traffic maps equipped department management with information needed to shift field personnel and equipment quickly to respond to escalating events.

- Certain departments deployed extra vehicles to meet anticipated demand. For example, AFD utilized Brush Trucks, with two personnel each, to respond to a variety of calls (e.g., medical, alarm activations, wires arcing, and other storm-related calls). AFD moved to RECON Level III per their Policy G301 (“Emergency Operations/Disaster Staffing Plan”). During this time, the DOC was run from the Shift Commander’s Office, remaining in constant contact with the EOC.

- Several operational departments exhibited strengths that included:
  - Supervisors and safety staff scouting routes ahead of collections crews.
  - Using drone surveillance of impact areas.
  - Establishing well-defined operational zones for responding crews and contractors.
  - Identifying and opening debris collection sites quickly.
  - Availability and use of AW's Hornsby Bend Biosolids Management Plant as a public drop-off center for vegetative debris.
Key Areas Identified for Improvement (Opportunities)

Observation: Too many communication channels (Teams, text, etc.) and points of contact caused confusion and disconnect between EOC department representatives and field personnel. This cascaded to cause a non-unified approach to general public communications.

Recommendation: The City and County should evaluate common software or practices used to update or communicate status to internal and external key stakeholders. Once identified, formal ICS training of this software and practices should be mandated and City and County should require certification/recertification for all EOC representatives.

Observation: The City lacked a robust emergency system for messaging all City employees which led to an inefficient coordination of response teams. The City utilized the SPOK pager system to concisely and efficiently communicate with departments.

Recommendation: The City should review messaging services to ensure it is using the best tool possible for messaging EOC representatives and leadership. In addition, there should be a city-wide tool to communicate important messaging to all employees.
Observation: The City and County must continue to strengthen preparedness efforts at the neighborhood level.

Recommendation: The City and County should continue to proactively reach out to neighborhood groups to increase preparedness. The coordination HSEM has had with Go Austin/Vamos Austin (GAVA) in creating preparedness guides should be replicated in other communities. The City and County should evaluate the feasibility of a block leader program.

Observation: Some EOC representatives lack a thorough understanding of expectations during time at the EOC which caused some staff to experience unpreparedness.

Recommendation: The City should create and document information for representatives in the EOC to include a list of what EOC staff will need during an EOC activation.

Observation: City and County staff did not feel trained to safely transport residents in government vehicles in inclement weather.

Recommendation: Conduct a risk analysis of transportation methods used in inclement weather for vulnerable residents. Analyze safety and liability issues, and insurance considerations. The City should evaluate transportation options available to the community and determine under what conditions City staff are best utilized to support such transport.

Observation: There is a need for EOC awareness of departmental plans to enhance two-way communication and coordination between the EOC and departments. During this event, EOC staff did not know the process Austin Energy uses to prioritize power restoration for critical infrastructure (hospitals, dialysis centers, etc.). There needs to be a better mechanism for Austin Energy and the EOC to share information, needs, and status regarding priority restorations during an event.

Recommendation: All relevant department plans should link directly to the EOC plans to ensure life safety and continuation of critical services.

Observation: There were concerns regarding silos and overlapping objectives between departments. There was a lack of uniformity and understanding of different departmental processes, frequently changing directives, an unclear chain of command, and information coming from multiple data sources with duplication and inaccuracy.

Recommendation: City and County should apply COOPs and practice regularly with inter-department coordination exercises. City and County should also increase FEMA/ICS training and adopt a clearer structure for directives and reporting such as Unity of Command to include clear communication plans and protocols with training for power loss situations.

Observation: The City should have clear mass care plans that incorporate an intake process, operational coordination, and communications. This should include clarity on where to place families, clarity of emergency transportation options, and inclusion of equity and emergency food access considerations and stakeholders.

Recommendation: A review of communication protocols between Austin Area Urban League (AAUL) and APH needs to be performed, revisions made and plans updated and/or implemented. This plan should include the involvement of other necessary City departments and offices. In addition, a thorough review of all mass care plans and communications on what residents should bring with them to a congregate shelter is needed.
**Observation:** Staff resources to serve in the EOC were limited, which led to staff fatigue for longer EOC activations. There were also several questions from staff about who is considered essential, who is responsible for non-standard services, and what department resources and capabilities are available.

**Recommendation:** City and County should develop Standard Operating Procedures (SOPs) for emergency response outlining staff and division responsibilities and needs. This should include identifying and training additional staff to serve in the EOC and should consider requiring a certain number of staff from each division to respond to emergencies. Develop an online tool for staff to sign up for shifts. Inform staff of essential status in advance of future events.

**Observation:** City and County did not ensure that the processes performed successfully were documented by all departments so that they can be replicated in future events.

**Recommendation:** City and County should implement a planning policy that all departments involved in an EOC activation must review and update their Emergency Response and COOP plans within 60 days of the EOC deactivation.

**Observation:** The City and Council each began planning a MARC for this event without coordination. This created confusion with non-EOC staff when contacted by multiple sources to support a MARC. As soon as HSEM heard that Council was considering an event, HSEM connected immediately with Council staff and planned the event collaboratively, in alignment with materials, resources, and preparations for the City-originated MARCs.

**Recommendation:** Training and information should be provided to elected officials on emergency response and recovery protocols and what they can expect the City to provide in various emergencies.
Focus Area 4: Resource / Asset Management

This section includes Location Management, Shelter Management, equipment, supplies, and City employees and external personnel recording, tracking, emergency re-allocation and reporting (attributes).

Strengths

- Many Departments successfully provided continuous fleet services to support rapid restoration. Additionally, some departments supported additional mutual aid crews with food, lodging, and staging area assistance. Contingency contracts established pre-disaster for power restoration, debris management and monitoring, and cost recovery were a vital component in the City’s ability to recover from this disaster.

- Departments worked to ensure their facilities were winterized and had no issues with pipes other than small leaks being reported. Sidewalks were sanded or sprayed to prevent slips and falls. City and County vehicles and facilities had little to no damage including Austin Energy’s Decker Creek Power Station dam. Removing downed limbs went well at City facilities.

- A successful collaborative approach was implemented for multi-agency crews from PWD, PARD, WPD and ARR to clear rights-of-way using a systematic grid process based on MAPSCO. Due to the lack of an emergency management GIS team, AFD GIS personnel co-joined Austin Energy, ARR and AFD damage assessments to a single map to be prioritized for restoration and debris work.

- County was well-prepared for road de-icing. The City’s Fleet Services Department (Fleet) ensured fuel systems and electronic systems dependent on fuel remained operational.

- The use of community health workers and pre-existing locations that interface with the community including resilience hubs and neighborhood centers, provided better access to resources and feedback was captured. HSEM pre-positioned emergency supplies at many of these locations.

- The WebEOC process for requesting resources was well utilized, allowing tracking and prioritization of resource fulfillment.

- The City’s collection of damages through the new pStat tool was identified by the State as a best practice. This identification and collection of damages, led by HSEM, is the first step in seeking funding assistance for a disaster and reducing the burden on the taxpayer.
Key Areas identified for Improvement (Opportunities)

**Observation:** A consistent observation across multiple Departments included the critical need for City and County to perform a detailed assessment of staff skills sets and attributes, and to create and maintain a database of these skills and attributes to enable efficient identification, mobilization, and deployment at time of emergency.

**Recommendation:** Execute City-wide and County-wide programs to capture and record employees’ skills and attributes to be used during assignment of tasks during an emergency. Skills and attributes should include certifications, languages, vehicle and equipment training, etc. Develop and implement protocol to ensure that each department has an incident management team and a trained pool of pre-identified staff available for emergency response activations.

City and County should also work to train and utilize staff to provide emergency assistance in areas beyond their normal job description to help overall efforts. Update all job descriptions to include language that the employee may be required to work during emergencies or bad weather if they are scheduled to work and, in some cases, when they are not scheduled. Develop a structured training and response program for staff with pre-
identified skills who can perform specific critical response functions in an emergency.

**Observation:** Employees who were required to work during the storm received the same monetary compensation as employees who did not work (excluding the Administrative Bulletin regarding compensation for exempt employees during EOC activations). Concerns about safety also impacted the number of staff available to respond.

**Recommendation:** Evaluate establishing additional compensation for staff that must work during an emergency event/City closure. Assess safety protocols and create a structured safety program and team during emergencies.

**Opportunity:** City and County should have greater awareness and maintain records of when people are not available (e.g., sleeping after an overnight shift, off duty, sick, etc.).

**Recommendation:** Document and train WebEOC users to enter their team shift date and time, team member statuses if they are off duty, and current primary contact.

**Observation:** City and County budgeted for this event successfully using individual City and County departmental funding. However, this method of funding for a disaster causes delays in providing services and financially burdens the department.

**Recommendation:** City and County must evaluate finance and budget implications and consider establishing a special disaster budget to manage future disasters to allow departments to respond more effectively and efficiently. City and County will also evaluate the need to make emergency contracts accessible to all City departments to support disaster response and recovery.

**Observation:** Departmental contract management teams were unaware of available Corporate Purchasing support.

**Recommendation:** City and County should ensure Corporate Purchasing has an EOC presence and notify departmental teams of available resources.

**Observation:** There were reports received that some contractors displayed unsafe behaviors. Also, many staff needing to report to their emergency assignment (e.g., EOC) were apprehensive about driving on icy roads.

**Recommendation:** City and County should review contractor safety plans and conduct site safety checks. Checks should ensure vendors compliance with OSHA standards.

Additionally, develop an employee-transport program with appropriate traction devices to shuttle employees between home and their emergency assignment site and/or temporary lodging site.

**Observation:** Many first responder facilities were without power for different time periods throughout the event. The lack of power seriously affects the living conditions for responders who are working for 24 hour (or longer) shifts to serve the residents.

**Recommendation:** City and County should prioritize first responder facilities for generator installation. In addition, the City and County should track which facilities have power at any given time and that facility’s available capacity.
Observation: Security personnel were a scarce resource at shelters.

Recommendation: City and County should fully review, document, and implement plans for addressing special security needs at shelters and ensuring that appropriate security resources are secured/contracted ahead of disaster. Multiple strategies for efficient use of this resource should be assessed.

Observation: City and County should improve their knowledge of needs and capabilities of potential relief center/shelter locations. Some shelters lost power and lacked generators which resulted in having to move shelter guests to another shelter.

Recommendation: City and County should first utilize shelters with generators and spaces that could be utilized as relief centers and spaces to pre-stage resources, supplies, equipment etc. Evaluate the City’s mass sheltering practices and available facilities and expand and improve sheltering capabilities both locally and regionally.

Additionally, the EOC should have contact information for primary, secondary, and tertiary personnel at each shelter. APH should confirm prior to winter that contracted services can fulfill the contract with services such as janitorial and food services and be able to surge and expand when needed.

Observation: City and County assistance available to its residents was not communicated effectively.

Recommendation: City and County should assess the requirements of a community shelter and address gaps between current shelters and those requirements. City and County should assess whether additional facilities are needed beyond the current inventory.

Observation: City and County did not have access to an inventory of equipment, including a listing of equipment temporarily unavailable due to needed repairs.

Recommendation: City and County should implement a system for recording, tracking, and reporting on equipment, including personal protective equipment, assets, and supplies throughout the City and County that can be shared at the EOC. There is a need to execute collection and heavy equipment rental units sooner, and to maintain a supply of magnetic vehicle signage to identify unmarked vehicles used by the City and County during emergency events. Gear should be standardized for each type of emergency (flooding, freezing, etc.) as well as the work assignment.

Observation: Repeated power outages resulted in ATD staff returning to some traffic signals and school zone beacons multiple times for restoration. This stretched ATD’s response resources. Power outages also extended beyond the lifespan of backup batteries (6-10 hours).

Recommendation: The City and County should conduct a needs assessment for traffic signal back-up batteries and ensure there is adequate storage and sourcing contracts in place for backup batteries.

Observation: Due to the magnitude of damage, PARD was under-resourced to remediate PARD locations in an efficient manner.

Recommendation: MOUs with City Departments should be established to assist PARD
with remediation efforts.

**Observation:** Staff resources were not immediately identified and available to coordinate with State and Federal agencies for cost recovery.

**Recommendation:** Damage and expense information must be gathered quickly, efficiently, and to the high standard needed for cost recovery. A clear, documented, and resourced cost recovery process should be implemented.
Focus Area 5: Technology & Infrastructure

This focus area includes systems and technology to support debris management, transportation, traffic signal management, 311/ Austin Energy tools, EOC system, communication systems, COOP and Disaster Recovery Planning systems, aging infrastructure, etc.

The significant loss of power during Winter Storm Mara greatly impacted command and logistics personnel as the winter weather event progressed. Solutions to low battery levels, personal hygiene needs, and food preparation required a significant amount of effort and time to overcome for responding staff. The City and County can improve by investing in stabilization and redundancy of power, encouraging multiple levels of departmental and employee preparedness, and skilled surge staff to expedite restoration in the events when extensive failure occurs.

Strengths

- ATD’s Mobility Management Center was able to remotely reset 34% of the signals in flash mode to normal operation, resulting in less delays to the community and avoiding sending staff to the field during the winter weather.
- The ability of 3-1-1 to set up service requests for sheltering out in the field worked well.
- ATD developed a solution during the storm to mitigate traffic safety concerns with the City deploying stop signs and swapping out batteries at a limited number of traffic signals without power.

Key Areas Identified for Improvement (Opportunities)

Observation: Public facing maps (Austin Energy, ARR and ATD) did not always reflect accurate data or the level of detail that residents wanted. For example, ATD’s public facing map which shows traffic signals in flash mode had discrepancies from actual field conditions.

Recommendation: City departments should continue to evaluate the technological procedures and limitations of public-facing maps and seek to improve reporting and communications deemed necessary to aid large-scale events.

Observation: ATD deployed stop signs and managed the swapping out of battery backups at a limited number of traffic signals without power given available resources. However, having a pre-prioritized list of traffic signals would have helped ensure the highest priority locations received the limited resources.

Recommendation: Develop a Standard Operating Procedure for prioritizing traffic signals without power based on safety risk. Identify and design appropriate treatments for each signal (e.g., swap batteries, stop signs, temporary roundabouts). Determine organizational capacity to deploy and manage stop signs and swapping batteries. Purchase materials that match this capacity.

Observation: Due to power outages, ATD’s communication system lost contact with roughly half...
the traffic signals (515 signals, 51%). This caused a lack of awareness of the traffic signals’ statuses, meaning it was not possible to tell whether impacted traffic signals were without any power, in flash mode or operating normally. This impacted the ability to plan resources to restore signals to normal operation.

**Recommendation:** ATD should explore technology that can notify the Mobility Management Center when a traffic signal loses power. This would provide a solution to maintain situational awareness and plan for recovery during wide-scale communication outages.

**Observation:** City and County Departments experienced incompatibility issues using technology platforms to communicate and share documents. There was not a single platform used that was universally compatible.

**Recommendation:** The City should evaluate technology platforms that can be used by all stakeholders. Engage City and County technology experts to develop a tool that allows communication across different mediums. Assess solutions for City and County to share documents in a manner that meets all security and asset protection concerns, and allows for a unified approach to storing, naming, and organizing files.

**Observation:** A critical area of difficulty, especially for those working and managing shelters, was language translation.

**Recommendation:** The City utilizes an app called Voiance Interpreter or Cyracom Interpreter to provide over the virtual interpretation. The City and County should establish an agreement to ensure this resource can be utilized at City and Count shelter facilities. Additionally, the City and County should provide appropriate staff training for use of the interpreter application and ensure an adequate supply of tablet PCs with the application and hotspots for internet access are provided at needed locations.

**Observation:** City and County communications did not reach all communities that speak languages other than English.

**Recommendation:** City and County should continue to investigate options to reach communities speaking languages other than English on platforms such as WhatsApp.

**Observation:** During this event, the right-to-left alignment for alerts pages in languages such as Pashto or Arabic was not working as expected. This resulted in scrambled text until corrected by the CTM.

**Recommendation:** Train Language Access staff serving on the EOC JIC/JIS PIO team how to use Drupal so they can effectively update the website alerts page. Evaluate alternative technology that allows for reliable, culturally relevant, and faster translation to reduce dependency on and delays with human translation. CTM will continue to be a part of the resources and process to support website or technical issues.

**Observation:** City and County lacked a single public facing map that showed all hazards and recovery efforts.

**Recommendation:** City and County should explore the development of a comprehensive...
technology tool to source as much disaster-related data as possible in a single source of information. The goal is to minimize confusion of where to find information such as outage maps, street conditions, shelters, etc.

Working Together to Protect Water Supply

**Unmet Need:**
Community was concerned how a prolonged power outage would impact water treatment plants.

**Solution in Action:**
Austin Water prepared sites prior to the onset of winter weather. Crews insulated piping and equipment at critical facilities and readied personnel by procuring supplies such as cots, boot spikes, tire chains and food.

Austin Water crews employed sanding and de-icing procedures and used heaters to support critical facilities.

Austin Water electricians and technical staff distributed generators around the system to provide power generation until full restoration of power to all facilities was achieved.

The Customer Service Contact Center ensured round-the-clock coverage for the emergency services phone line. A bottled water supply was maintained and ready to distribute according to plan.
Focus Area 6: Shelter Management

This section includes primary and secondary shelter identification, planning, preparedness, resource allocation, tracking and coordination; re-deployment of employee resources, volunteer and shelter guest communications and management; and shelter security and protection.

This section on Shelter Management incorporates the following Core Capabilities:

- Logistics & Supply Chain Management
- Planning
- Operational Coordination
- Infrastructure Systems
- Critical Transportation
- Mass Care Services
- Housing

Strengths

- HSEM, APH, ATCEMS, APL and other departments collaborated well to identify vulnerable populations and provide resources for them.
- Staff with unhoused resident experience worked at libraries as a trusted resource, and APL ensured that selected libraries stayed open, welcoming, and providing essential needs.
- A process was in place to shelter those who needed skilled nursing care by leveraging the Capital Area Sheltering Hub Plan (CASHP), placing people in nursing homes and long-term care facilities, and working closely with ATCEMS.
- Pre-executed contracts with AAUL were significant and helped to staff the first three shelters.
- City staff signup for shelter support was considered successful and was helped significantly by the online signup system.
- HSEM pre-positioned mission ready packages that contained critical supplies such as cots, blankets, heater meals and water near potential shelters and throughout the City for quick distribution.

Key Areas Identified for Improvement (Opportunities)

Observation: City and County should improve shelter management coordination and training activities prior to the event. There needs to be a distinct separation of cold weather shelters for unhoused residents, mega-shelters, emergency shelters, CASHP, warming and cooling centers, and training for each of the types of operations. A clear intake process needs to address the functional needs of the populations.

Recommendation: The City and County should implement a program or system to
categorize and document the different types of available shelters to include each facility’s amenities/assets and document and reference relevant memorandums of understanding.

In addition, the City and County should harden buildings identified as possible shelter locations to include backup power. They should also develop a staffing plan to allow for quick onboarding of reassigned employees and volunteers during a disaster event. This staffing plan should have multiple contingencies and backups due to the difficulty of getting people to respond in tough conditions when transportation infrastructure is impacted, and many employees’ own families are affected.

Observation: When a shelter is being opened, it is important to prepare for all community needs in order to best serve the population. During Winter Storm Mara, difficulties arose on how to address special security needs as well as shelter individuals with animals and pets. Shelter staff were not notified in advance of any special circumstances en route.

Recommendation: In an emergency there is a balance between speed of getting people to shelter and thoroughness of process where specialized needs are made known and communicated in advance to the shelters. The City and County should identify which needs must be pre-identified, if any, and identify some expedient solutions for any unique sheltering needs, such as: animals, mobility challenges, medical needs, special security needs, children and families, etc. Specific facilities could be identified for families. In addition, security coverage solutions and janitorial services need to be included in the planning effort.

Observation: People working in the shelter should be shelter management trained and clearly identified with vests or some other markings.

Recommendation: The Shelter Management Plan should incorporate a program to both exercise the plans and to train and educate Shelter Management staff (contracted staff, City and County employees and volunteer resources). The number of shelter manager classes and staff trained as shelter managers should be increased. A method for quick on-site identification of staff needs to be determined.

Observation: There were capacity issues by initially planning for only three shelters.

Recommendation: Options should be provided to expand upon the current cold weather shelter contract. Analysis of the embarkation process of shelters needs to be evaluated to address capacity and staffing levels. Evaluation should also address the staging of resources.

Observation: There was a lack of communication with the community regarding shelters available for people who were without power in their homes. The availability of the Marshalling Yard as a general shelter was not communicated until late in the response period.

Recommendation: City and County should review best practices in sheltering and determine whether, and under what circumstances, the population is best served by separate shelters for different vulnerable populations (children, homeless, etc.), or whether all shelters should be open to all.

Recommendation: This should include an inventory of shelter space and resources
available, and a gap analysis of whether those resources can meet the identified need.

**Recommendation:** Messages to be broadcast to the general population regarding shelter processes/openings must be crafted ahead of time and be clear and precise in a way the public will easily understand. This should be a part of the Shelter Management Planning initiative.

**Observation:** The City and County should evaluate better ways and methods to reach out to the aging population and those who may need transportation assistance to shelters.

**Recommendation:** City and County should educate and encourage the aging community, people with medical or mobility issues, and those without transportation to register and utilize the Texas Division of Emergency Management's STEAR (State of Texas Emergency Assistance Registry) process. The STEAR program is a free registry that provides local emergency planners and emergency responders with additional information on the needs in their community.

**Observation:** City and County has established training for the CASHP/Hurricane evacuation shelter management, however there is not sheltering training for localized disasters.

**Recommendation:** Develop recurring city-wide training for localized disasters to include situations like check in, expectations, mental health, working with unhoused residents.

**Observation:** Relief centers (e.g., libraries) needed assistance with high needs populations.

**Recommendation:** City and County should identify and include resources/contacts such as case workers and physicians as part of the Shelter Management planning project.

**Observation:** There was a need to streamline registration and transportation processes for people seeking shelter in order to make transport easier.

**Recommendation:** The process to register and transport people experiencing homelessness to cold weather shelters is documented and followed. It is also documented for hurricane evacuees being sheltered in the Austin area. City and County should include and document the registration and transportation process for the local general population seeking shelter in local disasters. Shelter planning should consider the consolidation of daytime and nighttime shelter capabilities in one location.

**Observation:** Lack of clear financial and human resources protocols for City and County employees to sign up to staff shelters during incidents led to delays.

**Recommendation:** City and County should outline policies and protocols to detail spending, compensation, and staffing during disasters as it relates to shelters.

**Observation:** There is a need to identify animal sheltering resources that expand upon Animal Shelter capabilities to include the identification of facilities with additional space for pet crates, large animals, etc.

**Recommendation:** City and County should include and document animal sheltering resources that expand upon Animal Shelter capabilities in procedures and resources/contracts as part of the Shelter Management planning project.
Working Together to Provide Shelter Access

Unmet Need:
Central Library was serving as a Warming Center where 175 people were gathered in that space during the day and needed to get to an overnight shelter. This normally involves travelling to a registration site and then to a shelter.

Solution in Action:
Austin Public Library, Downtown Austin Community Court, Homeless Strategy Division of Austin Public Health, and CapMetro quickly recognized that transportation needed to be streamlined to make the experience more efficient and customer friendly. Given that so many people were congregated in one place it meant that entire shelters could be filled directly with this group. To reduce the number of times people had to move around before being sheltered, the Downtown Austin Community Court staff and Homeless Strategy Division went to the Warming Center at Central Library and directly registered the people needing shelter there. CapMetro then provided transportation directly from the Warming Center to the overnight shelter.

This process allowed those needing shelter to board just one bus with their belongings to get to a shelter more efficiently.
Conclusion and Next Steps

This report has provided a comprehensive analysis of the Winter Storm Mara response, offering valuable insights into its successes and challenges. Through this review, the City and County have gained a deeper understanding of the strengths and weaknesses that emerged and have started the improvement process.

The strengths underscore the effectiveness of our collaborative efforts, strategic planning, and timely execution. We showcased our ability to adapt to dynamic situations and deliver quality results.

Challenges encountered during the response illuminated several areas that warrant further attention. Communication breakdowns during critical phases of the Mara response highlighted the need to maintain frequent and reliable communications across various mediums. As the Austin-metro area experiences more extreme weather events, better communication options and stronger protocols for communicating with internal and external stakeholders has become vital to a successful and prompt emergency response. The past few years have taught us that the time is now to consider all types of emergencies and to not only be prepared for historically probable events.

Important lessons learned include tempering expectations of recovery time, building community resilience and the need for more robust contingency planning to mitigate obstacles.

As we move forward, it is imperative that we capitalize on the successes while proactively addressing areas for improvement. By adhering to the recommendations outlined in this report, we are poised to elevate the response to the next disaster.

The next steps in this process will be to develop a Corrective Action Plan and Implementation Strategy with all key partners. This plan will include more scenario-based training, defined communication protocols and a comprehensive resource allocation plan. The Corrective Action Plan will be finalized within three months. Upon approval, the action items will be added to the Community Resiliency Improvement Status Portal (CRISP) to be managed and tracked through completion or closure.
Appendix
## Appendix A: The 21 Core Capabilities of Focus

<table>
<thead>
<tr>
<th>Core Capability</th>
<th>Description</th>
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<tbody>
<tr>
<td>Planning</td>
<td>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.</td>
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<tr>
<td>Public Information and Warning</td>
<td>Deliver coordinated, prompt, reliable, and actionable information to the whole community.</td>
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<tr>
<td>Operational Coordination</td>
<td>Establish and maintain a unified and coordinated operational structure.</td>
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<tr>
<td>Risk and Disaster Resilience Assessment</td>
<td>Assess risk and disaster resilience so that decision makers, responders, and community members can take informed action to reduce their entity’s risk and increase their resilience.</td>
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<tr>
<td>Community Resilience</td>
<td>Enable the recognition, understanding, communication of, and planning for risk and empower individuals and communities to make informed risk management decisions.</td>
</tr>
<tr>
<td>Long-term Vulnerability Reduction</td>
<td>Build and sustain resilient systems, communities, and critical infrastructure and key resources lifelines so as to reduce their vulnerability to threats and hazards.</td>
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<tr>
<td>Threats and Hazards Identification</td>
<td>Identify the threats and hazards that occur in the geographic area; determine the frequency and magnitude; and incorporate this into analysis and planning processes so as to clearly understand the needs of a community or entity.</td>
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<tr>
<td>Environmental Response/Health and Safety</td>
<td>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.</td>
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<tr>
<td>Critical Transportation</td>
<td>Provide transportation for response priority objectives.</td>
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<tr>
<td>Situational Assessment</td>
<td>Provide all decision makers with decision-relevant information regarding the nature and extent of the hazard, any cascading effects, and the status of the response.</td>
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<td>Infrastructure Systems</td>
<td>Stabilize critical infrastructure functions, minimize health and safety threats, and efficiently restore and revitalize systems and services to support a viable, resilient community.</td>
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<tr>
<td>Logistics and Supply Chain Management</td>
<td>Synchronize logistics capabilities and enable the restoration of impacted supply chains.</td>
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<tr>
<td>Mass Care Services</td>
<td>Including hydration, feeding, sheltering, temporary housing, evacuee support, reunification, and distribution of emergency supplies.</td>
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<tr>
<td>Mass Search and Rescue Operations</td>
<td>Deliver traditional and atypical search and rescue capabilities, including personnel, services, animals, and assets to survivors in need, with the goal of saving the greatest number of endangered lives in the shortest time possible.</td>
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<tr>
<td>Core Capability</td>
<td>Description</td>
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</tr>
<tr>
<td>On-Scene Security, Protection, and Law Enforcement</td>
<td>Ensure a safe and secure environment through law enforcement and related security and protection operations for people and communities located within affected areas and also for response personnel engaged in lifesaving and life-sustaining operations.</td>
</tr>
<tr>
<td>Operational Communications</td>
<td>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.</td>
</tr>
<tr>
<td>Public Health, Healthcare, and Emergency Medical Services</td>
<td>Provide lifesaving medical treatment via Emergency Medical Services and related operations.</td>
</tr>
<tr>
<td>Health and Social Services</td>
<td>Restore and improve health and social services capabilities and networks to promote the resilience, independence, health (including behavioral health), and well-being of the whole community.</td>
</tr>
<tr>
<td>Economic Recovery</td>
<td>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.</td>
</tr>
<tr>
<td>Natural and Cultural Resources</td>
<td>Protect natural and cultural resources and historic properties through appropriate planning, mitigation, response, and recovery actions to preserve, conserve, rehabilitate, and restore them consistent with post-disaster community priorities.</td>
</tr>
<tr>
<td>Housing</td>
<td>Implement housing solutions that effectively support the needs of the whole community and contribute to its sustainability and resilience.</td>
</tr>
</tbody>
</table>
# Appendix B: Focus Areas of the AAR

Table 2: How the Focus Areas link to FEMA’s Core Capabilities and Mission Areas.

## How the AAR Focus Areas linked to FEMA’s Core Capabilities and Mission Areas

### Communications

- **1. Public Information & Warning**
- **2. Operational Coordination**
- **3. Operational Communications**
- **4. Community Resilience**
- **5. Planning**

**Mission Areas:**
- Protection
- Response
- Recovery

### Planning & Preparedness

- **1. Planning**
- **2. Community Resilience**
- **3. Long-term Vulnerability Reduction**
- **4. Threats & Hazards Identification**
- **5. Critical Transportation**
- **6. Logistics & Supply Chain Management**
- **7. Mass Care Services**
- **8. Housing**

**Mission Areas:**
- Protection
- Mitigation
- Response
- Recovery

### Operational Coordination

- **1. Operational Coordination**
- **2. Planning**
- **3. Public Information & Warning**
- **4. Operational Communications**
- **5. Community Resilience**

**Mission Areas:**
- Protection
- Mitigation
- Response
- Recovery

### Resource & Asset Management

- **1. Planning**
- **2. Operational Coordination**
- **3. Infrastructure Systems**
- **4. Critical Transportation**
- **5. Logistics & Supply Chain Management**
- **6. Mass Care Services**
- **7. Housing**

**Mission Areas:**
- Protection
- Mitigation
- Response
- Recovery

### Technology & Infrastructure

- **1. Infrastructure Systems**
- **2. Planning**
- **3. Operational Coordination**
- **4. Operational Communications**
- **5. Housing**

**Mission Areas:**
- Protection
- Mitigation
- Response
- Recovery

### Shelter Management

- **1. Logistics & Supply Chain Management**
- **2. Planning**
- **3. Operational Coordination**
- **4. Infrastructure Systems**
- **5. Critical Transportation**
- **6. Mass Care Services**
- **7. Housing**

**Mission Areas:**
- Protection
- Mitigation
- Response
- Recovery
## Appendix C: Action Item Recommendations

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendations</th>
<th>Focus Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>City and County should enter into Memorandums of Understanding for AM/FM radio and ham radio communication. City and County should evaluate other forms of low or no technology communication methods.</td>
<td>Communication</td>
</tr>
<tr>
<td>2.</td>
<td>Investigate and implement technology or procedures to address non-compatible systems communications at time of emergency between the EOC, DOCs, County entities and key outside entities.</td>
<td>Communication</td>
</tr>
<tr>
<td>3.</td>
<td>Develop/enhance Emergency Management and Communication Plans to determine the protocols/documents/communications/reporting needed to establish EOC coordinated communications between the EOC and DOCs (internal) and the public (external). Ensure these plans are regularly maintained, distributed and are immediately available at time of incident to all required parties.</td>
<td>Communication</td>
</tr>
<tr>
<td>4.</td>
<td>The City and County should evaluate how to best communicate with its residents when digital and electricity-dependent platforms are unavailable.</td>
<td>Communication</td>
</tr>
<tr>
<td>5.</td>
<td>The City and County should endeavor to educate residential and business customers to better prepare for the most serious of natural and human-made disasters and to adjust recovery expectations as the City and County experiences more extreme weather events.</td>
<td>Communication</td>
</tr>
<tr>
<td>6.</td>
<td>Residents should be encouraged to take appropriate proactive actions, including updating contact information, signing up for outage alerts and highlighting the need for personal emergency kits and family emergency plans.</td>
<td>Communication</td>
</tr>
<tr>
<td>7.</td>
<td>The City should develop and document pre-scripted communication messages for multiple differing emergency scenarios that can quickly be accessed and amended to reflect the ongoing messaging requirements of the incident. These can</td>
<td>Communication</td>
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<tr>
<td>No.</td>
<td>Recommendations</td>
<td>Focus Area</td>
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<tr>
<td></td>
<td>be translated into multiple languages ahead of time and stored in the scenario message library.</td>
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<tr>
<td>8.</td>
<td>Not all messages can be pre-planned and pre-translated. To supplement contracted translation services, identify, record and track a comprehensive list of people (employees &amp; volunteers) with different language skills.</td>
<td>Communication</td>
</tr>
<tr>
<td>9.</td>
<td>Develop an Emergency Communication Plan that includes new protocols for communications prior to and during an EOC activation.</td>
<td>Communication</td>
</tr>
<tr>
<td>10.</td>
<td>Revisit and restructure EOC and ICS Planning &amp; Coordination. Provide additional (ongoing) training on the operation of JIS and EOC to ensure all PIO teams understand how they are supposed to function.</td>
<td>Communication</td>
</tr>
<tr>
<td>11.</td>
<td>CMO should implement required direction to all PIO teams to abide by JIS and EOC principles. CPIO and/or the JIS need to be empowered to call on department directors and PIO teams to coordinate and participate in joint messaging, announcements, media events and releases.</td>
<td>Communication</td>
</tr>
<tr>
<td>12.</td>
<td>Evaluate 3-1-1’s operational and technical capacity and consider emergency and high-volume mitigation protocols/procedures by City Departments to communicate with residents throughout the City to ease the burden on 3-1-1.</td>
<td>Communication</td>
</tr>
<tr>
<td>13.</td>
<td>An Operational Communication Plan should be in the comprehensive Shelter Management Plan. Ideally, the City should have separate facilities for unhoused residents, families, etc.  The City should offer basic needs and services at congregate shelters. Residents need to know that hotel space is not guaranteed. The communications plan for sheltering must be clear, informative, and concise to avoid community confusion and uncertainty.</td>
<td>Communication</td>
</tr>
<tr>
<td>14.</td>
<td>The City should invest in communication technology solutions in the EOC to handle coordination, data sharing and access for all stakeholders.</td>
<td>Communication</td>
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<tr>
<td>No.</td>
<td>Recommendations</td>
<td>Focus Area</td>
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<tr>
<td>15.</td>
<td>The City and County should have documented and detailed shelter management plans that consider all needed shelter types and needs of different communities such as residents with animals, unhoused residents, medically fragile residents, etc. Policy decisions should be made to determine triggers for prioritizing city-owned facilities for emergency use over day-to-day programming. Additionally, Travis County will need to plan for areas outside of City limits.</td>
<td>Planning &amp; Preparedness</td>
</tr>
<tr>
<td>16.</td>
<td>The City and County must implement a program or system to categorize and document the different types of available city and county shelters to include each facility’s amenities/assets and document and reference relevant Memorandums of Understanding (MOU).</td>
<td>Planning &amp; Preparedness</td>
</tr>
<tr>
<td>17.</td>
<td>The City and County must harden buildings identified as possible shelter locations, to include backup power, air conditioning, etc.</td>
<td>Planning &amp; Preparedness</td>
</tr>
<tr>
<td>18.</td>
<td>The City and County should make improvements to their outreach and educational programs to empower the community to prepare for natural and human-made disasters. This should be a robust program that includes the education of different types of emergencies and appropriate proactive actions, such as signing up for outage alerts and highlighting the need for emergency kits and family emergency plans that consider sheltering.</td>
<td>Planning &amp; Preparedness</td>
</tr>
<tr>
<td>19.</td>
<td>The City should evaluate the process of supporting Medically Vulnerable Registry (MVR) customers during long-duration outages and educating the customers on additional preparation they can provide. The City should evaluate the MVR program and identify practical improvements to further aid medically vulnerable residents.</td>
<td>Planning &amp; Preparedness</td>
</tr>
<tr>
<td>20.</td>
<td>The City should implement a process to update and encourage the use of the MVR.</td>
<td>Planning &amp; Preparedness</td>
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<tr>
<td>21.</td>
<td>Departmental COOP planning should be incorporated into a comprehensive program to ensure the execution of essential functions through all circumstances. The City and County should implement a formal COOP program to review and update existing</td>
<td>Planning &amp; Preparedness</td>
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</table>
| (cont.) | Department COOP plans that have a direct correlation to the City's mission essential functions. Key requirements should include:  
  - Formal Business Impact Analysis - identify and determine mission essential functions  
  - COOP revision, rebuild or create.  
  - COOP tabletop exercises and training  
  - COOP final (owner/peer) review & approval.  
  - Track & report COOP maintenance & approval cycle across all departments. | Planning & Preparedness (cont.) |
| 22. | The City should create a comprehensive planning program to implement life-cycle procedures to review EOC plans and incorporate mandatory training. Key requirements should include:  
  - EOC plan revisions, rebuild or create  
  - EOC plan exercise program  
  - EOC plan final (owner/peer) review & approval  
  - EOC ICS-NIMS training program  
  - Track & report EOC plan maintenance & approval cycle | Planning & Preparedness |
<p>| 23. | The City and County should work to identify and implement procedures to protect utility response and restoration personnel. This should include specific procedures for ensuring field-level security of responding team members. | Planning &amp; Preparedness |
| 24. | City, County, and other support agencies should plan a coordinated deployment of resources to clear debris on rights-of-way by establishing a systematic approach to clearing debris that includes a shared map. In addition, a standard communication to the public should be developed to detail reporting requirements. | Planning &amp; Preparedness |
| 25. | City and County should collaborate with arborists to educate the public on property owner responsibilities regarding proper care for trees that are not near power lines but could pose a risk during extreme weather events. | Planning &amp; Preparedness |
| 26. | Staffing requests need roles and duties pre-identified where possible. Tools are needed to quickly identify staff with certain skills, training and licenses. | Planning &amp; Preparedness |</p>
<table>
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<th>No.</th>
<th>Recommendations</th>
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<tr>
<td>27.</td>
<td>The City and County should establish a formal ICS training program for all departments to help clarify roles and responsibilities in a disaster event that allows for continuous training and practice to prepare for disaster events. In addition, the City of Austin EOC should create and share clear organizational charts establishing command and control for disaster related events that involve more than one department addressing a specific issue.</td>
<td>Planning &amp; Preparedness</td>
</tr>
<tr>
<td>28.</td>
<td>The City and County should evaluate common software or practices used to update or communicate status to internal and external key stakeholders. Once identified, formal ICS training of this software and practices should be mandated and City and County should require certification/recertification for all EOC representatives.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>29.</td>
<td>The City should review messaging services to ensure it is using the best tool possible for messaging EOC representatives and leadership. In addition, there should be a city-wide tool to communicate important messaging to all employees.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>30.</td>
<td>The City and County should continue to proactively reach out to neighborhood groups to increase preparedness. The coordination HSEM has had with Go Austin Vamos Austin (GAVA) in creating preparedness guides should be replicated in other communities. The City and County should evaluate the feasibility of a block leader program.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>31.</td>
<td>The City should create and document information for representatives in the EOC to include a list of what EOC staff will need during an EOC activation.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>32.</td>
<td>Conduct a risk analysis of transportation methods used in inclement weather for vulnerable residents. Analyze safety and liability issues, and insurance considerations. The City should evaluate transportation options available to the community and determine under what conditions city staff are best utilized to support such transport.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>33.</td>
<td>All relevant Department plans should link directly to the EOC plans to ensure life safety and continuation of critical services.</td>
<td>Operational Coordination</td>
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<td>No.</td>
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<tr>
<td>34.</td>
<td>City and County should apply COOPs and practice regularly with inter-department coordination exercises. City and County should also increase FEMA/ICS training and adopt a clearer structure for directives and reporting such as Unity of Command to include clear communication plans and protocols with training for power loss situations.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>35.</td>
<td>A complete review and redesign of communication protocols between Austin Area Urban League (AAUL) and APH needs to be performed and plans updated and/or implemented. This plan should include the involvement of other necessary City departments and offices. In addition, a thorough review of all mass care plans and communications on what residents should bring with them to a congregate shelter is needed.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>36.</td>
<td>City and County should develop Standard Operating Procedures (SOPs) for emergency response outlining staff and division responsibilities and needs. This should include identifying and training additional staff to serve in the EOC and should consider requiring a certain number of staff from each division to respond to emergencies. Develop an online tool for staff to sign up for shifts. Inform staff of essential status in advance of future events.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>37.</td>
<td>City and County should implement a planning policy that all Departments involved in an EOC activation must review and update their Emergency Response and COOP plans within 60 days of the EOC deactivation.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>38.</td>
<td>Training and information should be provided to elected officials on emergency response and recovery protocols and what they can expect the city to provide in various emergencies.</td>
<td>Operational Coordination</td>
</tr>
<tr>
<td>39.</td>
<td>Execute City-wide and County-wide programs to capture and record employees’ skills and attributes to be used during assignment of tasks during an emergency. Skills and attributes should include certifications, languages, vehicle and equipment training, etc.). Develop and implement protocol to ensure that each department has an incident management team and a trained pool of pre-identified staff available for emergency response activations.</td>
<td>Resource &amp; Asset Management</td>
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<tr>
<td>40.</td>
<td>City and County should work to train and utilize staff to provide emergency assistance in areas beyond their normal job description to help overall efforts. Update all job descriptions to include language that the employee may be required to work during emergencies or bad weather if they are scheduled to work and, in some cases, when they are not scheduled. Develop a structured training and response program for staff with pre-identified skills who can perform specific critical response functions in an emergency.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>41.</td>
<td>Evaluate the establishment of additional compensation for staff that must work during an emergency event/City closure.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>42.</td>
<td>Assess safety protocols and create a structured safety program and team during emergencies.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>43.</td>
<td>Document and train WebEOC Users to enter their team shift date and time, team member statuses if they are off duty, and current primary contact.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>44.</td>
<td>City and County must evaluate finance and budget implications and consider establishing a special disaster budget to manage future disasters to allow departments to respond more effectively and efficiently. City and County will also evaluate the need to make emergency contracts accessible to all City Departments to support disaster response and recovery.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>45.</td>
<td>City and County should ensure Corporate Purchasing has an EOC presence and notify departmental teams of available resources.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>46.</td>
<td>City and County should review contractor safety plans and conduct site safety checks. Checks should ensure vendors compliance with OSHA standards.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>47.</td>
<td>Develop an employee-transport program with appropriate traction devices to shuttle employees between home and their emergency assignment site and/or temporary lodging site.</td>
<td>Resource &amp; Asset Management</td>
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<tr>
<td>No.</td>
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<tr>
<td>48.</td>
<td>City and County should prioritize first responder facilities for generator installation. In addition, the City and County should track which facilities have power at any given time and that facility’s available capacity.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>49.</td>
<td>City and County should fully review, document, and implement plans for addressing special security needs at shelters and ensuring that appropriate security resources are secured/contracted ahead of disaster. Multiple strategies for efficient use of this resource should be assessed.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>50.</td>
<td>City and County should first utilize shelters with generators and spaces that could be utilized as relief centers and spaces to pre-stage resources, supplies, equipment etc. Evaluate the City's mass sheltering practices and available facilities, and expand and improve sheltering capabilities both locally and regionally.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>51.</td>
<td>The EOC should have contact information for primary, secondary, and tertiary personnel at each shelter. APH should confirm prior to winter that contracted services can fulfill the contract with services such as janitorial and food services and be able to surge and expand when needed.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>52.</td>
<td>City and County should assess the requirements of a community shelter and address gaps between current shelters and those requirements. City and County should assess whether additional facilities are needed beyond the current inventory.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>53.</td>
<td>City and County should implement a system for recording, tracking, and reporting on equipment including personal protective equipment, assets, and supplies throughout the City and County that can be shared at the EOC. There is a need to execute collection and heavy equipment rental units sooner, and to maintain a supply of vehicle magnets to identify personal/unmarked vehicles used by City and County during emergency events. Gear should be standardized for each type of emergency (flooding, freezing, etc.) as well as the work assignment.</td>
<td>Resource &amp; Asset Management</td>
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<tr>
<td>No.</td>
<td>Recommendations</td>
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<tr>
<td>54.</td>
<td>The City and County should conduct a needs assessment for traffic signal back-up batteries and ensure there is adequate storage and sourcing contracts in place for backup batteries.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>55.</td>
<td>Memorandums of Understanding with City Departments should be established to assist PARD with remediation efforts.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>56.</td>
<td>Damage and expense information must be gathered quickly, efficiently, and to the high standard needed for cost recovery. A clear, documented, and resourced cost recovery process should be implemented.</td>
<td>Resource &amp; Asset Management</td>
</tr>
<tr>
<td>57.</td>
<td>City Departments should continue to evaluate the technological procedures and limitations of public-facing maps and seek to improve reporting and communications deemed necessary to aid large-scale events.</td>
<td>Technology &amp; Infrastructure</td>
</tr>
<tr>
<td>58.</td>
<td>Develop a Standard Operating Procedure for prioritizing traffic signals without power based on safety risk. Identify and design appropriate treatments for each signal (e.g., swap batteries, stop signs, temporary roundabouts). Determine organizational capacity to deploy and manage stop signs and swapping batteries. Purchase materials that match this capacity.</td>
<td>Technology &amp; Infrastructure</td>
</tr>
<tr>
<td>59.</td>
<td>ATD should explore technology that can notify the Mobility Management Center when a traffic signal loses power. This would provide a solution to maintain situational awareness and plan for recovery during wide-scale communication outages.</td>
<td>Technology &amp; Infrastructure</td>
</tr>
<tr>
<td>60.</td>
<td>The City should evaluate technology platforms that can be used by all stakeholders. Engage City and County technology experts to develop a tool that allows communication across different mediums. Assess solutions for City and County to share documents in a manner that meets all security and asset protection concerns, and allows for a unified approach to storing, naming, and organizing files.</td>
<td>Technology &amp; Infrastructure</td>
</tr>
<tr>
<td>61.</td>
<td>The City utilizes an app called Voiance Interpreter or Cyracom Interpreter to provide over the virtual interpretation. The City and County should ensure adequate staffing and training for these tools.</td>
<td>Technology &amp; Infrastructure</td>
</tr>
<tr>
<td>No.</td>
<td>Recommendations</td>
<td>Focus Area</td>
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<td>(cont.)</td>
<td>County should establish an agreement to ensure this resource can be utilized at City and County shelter facilities. Additionally, the City and County should provide appropriate staff training for use of the interpreter application and ensure an adequate supply of tablet PCs with the application and hotspots for internet access are provided at needed locations.</td>
<td>Technology &amp; Infrastructure (cont.)</td>
</tr>
<tr>
<td>62.</td>
<td>City and County should continue to investigate options to reach communities speaking languages other than English on platforms such as WhatsApp.</td>
<td>Technology &amp; Infrastructure</td>
</tr>
<tr>
<td>63.</td>
<td>Train Language Access staff serving on the EOC JIC/JIS PIO team how to use Drupal so they can effectively update the website alerts page. Evaluate alternative technology that allows for reliable, culturally relevant, and faster translation to reduce dependency on and delays with human translation. CTM will continue to be a part of the resources and process to support website or technical issues.</td>
<td>Technology &amp; Infrastructure</td>
</tr>
<tr>
<td>64.</td>
<td>City and County to explore the development of a comprehensive technology tool to source as much disaster-related data as possible in a single source of information. The goal is to minimize confusion of where to find information such as outage maps, street conditions, shelters, etc.</td>
<td>Technology &amp; Infrastructure</td>
</tr>
<tr>
<td>65.</td>
<td>The City and County should implement a program or system to categorize and document the different types of available shelters to include each facility’s amenities/assets and document and reference relevant memorandums of understanding.</td>
<td>Shelter Management</td>
</tr>
<tr>
<td>66.</td>
<td>In addition, the City and County should harden buildings identified as possible shelter locations to include backup power.</td>
<td>Shelter Management</td>
</tr>
<tr>
<td>67.</td>
<td>The City and County should also develop a staffing plan to allow for quick onboarding of reassigned employees and volunteers during a disaster event. This staffing plan should have multiple contingencies and backups due to the difficulty of getting people to respond in tough conditions when transportation infrastructure is impacted, and many employees’ own families are affected.</td>
<td>Shelter Management</td>
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<td>Recommendations</td>
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<tr>
<td>68.</td>
<td>In an emergency there is a balance between speed of getting people to shelter and thoroughness of process where specialized needs are made known and communicated in advance to the shelters. The City and County should identify which needs must be pre-identified, if any, and identify some expedient solutions for any unique sheltering needs, such as: animals, mobility challenges, medical needs, special security needs, children and families, etc. Specific facilities could be identified for families. In addition, security coverage solutions and janitorial services need to be included in the planning effort.</td>
<td>Shelter Management</td>
</tr>
<tr>
<td>69.</td>
<td>The Shelter Management Plan should incorporate a program to both exercise the plans and to train and educate Shelter Management staff (contracted employees, City and County employees and volunteer resources). The number of shelter manager classes and staff trained as shelter managers should be increased.</td>
<td>Shelter Management</td>
</tr>
<tr>
<td>70.</td>
<td>A method for quick on-site identification of shelter staff needs to be determined.</td>
<td>Shelter Management</td>
</tr>
<tr>
<td>71.</td>
<td>City and County should review best practices in sheltering and determine whether, and under what circumstances, the population is best served by separate shelters for different vulnerable populations (children, homeless, etc.), or whether all shelters should be open to all. This should include an inventory of shelter space and resources available, and a gaps analysis of whether those resources can meet the identified need.</td>
<td>Shelter Management</td>
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<td>72.</td>
<td>Messages to be broadcast to the general population regarding shelter processes/openings must be crafted ahead of time and be clear and precise in a way the public will easily understand. This should be a part of the Shelter Management Planning initiative.</td>
<td>Shelter Management</td>
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<td>73.</td>
<td>City and County should educate and encourage the aging community, people with medical or mobility issues, and those without transportation to register and utilize the Texas Division of Emergency Management's STEAR (State of Texas Emergency Assistance Registry) process. The STEAR program is a free registry that provides local emergency planners and emergency</td>
<td>Shelter Management</td>
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<td>No.</td>
<td>Recommendations</td>
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<td>(cont.) responders with additional information on the needs in their community.</td>
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<td>74.</td>
<td>Develop recurring city-wide training for localized disasters to include situations like check in, expectations, mental health, working with unhoused residents.</td>
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<td>75.</td>
<td>City and County should identify and include resources/contacts such as case workers and physicians as part of the Shelter Management planning project.</td>
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<td>76.</td>
<td>The process to register and transport people experiencing homelessness to cold weather shelters is documented and followed. It is also documented for hurricane evacuees being sheltered in the Austin area. City and County should include and document the registration and transportation process for the local general population seeking shelter in local disasters. Shelter planning should consider the consolidation of daytime and nighttime shelter capabilities in one location.</td>
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<td>77.</td>
<td>City and County should outline policies and protocols to detail spending, compensation and staffing during disasters as it relates to shelters.</td>
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<td>78.</td>
<td>City and County should include and document animal sheltering resources that expand upon Animal Shelter capabilities in procedures and resources/contracts as part of the Shelter Management planning project.</td>
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Appendix D: Austin Energy After-Action Report
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The ice buildup on electric equipment and trees from Winter Storm Mara caused widespread damage and outages.
I. EXECUTIVE SUMMARY

Even through extreme conditions, Austin Energy strives to provide reliable power to its customers. Winter Storm Mara was a catastrophic, hurricane-level ice storm that greatly impacted Austin Energy’s customers in February 2023. In the wake of the storm, a peak of more than 170,000 customers were without power, 10.5 million trees were damaged, and call center representatives received 370,000 calls. Austin Energy understands the loss of power disrupted daily lives and hindered the ability of customers to carry out essential activities. The utility deeply regrets the hardships customers endured. Following the storm, Austin Energy worked through the root causes of the difficulties encountered in its response activities to draw valuable lessons to improve future performance.

Austin Energy is committed to the community it serves. This After-Action Review (AAR) Report demonstrates the utility’s focus on learning, growth, and resilience as it analyzes its response to the extraordinary challenges posed by February’s winter storm.

Key Observations and Recommendations

Austin Energy’s response to the February winter storm effectively mobilized additional personnel, requested mutual aid, and restored power without any reportable safety incidents. Other areas of response, though, need improvement. This report identifies those areas and provides recommendations for Austin Energy to enhance its operations and better serve the community. At a broad level, this report found the following categories in need of improvement:

1. **Communications and Customer Experience:** The ice storm and extended outages significantly impacted customers, causing extreme hardship. For example, Austin Energy did not provide an accurate estimation of when power would be restored. As crews made initial assessments on Wednesday, February 1, the first day of the storm, Austin Energy communicated that some customers may be without power for 12 to 24 hours. Later that same day, that messaging progressed to power may be out until Friday, February 3 — assuming this was like other storms where restoring a locked-out circuit restores nearly all customers served by that circuit. This underestimated the number of customers impacted by damaged equipment, downed wires, and fallen trees on downstream portions of the circuits. The extreme damage caused by the ice storm required multiple repairs on all parts of a circuit in order to bring all customers back online. As a result, Austin Energy created customer expectations that were not met. Had Austin Energy performed a full system assessment prior to announcing an estimated time of restoration, the extent of the damage would have been clearer, leading to a better understanding that it was going to take more than a week to fully restore power.

Further, Austin Energy’s outage map and outage reporting tools did not function as expected. This impeded Austin Energy’s ability to provide timely, informative, and accurate customer updates. For example, some customers experienced “timeouts,” which bumped them off the system when trying to interact with the two-way texting feature of the outage map and reduced the functionality of the automatic, two-way texting tool. Customers were also unable to determine if their outage was showing up on the map, which led to multiple outage reports. Austin Energy will continue to work with the outage map vendor to implement outage map enhancements and improve automated messaging platforms to improve customer engagement and transparency.

2. **Emergency Preparedness:** Ice storm conditions and the volume and extent of damage to the electrical distribution system were challenging for Austin Energy’s emergency response. Austin Energy was prepared for a short-duration outage event, like what the utility experiences during a severe thunderstorm with extreme winds. This event had vastly different challenges. For example, ice and trees continued to affect the electric system after the weather passed through the area, and the extent of damage to equipment and individual customers’ service created longer timelines to restore power. Adjusting the restoration process in real-time to match these conditions while making repairs created inefficiencies in Austin Energy’s response. Further, Austin Energy’s emergency preparedness drills had not simulated long-duration outage emergencies. Austin Energy is coordinating with peer utilities with experience in significant long-duration outages to enhance risk assessment and restoration methodologies and refine emergency plans for extreme weather events to improve response effectiveness in the future.
3. **Storm Response and Coordination:** Austin Energy faced operational challenges due to the lack of clear escalation protocols and seamless hand-offs between line crews and tree crews. For example, Austin Energy initially assigned more tree trimming crews than necessary to deploy with line crews and repair fully de-energized circuits. This delayed repairs on circuits with only partial outages. Austin Energy will focus on minimizing outage durations by improving the overall response and recovery process. This involves re-evaluating storm prioritization processes and defining restoration activities according to phases, which will better match the response to the current situation.

4. **Collaboration with Stakeholders:** Austin Energy experienced challenges in establishing and maintaining effective communication protocols and coordination with other City of Austin departments, emergency management agencies, other city officials in our service area, and neighboring entities. For example, expectations for coordination with the Communication and Public Information Office (CPIO) for a long-duration outage were not clearly defined. In a typical emergency situation, Austin Energy manages customer communications, regularly sharing updates and messaging with CPIO. At the start of this event, the lack of initial alignment of those expectations led to inefficiencies in collaboration.

Further, the power source location for traffic signal infrastructure is not well mapped for many locations. As a result, there were locations where Austin Energy and Transportation Public Works crews needed to conduct field research to identify the correct power source location for some traffic signals, leading to delays in addressing issues.

Since the February 2023 ice storm, CPIO has established new guidelines that all emergency communications, including with elected officials, be integrated with the EOC/JIC. Through continued communication and the establishment of common operating procedures, Austin Energy will strengthen its relationships with stakeholders to better facilitate common information, swift restoration, and effective use of resources during future events.

5. **Infrastructure Resilience:** While power outages from extreme weather cannot be eliminated, the February ice storm exposed vulnerabilities in Austin Energy’s infrastructure. Austin Energy will investigate measures to improve its infrastructure such as conducting a third-party study of burying power lines, adjusting tree-trimming policy to increase effectiveness, and enhancing operational resilience to reduce the impact of future extreme weather events and increase service reliability.

Extreme weather will affect the Austin area again. While Austin Energy cannot eliminate the possibility of long-duration outage events, the utility can work to minimize the impact to customers and provide better information in a more timely manner. Austin Energy is committed to a culture of learning and to applying the lessons from this event to drills, exercises, and training programs to mitigate risks and customer impacts of future events. The utility will continue to refine response procedures, strengthen decision-making processes, and foster innovation and adaptation.
When ice collects on trees, power lines and other equipment, it can cause serious damage. This pole gave way under the heavy weight of significant ice accumulation.
Ice Build Up over the Austin Energy Service Area

Ice Build Up

More than 0.5 inches of ice is considered to be significant.

AUSTIN ENERGY SERVICE AREA
SHARED SERVICE AREA
ZIP CODE BORDERS
AUSTIN CITY LIMITS
TRAVIS COUNTY

AUSTIN ENERGY SERVICE AREA
SHARED SERVICE AREA
0.5 INCHES
0.75 INCHES
II. EVENT DETAILS

As the weather system approached the Austin area on Monday, January 30, Austin Energy and its teams closely monitored weather forecasts in preparation for the severe weather. Initial projections put ice accumulation at one-tenth of an inch in western Travis County, but as weather drew closer, this increased to the possibility of a one-half inch of ice, mostly north and west of the Austin Energy service area.

Austin Energy monitored the developing weather conditions and began communicating storm updates to customers on Monday, January 30 through news interviews, a news release and social media messaging urging customers to prepare for possible outages. As part of its monitoring, the utility also conducted situational awareness calls with its Incident Command team. Incident Command is a group of trained Austin Energy employees responsible for incident response once activated. The team assessed the conditions, and Austin Energy mobilized additional line crews and tree trimmers to quickly respond if needed.

On Tuesday, January 31, in advance of the extreme weather, Austin Energy activated Incident Command. Beginning early Wednesday, February 1, the ice storm moved into the region. It developed as a low-pressure system, causing temperatures to plummet and turning precipitation into freezing rain. As the weather system progressed, ice accumulated, causing hazardous road conditions, power outages, and damage to trees and equipment.

The amount of ice that blanketed the area was more than forecasted. Ice accumulation reports of more than one-half inch extended across Austin Energy’s eastern service area. In the western part of the utility’s service area, ice accumulation amounted to more than seven-tenths of an inch. This was one of the highest ice accumulation amounts in Austin’s history.

The same day the storm swept through the area, Austin Energy experienced its peak number of outages, affecting 32% of customers. Austin Energy recognized the severity of the situation and requested mutual aid as soon as outages began. The first round of mutual aid personnel arrived later that day, Wednesday, February 1, and continued arriving throughout the week.

Winter Storm Mara brought a challenging and dangerous environment for crews and power restoration. The storm affected about 10.5 million trees in the City of Austin, according to a damage assessment from Texas A&M Forest Service. Throughout Austin Energy’s entire response, the utility replaced 101 distribution poles and 52 transformers. The utility had more than 1,600 personnel in the field working to respond and restore power as quickly as possible. This included employees, contractors, tree trimmers and 455 mutual aid personnel, the most in Austin Energy’s history.
Winter Storm Mara brought half an inch to three-fourths of an inch of ice to the Austin area when it went through, causing significant damage.
Phase 1 Restoration Efforts

Between Wednesday, February 1 and Sunday, February 5, Austin Energy performed initial-phase restoration efforts. During this first phase, Austin Energy focused on critical load customers, such as hospitals, water treatment plants and other life-safety facilities. This phase also involved mainline circuit restoration, which means closing the circuit breakers connecting distribution circuits to the substations.

In other storms, repairing those circuits and closing the circuit breaker typically restores almost all of the customers served by that circuit. That is, thousands of customers would be restored at a time. Austin Energy estimated Winter Storm Mara would be a similar restoration effort at the start of the event, but as time passed it realized this storm was different.

Based on those factors, Austin Energy communicated that some customers may be without power for 12 to 24 hours on Wednesday, February 1 — the first day of the storm. Later that same day, that messaging progressed to power may be out until Friday, February 3.

Winter Storm Mara was not a typical outage emergency situation, however. At the start of Austin Energy’s restoration efforts, much of the work crews accomplished was undone as trees and branches continued to fall on electric equipment, causing new outages. When repairs did hold, crews found that full circuits were not restored. There was more damage further down the line, like broken equipment, downed wires, and fallen trees on lateral portions of the circuit. To further explain, a distribution circuit has many laterals, each serving multiple customers. It is like a power strip with many devices plugged into it. These off-shoots from the main power strip are considered laterals, and if there is an issue between the plug at the power strip and the device needing power, restoring electricity to the power strip will not restore power to the device. It will remain without power until the problem causing the lateral outage is addressed. Because of that, multiple repairs were needed to bring customers back online, taking more time and effort.

Though Austin Energy encountered these different issues as it worked through repairs, it did not have a clear picture of the extent of this damage across its entire electric system. During the first-phase restoration efforts, it was difficult to compile a full damage assessment. The level of ice created hazardous driving conditions, making access for patrollers difficult. Where patrollers could assess the system, Austin Energy did not have established procedures for this type of situation, outlining what information to report back to Incident Command so that the team could create an accurate picture of the damage to the system and how long total restoration would take.

Because of this situation, Austin Energy could not meet the Friday expectation it had set. Once that was realized, the utility retracted the deadline but was unable to provide an updated restoration estimate right away. On Sunday, February 5, as it neared the end of the first phase of restoration, Austin Energy announced a new system-wide restoration time of Sunday, February 12.
Phase 2 Restoration Efforts

Between Monday, February 6 and Thursday, February 9, Austin Energy continued into a second phase of restoration with the following prioritization:

1. Outages affecting the most customers.
2. Outages with the longest duration.
3. Smaller yet more complex outages.

During this time, there remained thousands of outages, each requiring a line and/or tree crew to resolve the issue and restore power. While it seemed like outage restoration slowed, each job affected fewer customers than in the initial phase, but each outage still required approximately the same amount of work and time to resolve. This is the nature of a long-duration outage event, but it is unlike any Austin Energy customers have experienced before.

As crews continued restoration efforts, they also worked through what are known as nested outages. A nested outage occurs when there is a smaller, more localized outage nested within a larger outage. That is, there are multiple issues along a circuit that need to be repaired before power is restored to everyone on the circuit. Normally, when there is an outage and a smart meter loses power, the Austin Energy outage management system sees it as a change of state to the meter and records the issue. In the case of a nested outage, the meter change in state occurs at the start, when the larger outage exists. Once the larger outage is resolved, but the nested outage remains, there is no change of state in the meter, so the system cannot always recognize all the outages.

For Austin Energy to know there is still an outage down the circuit, affected customers need to re-report their outage. For example, when repairs are made for the larger outage, an automated text goes out to customers in that area saying that power to part of the system has been restored, but to text “OUT” if they were still experiencing an outage. This is the best way the utility can know more work is needed to fully restore customers’ power.

Many customers attempted to report their outage again; however, the tools customers used to report outages quickly became overwhelmed with the volume of reports. The system did not have the capacity to handle the number of customers trying to use it, and the processing time for those reports was too short to handle that increased use. After reporting “OUT,” some customers received error messages that their texts were not getting through to the system.

Austin Energy worked with the vendor for the system to resolve the issue, and throughout the restoration process, Austin Energy received thousands of outage reports through inbound calls, texts and the outage map. However, these issues frustrated customers.

There were other areas where the unprecedented nature of this storm exceeded the utility’s existing preparedness and planned response. For typical storm responses, a troubleshooter will first assess the cause of an outage, noting if the outage requires specific work. This allows Austin Energy to dispatch the correct type of crew and equipment to make the needed repairs like a tree crew to remove tree limbs from electric equipment or line crews to rebuild equipment and restore power.

That type of sequence was ineffective for a long-duration outage. The severity and extent of the damage as well as the number of outages required Austin Energy to find a different operational approach while continuing to restore power. In some cases, Austin Energy combined many tree and line service crews into a larger workforce, so they could work multiple outages on a circuit in a coordinated fashion. In other cases, tree crews were dispatched without line crews to address areas with particularly large or complex vegetation jobs. Furthermore, Austin Energy pulled some crew leads from their usual line crew to pair them with several mutual aid crews and work in other areas.

Tracking the work from these different configurations made the restoration effort more complex. Crews used different electronic systems for tracking and updating progress, and some crews had to track their work on paper. These factors contributed to a more complex restoration effort, one where teams had to adjust over time to find effective solutions and continue making repairs.
Phase 3 Restoration Efforts

On Friday, February 10, Austin Energy entered into the third and final restoration phase, single outages. Restoring these customers involved more work per customer, sometimes requiring crews to replace poles and rebuild service drops one by one. Each completed job restored a single customer.

In many cases, Austin Energy could not safely restore power due to damage to customer-owned equipment that connected their premise to the Austin Energy system, such as weather heads, electrical panels, and meter boxes. In those cases, the customer needed to hire a licensed electrician to repair their equipment. Austin Energy provided information to customers regarding necessary repairs and expedited processes along with fellow City departments, but power could not be restored without customer action.

Complicating the effort, Austin Energy does not have an automated way of determining whether single outages are customer-sided or utility-sided. Each outage requires the utility to send a person or crew to make that determination. In addition, tracking customers that require work on their equipment is a manual and ever-changing process. All of this slows restoration progress and makes these single outages time- and labor-intensive.

By Saturday, February 11, Austin Energy had restored 99.93% of affected customers. At that time, Austin Energy demobilized mutual aid personnel and deactivated Incident Command, but continued power restoration efforts in the weeks that followed as customers completed repairs to customer-owned equipment so Austin Energy could safely restore power.
Crews worked through hazardous conditions to restore power after a “hurricane-level ice storm.”
III. IMMEDIATE ACTIONS

Immediately following the February 2023 winter storm, Austin Energy acted on several improvements. The following measures have already been completed or are currently in progress:

- **Emergency Management Leadership**: Recognizing the importance of effective emergency management, Austin Energy hired a director to lead its Emergency Management Team. This dedicated leadership role will ensure a more streamlined and coordinated response during emergency situations. Further, the director initiated the hiring process for two additional emergency management personnel. Previously, Austin Energy had only one Emergency Management Coordinator.

- **Peer Utility Visits**: Austin Energy is collaborating with peer utilities with experience in long-duration outage events to learn about their operational processes and best practices. Specifically, Austin Energy met with Jacksonville Electric Authority due to their experience with hurricane response, Southern California Edison due to their experience with wildfire, Long Island Power Authority due to their experience with cold weather and tropical cyclones, and others. Discussions have focused on many topics including damage assessments and calculating system-wide estimated times of restoration, allowing Austin Energy to inform and improve its estimation practices and provide more accurate information to customers.

- **Outage Map Improvements**: Austin Energy completed improvements to the outage map functionality. These improvements will allow more time for the information transfer between customers interacting with the map and Austin Energy’s system. This allows the system to handle more outage reports at one time, specifically during a storm when there is high use of the outage map.

- **Improved Citywide Communication Planning**: Austin Energy participated in the City’s emergency communication plan efforts. This collaboration aims to improve overall preparedness, coordination, and information sharing during emergencies.

- **Vegetation Management Contract Improvements**: Austin Energy established a contract to secure additional staffing resources to bolster vegetation management efforts. This will ensure more tree trimming and vegetation clearing near power lines can occur despite labor shortages, reducing the risk of outages caused by fallen trees during severe weather events.

- **Distribution Underground Feasibility Study**: Austin Energy is initiating a study to assess the feasibility of placing distribution lines underground. This study will identify the cost and effectiveness of burying lines to improve infrastructure resilience and minimize the impact of future weather events on power distribution.

This video shows crews replacing a broken pole with a new one — evaluating and adapting to the situation at hand.
IV. OBSERVATIONS & FOLLOW-UP ACTIONS
COMMUNICATION & CUSTOMER EXPERIENCE

Effective communication is always important, but it becomes even more crucial during emergencies and long-duration outage events. It requires clear channels of communication, established protocols, and a well-functioning downstream process, with teams working together seamlessly. Austin Energy recognizes missed opportunities in these areas, impacting smooth and efficient communication with customers during emergency situations. Several observations were identified and listed below, and Austin Energy is dedicated to implementing measures to address these observations. This will ensure customers receive timely and accurate updates during emergencies and long-duration outage events.

Observation 1 — Establishing Estimated Times of Restoration (ETR)

Austin Energy understands customers need information about when power will be restored and makes every effort to arrive at a realistic estimated restoration time based on:

- The number of lineworker crews available.
- The extent of the damage.
- The safety of our employees and customers.

As a situation evolves and the extent of the damage becomes clearer, the estimated time of restoration can change. When a systemwide ETR is calculated, it is based on the best available information at that time. As crews made initial assessments on Wednesday, February 1 — the first day of the storm — Austin Energy communicated some customers may be without power for 12 to 24 hours. Later that same day, Austin Energy stated power would not be restored until Friday evening. That estimation was based on the number of circuit lockouts. A circuit lockout is similar to a breaker tripping in your home to isolate the trouble spot and protect the rest of the system. In the case of the electric grid, the system is designed to de-energize at the substation if something happens on the circuit, enabling crews to make necessary repairs. Austin Energy estimated restoring a locked-out circuit would restore nearly all customers served by that circuit, which is fairly typical during storms. This approach underestimated the number of customers experiencing an outage impacted by damaged equipment, downed wires, and fallen trees on downstream portions of each circuit. A full system assessment prior to establishing estimated restoration times would have shown that additional time was needed to fully address all outages. In making this early announcement, Austin Energy created expectations that were not met.

On Thursday, February 2, Austin Energy gained a better understanding of the severe damage to the system. The utility realized it needed to retract the Friday restoration date but was unable to provide a specific timeline.

On Sunday, February 5, Austin Energy communicated it would be able to restore power to nearly all remaining customers who were able to safely receive power by Sunday, February 12.

Austin Energy recognizes several areas that impacted the ability to establish an accurate estimated time of system restoration:

Key Findings

1. **Incomplete Damage Assessment:** Austin Energy patrollers did not perform an effective damage assessment of the entire system because of a lack of established procedures and unclear expectations on what and how to report back to Incident Command. This meant Austin Energy did not have the information, such as severity of damage at each location, needed to establish an accurate systemwide estimated time of restoration.
2. **Lack of Formal, Systemwide ETR Calculation Process**: Whenever Austin Energy determines that the number and complexity of power outages will exceed the capability of available personnel to restore power within the restoration timeframes provided on the outage map, Austin Energy changes the individual outage ETR to state, “Crews need more time to restore power safely.” This is called “storm mode” in Austin Energy’s Advanced Distribution Management System (ADMS), the software that interacts with Austin Energy’s outage map. The practice is industry standard, especially during storms, to avoid communicating inaccurate information. However, this also means less information for customers experiencing outages and trying to make decisions regarding relocation, food, and family. Due to the number of outages experienced and their unknown complexity, it is nearly impossible for Austin Energy to provide individualized outage ETRs during long-duration outage events. However, Austin Energy can calculate and communicate some form of systemwide ETR, but it lacks a formal process to do so.

**Follow-Up Actions**

AI 1.1 - Establish and train on a damage assessment process for emergency response.

AI 1.2 - Coordinate with peer utilities to discuss best practices for calculating systemwide estimated times of restoration.

AI 1.3 - Establish an operational procedure to produce systemwide estimated times of restoration for long-duration outage events. Consider a phased approach as Austin Energy gains better information about the extent of the damage during an event.

AI 1.4 - Evaluate different ADMS storm mode levels.
Hundreds of pounds of ice forced a communications tower to collapse, bringing down nearby power lines.
Repeated Outages on Restored Lines

Outages and Restorations

Peak Conditions:
173,879 customer outages / 32% of customers
Observation 2 — Communication Systems & Customer Experience

Technology systems enable real-time communication and coordination within Austin Energy and between the utility and the community. This allows for efficient sharing of critical information, updates, and instructions, facilitating a well-coordinated response to the emergency.

Austin Energy’s outage map is a valuable tool used to provide real-time information to customers and stakeholders during power outages or service interruptions. Its primary purpose is to enhance communication, transparency, and customer awareness by displaying outage-related data in an easy-to-understand visual format and providing outage notifications via text.

The Advanced Distribution Management System (ADMS) is an integrated software platform that provides real-time information — such as power outage data — and decision support for Austin Energy operations during normal and emergency events. As part of the Incident Command System, ADMS plays a critical role in helping Austin Energy respond to and manage outages.

While many Austin Energy technology systems operated as expected, there were challenges identified that are essential to improving the utility’s emergency response:

Key Findings

1. **Customer Outage Recording in the Outage Map:** The high volume of customers reporting outages through the outage map exceeded the map’s timeout threshold. That means there were limitations capturing complete outage data from customer submissions. In some cases, customers received error messages without knowing if their message went through the system. This prompted customer concerns regarding the reporting of their outages and Austin Energy’s awareness of the outage status.

2. **Communicating Nested Outages:** A nested outage occurs when there is a smaller, more localized outage nested within a larger outage. In these instances, customers may receive a message that power has been restored to their area but still be without power. When this happens, Austin Energy asks customers to report that they are still experiencing an outage. Making repeated outage reports led to a frustrating and confusing experience for customers. During a multi-day event, this feels like an endless loop to customers, and the nested outage explanation is not clear or easy to understand.

3. **Managing High Customer Demand on the Outage Reporting Platform:** The outage reporting platform experienced a surge in customer demand for premise-specific outage information, surpassing its configured volume. This presented challenges in displaying real-time outage data and increased call center customer inquiries.

4. **Text Message Traffic Handling:** During Winter Storm Mara, many customers tried to report an outage or check an outage status via text message. The unprecedented volume of text message traffic during the event exceeded the capacity limit, resulting in error messages being sent to Austin Energy customers.

5. **Unconfirmed Outages Showed Restored Prematurely:** A software bug occurred causing unconfirmed outages to show up as restored before the restoration was system verified if their upstream breaker opened (power interrupted) and closed (power restored).

6. **Limited User Base for Complex Tools During Long-Duration Outage Events:** The outage map system and ADMS are highly complex, requiring trained personnel to use. Austin Energy relies on in-house and vendor expertise. During Winter Storm Mara, customer-facing groups within the utility required support from personnel knowledgeable of these systems, but because of limited resources, it was not readily available causing delays in communicating key information.
7. **Inconsistency in Internal Understanding and Communication of ADMS Status:** Workgroups receiving information from ADMS to support customer inquiries required a more consistent understanding of the terms and components of ADMS. This inconsistency posed challenges in accurately communicating with customers, regulatory bodies, and elected officials, leading to misunderstandings and miscommunications.

8. **Limited Access Rights Provided in ADMS:** The lack of permissions or access rights of support groups resulted in limited information in the ADMS system during storm mode. For example, the Key Accounts team was unable to remotely check meters for information and support large customers during the storm. This impacted the efficient management and accurate communication of outages during the event.

9. **General Locations for Outages Displayed on Outage Map:** Because outages often affect several homes and businesses at a time, icons on the map may not appear directly over the exact location of a home or business. For any given outage, the outage symbol is placed at a center point on the map in relation to all customers affected by that outage. The outage may cover several blocks or even larger areas. While this information is available in the outage map FAQ, some customers did not realize this is how the outage map was intended to work.

### Follow-Up Actions

#### Outage Map

- **AI 2.1** - Increase the customer data roundtrip timeout limit from the outage map to Austin Energy.
- **AI 2.2** - Evaluate the outage map platform for additional outage alerting capability.
- **AI 2.3** - Reconfigure the outage map platform notification quota (traffic volume capacity) to max settings.
- **AI 2.4** - Review any new outage map platform features list for optimization opportunities.
- **AI 2.5** - Partner with outage map vendor, KUBRA, to identify visual solutions to improve customer experience.

#### WebDMD/WebCC (ADMS modules)

- **AI 2.6** - Train additional personnel on ADMS’s modules to establish subject matter experts within essential sections of Incident Command.
- **AI 2.7** - Ensure essential Austin Energy employees have the capability to access ADMS’s modules.

#### ADMS

- **AI 2.8** - Evaluate ADMS integrations to optimize communications with interfacing systems, such as Mobile Workforce Management (a work management ticket system) and Customer Care & Billing (the customer information system).
- **AI 2.9** - Apply ADMS updates to correct software bug causing unconfirmed outages to show up as restored prematurely.
- **AI 2.10** - Create a glossary of ADMS system components and types of outages to assist customer-facing teams within the utility in their communications with customers.

#### Text Messaging

- **AI 2.11** - Review and update workflows associated with restoration text alerts. Determine all the causes that can trigger the system to believe an outage is restored, and review operator processes that merge, close, or group outage incidents that could impact restoration alerts to customers.
Process

AI 2.12 - Evaluate and improve upon people, process, and technology gaps related to end-to-end technical communication channel monitoring and analysis.

AI 2.13 - Provide advance notification to key technology vendors prior to severe weather or anticipated long-duration outage events so they are available to monitor and adjust configurations if needed.

AI 2.14 - Ensure data management and governance is established and reinforced across all lines of business.

AI 2.15 - Review access requirements for internal teams and grant appropriate access to support emergency response.

AI 2.16 - Review and update procedure to validate technology readiness for Incident Command activation.

Observation 3 - Public Communication

The Public Information team plays a crucial role in managing communications and distributing accurate and timely information to the public, especially during an emergency. The team’s primary responsibilities include creating and delivering clear and concise emergency messages, acting as the primary point of contact for media, serving as official spokespersons, coordinating public briefings or news conferences, managing social media accounts and websites with real-time information, and promoting preparedness and safety campaigns before and after emergencies.

During emergency situations, much of the specific information on system conditions, recovery, and restoration that public-facing teams need to communicate with the public comes from the operations and field teams. The Public Information team shares what information is available, along with additional messaging that is helpful and useful to the public, through numerous channels.

Working alongside the Public Information team, Austin Energy’s Local Government and Regulatory Affairs teams coordinate with local, state, and federal officials to provide timely and accurate updates regarding recovery and restoration efforts. This messaging closely aligns with the information the Public Information team compiles during an emergency and may include information of specific interest to those stakeholders.

During Winter Storm Mara, the Public Information team performed the following actions:

- Began sharing storm messaging starting Monday, January 30 through a news release, media interviews and social media updates.
- Conducted more than 300 TV, radio, and print interviews in English and Spanish.
- Shared more than 300 social media posts related to ongoing restoration and recovery efforts.
- Updated an Austin Energy dedicated web page daily with restoration and recovery information.
- Helped coordinate daily city-wide news conferences.
- Created and sent daily text messages to customers enrolled in Austin Energy’s Outage Alert program who were without power.
- Sent daily emails to all customers with an email on file.
- Provided regular updates to the Communication and Public Information Office (CPIO), Homeland Security and Emergency Management (HSEM) and other City departments.
- Where feasible, provided emergency messaging in Spanish, Vietnamese, Simplified Chinese, Korean and Arabic.
- Participated in multiple community events to help those without power.
Sampling of Communications Messaging During Winter Storm Mara

### Above-Ground Electric Service

What’s yours? What’s ours?

Austin Energy maintains the items labeled in orange. You maintain the items labeled in yellow.

1. **Service Drop:** Austin Energy repairs the wire that runs to your home, but we do not trim trees along the service drop. We will shut off the power at your request so trees can be trimmed safely.*

2. **Point of Attachment:** You are responsible for the anchor that attaches the service drop to your home.

3. **Service Entrance Cable:** You are responsible for the wire that runs along the outside of your home into the meter and from the meter to your service panel or fuse box.

4. **Meter:** Austin Energy owns the meter(s) that measure electricity use or solar production.

5. **Meter Base:** You are responsible for the metal box that houses the meter.

6. **Service Panel or Fuse Box:** You are responsible for the box(es), the circuit breakers or fuses, and all of the wiring in your home.

7. **Solar / Battery:** You are responsible for any solar equipment or home battery storage system.

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### Underground Electric Service

What’s yours? What’s ours?

Austin Energy maintains the items labeled in orange. You maintain the items labeled in yellow.

1. **Meter:** Austin Energy owns/maintains the meter(s) that measure electricity use or solar production.

2. **Meter Base:** You own/maintain the metal box that houses the meter (meter base).

3. **Service Panel or Fuse Box:** You are responsible for the box(es), the circuit breakers or fuses, and all of the wiring in your home.

4. **Customer Conduit:** You own/maintain the conduit from the meter base to where it enters the transformer.

5. **Cable Inside Conduit:** Austin Energy owns/maintains the cable inside the conduit from the transformer to the meter base.

6. **Transformer:** Austin Energy owns/maintains the transformer mounted on the pad.

7. **Austin Energy Conduit:** Austin Energy owns/maintains the conduit and cable from the transformer back to the source.

8. **Solar / Battery:** You are responsible for any solar equipment or home battery storage system.

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### Austin Energy Outage Events Due to Trees

You share a circuit with thousands of residents; whatever happens on the circuit happens to you.

1. If a tree touches the power line in any way, this contact can create a power outage for anyone connected to this circuit.
2. An outage event on the main line will cause power loss to the customers downstream from the event.
3. In the situation shown here, a tree causing an additional outage closer to the home may not be detected until power is restored to the main line.
4. Depending on the severity and cause of an outage, multiple crews may be dispatched to the source of the outage to restore power. However, crews may be delayed due to safety conditions such as weather, fire or equipment access.
5. Larger weather-related events may spread restoration crews across a broad area, which can impact response times.

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* aesthetic considerations, maintain safe access to the transformer.
Sampling of Communications Messaging During Winter Storm Mara

**Cold Load Pickup**
When power is restored, circuits can become overloaded because of lights, electronics and thermostats left on prior to the outage. This is called cold load pickup and can cause a second outage. Customers currently without power can help us avoid cold load pickup by:

- Turning off their thermostats.
- Turning off or unplugging any fixtures or appliances.
- Only leaving on one light to indicate when the power is back on.

**Recolectión de Carga Eléctrica en Frio**
Cuando se restablece la energía, los circuitos pueden sobrecargarse debido a que hay luces, dispositivos electrónicos y los termostatos se dejaron encendidos antes del apagón. Esto se llama recolección de carga electrónica en frio y puede causar un segundo corte. Los clientes que actualmente no tienen electricidad pueden ayudarnos a evitar la recolección de carga en frio si:

- Apagan sus termostatos...
- Apagan o desenchufan cualquier electrodoméstico o aparato.
- Dejan solo una luz para indicar cuando se vuelva a encender.

**Don’t FALL for the CALL! Beware of winter storm scammers.**

If your neighbor’s power back on, while yours is still out?

You may have a nested outage.

That’s your clue to notice a larger outage and contact someone like Austin Energy’s dispatch center to get your power back on. As an extra precaution, don’t answer any phone calls that ask for personal information, especially asking for a credit card number or any security code.

Austin Energy is not aware of any nested outages, so it’s important for you to let us know that your power is still out.

Report power outages by texting OUT to 287-346, online at austinenergy.gov, or by calling 911.

If you receive a text that your power is on, but it is not, text OUT in response.

**SLAM the DOOR on SCAMMERS**

DO NOT LET UNKNOWN INDIVIDUALS IN YOUR HOME, IF YOU FEEL YOU ARE IN PERSONAL DANGER, CALL 911.

**NEVER** touch a downed power line or a tree limb making contact with a downed power line.

Call 911-322-9100 to report a downed power line.

**NUNCA** toque una línea eléctrica caída o una rama de árbol que haga contacto con una línea eléctrica caída.

Llame al 911-322-9100 para reportar una línea eléctrica caída.

**Generator Safety Tips**

Never fuel or run a generator indoors or in a garage.

**Consejo de seguridad para el uso de Generadores**

Nunca ponga combustible ni encienda un generador en espacios cerrados o en un garaje.
Key Findings

1. **Timing of Customer Communications:** An initial news conference, customer emails, and proactive text messages (not the automatic text messages sent through the outage management platform alert system) should have been initiated earlier in the winter storm, providing the community with more prominent notifications of conditions. For example, the first city-wide news conference did not take place until the morning of the second day, Thursday, February 2. Austin Energy’s Public Information team began sending customer emails and proactive, status text messages on Friday, February 3.

2. **Communication and Coordination with Communications and Public Information Office:** Expectations for coordination with CPIO for a long-duration outage were not clearly defined. In a typical emergency situation, Austin Energy manages customer communications, regularly sharing updates and messaging with CPIO. At the start of this unprecedented event, the lack of initial alignment of those expectations led to inefficiencies in coordinated collaboration.

3. **Information for Elected Officials:** Elected officials have a unique need for information in response to constituent concerns. The lack of accurate ETRs provided additional challenges in providing these officials information to assist constituents. Additionally, the Local Government and Regulatory Affairs teams received many escalations and did not have a pre-identified single point of contact to obtain restoration status information.

4. **Collaboration with Restoration Operations for Accurate ETRs:** Austin Energy’s Public Information and Regulatory and Government Affairs teams require closer collaboration with Restoration Operations to ensure accurate and timely communication of system conditions and a systemwide estimated time of restoration to customers.

5. **Some Outage Alerts are Not Suitable for Long-Duration Outage Events:** Some automatic text messages sent through the outage management platform’s alert system did not fully align with the conditions of the winter storm, leaving customers dissatisfied with the experience and information.

6. **Customer Care Support on Social Media Messaging:** A follow-up action from the 2021 Winter Storm Uri AAR was to “Coordinate with Customer Care and provide a pool of trained representatives to help respond to social media messages during an emergency.” This item was marked Complete in Q2 2022, but it was not implemented during Winter Storm Mara. Due to the severity of the ice storm, there was a lack of Customer Care resources available to support this new role.

Follow–Up Actions

- **AI 3.1** - Align with City leadership expectations for news conference protocols in the early stages of an emergency.
- **AI 3.2** - Participate in the City’s communication plan efforts and drills to improve preparedness and collaboration with CPIO and other stakeholders involved in emergency response.
- **AI 3.3** - Designate a single point of contact as part of Incident Command to focus on elected official inquiries, district-specific situational awareness, and escalations.
- **AI 3.4** - Enhance coordination mechanisms with Restoration Operations so they can provide the Austin Energy Public Information team with timely and accurate information from the field and accurate systemwide estimated restoration times for communication with the public.
- **AI 3.5** - Review processes and messaging for Outage Alerts sent during long-duration outages.
- **AI 3.6** - Establish oversight and ownership of the outage map platform messaging tools, including administrative access, editing, broadcast, and reporting.
- **AI 3.7** - Develop messaging and templates specific to long-duration outages. This will allow for quicker dissemination of information, particularly direct customer emails and text messages.
- **AI 3.8** - Re-evaluate coordination with Customer Care to help respond to social media messages during an emergency.
Observation 4 - Customer Care

During extreme weather, the Customer Care team plays a critical role in ensuring customers receive support, information, and assistance. Their primary focus is on addressing customer needs, managing inquiries, and providing timely and accurate updates. During Winter Storm Mara, Austin Energy’s Customer Care teams received 370,000 calls and conducted wellness checks for medically vulnerable customers to ensure their safety. While Customer Care played a key role in Austin Energy’s emergency response, there were areas of improvement identified:

Key Findings

1. Managing Inquiries and Information Flow: Inquiries for information came through multiple teams throughout the event: the Public Information team, utility executives, Regulatory Affairs, and the Austin/Travis County Emergency Operations Center. Without a clear path to manage these inquiries, the requests often spanned multiple groups for resolution. This led to confusion of priorities, information delays and gaps in communication.

2. Issues with Customer Information System Data: In some cases, the outage map platform lacked complete customer address information, such as street identifiers like East or West, causing customers to receive text messages with missing data.

3. Wellness Check Expectations: Customers expected additional support like hot meals and chargers from staff conducting wellness checks. This may be an opportunity to partner with other City departments and nonprofits to provide needed community services.

4. Need for Improved Shift Sharing and Essential Worker Information Among Customer Care Section: The system used to share information between shifts and determine staffing needs for outage calls was insufficient. This led to challenges for incoming Customer Care support staff assigned to work outage calls.

5. Lack of Pre-Established Plans for the Outreach Bus: A neighboring utility loaned Austin Energy a bus for use at community events. The bus provides mobile charging ports for use by those who are experiencing power outages and creates a useful space for customers to engage with the utility. However, the purpose of and locations for the bus were not established in advance, emphasizing the need for pre-event agreements and planning.

6. Insufficient Staff Assignment: Following normal protocol, Utility Contact Center (UCC) staff created new escalation cases when a customer called in with a concern that would be handled by the Customer Solutions team. However, the Customer Solutions team was not working escalations during Winter Storm Mara because they shifted to support UCC by answering customer calls. This added to the backlog of cases and may have diverted some calls that would have been better handled as supervisor escalations.

Follow–Up Actions

AI 4.1 - Enhance the inbound customer inquiry and escalation process for storm restoration. Establish a single point of contact and appropriate tracking mechanism.

AI 4.2 - Ensure essential customer information, such as a customer’s full address (including all identifiers like East, West, etc.), is not missing from the outage map platform database.

AI 4.3 - Evaluate and improve coordination regarding the Medically Vulnerable resident pre-planning process.

AI 4.4 - Evaluate the Medically Vulnerable Registry (MVR) wellness check process for collaboration opportunities with other City departments. For example, explore the ability to loan out charging devices to registered MVR customers that can power life-support equipment for approximately one day or a few small devices (phone, laptop, TV, fan) for several days.
AI 4.5 - Evaluate the use of an outreach bus or similar resources for long-duration outage events. Establish agreements, locations, and deployment plans as needed.

AI 4.6 - Conduct outage call refresher training for essential workers and improve agent support.

AI 4.7 - Evaluate and optimize Utility Call Center escalation case creation during emergency events.

AI 4.8 - Ensure all Customer Support Service personnel who will support Incident Command during emergency response have completed Incident Command trainings.

AI 4.9 - Solicit customer feedback and suggestions for continuous improvement regarding long-duration outage events, and establish a plan to address concerns, as applicable.

The Customer Care team staffed community events and charging stations, helping those without power and providing financial assistance information.
EMERGENCY PREPAREDNESS

Emergency preparedness is of utmost importance for Austin Energy. Being well-prepared for emergencies is essential to safeguard public safety, maintain reliable service, and minimize the impact of emergency events. Austin Energy recognizes areas for improvement in assessing the storm impact, preparing its response and conducting preparedness drills.

Observation 5 - Incident Command Operations

Austin Energy follows the National Incident Management System when it comes to emergency preparedness and response. This provides the utility with a consistent structure and processes, including established roles, operational sections, and coordination protocols. In addition, Incident Command personnel are required to complete trainings and participate in annual exercises to prepare for emergencies. During Winter Storm Mara, Austin Energy activated more than 200 employees (not including field crews or mutual aid personnel) in support of emergency response activities. However, Austin Energy identified areas to improve its overall preparedness and response:

Key Findings

1. Trained Personnel in Incident Command Roles: Some staff lacked sufficient knowledge and experience in the Incident Command role they were assigned. This affected efficiency in decision-making and operations.

2. Approach Did Not Match the Event: Austin Energy was prepared for a short-duration outage event, like what the utility experiences during a severe thunderstorm with extreme winds. This event proved to have vastly different challenges. For example, ice and trees continued to affect the electric system after the weather passed through the area, and the extent of damage to individual customers and equipment created longer timelines to bring power back to customers. Having to adjust the restoration process to match these conditions while making repairs created inefficiencies in Austin Energy’s response.


4. Role Clarity Around Essential Employee Status: Some personnel were not aware they are considered essential employees when Incident Command is activated.

5. Burnout and Mental Fatigue: Extended emergencies that require prolonged response efforts, like Winter Storm Mara, have a significant impact on staff. Working long hours under high-pressure conditions led to physical and mental exhaustion, emotional distress, and burnout. The prolonged and intense nature of the response highlighted the importance of increased staffing levels to ensure adequate rest and recovery to address the safety and well-being of personnel and to reduce errors and safety risks during such events.

Follow-Up Actions

AI 5.1 - Re-evaluate Incident Command policy and procedures and focus on employee preparedness, emergency response procedures, and training such as conducting dry runs, drills, and exercises.

AI 5.2 - Evaluate activation procedures for gaps and provide refresher training to ensure all Incident Command staff are well trained. This will include conducting dry runs, drills, and exercises.

AI 5.3 - Collaborate with peer utilities to discuss best practices and implement ways to improve emergency response.

AI 5.4 - Evaluate the essential status of all Austin Energy employees during emergency response and establish appropriate training and communication.

AI 5.5 - Optimize shifts for each Incident Command section to ensure support, safety, and wellness.
During emergencies, Austin Energy activates its Incident Command to manage all the areas required to resolve the situation as safely and quickly as possible.
Observation 6 - Emergency Management Administration

Based on weather forecasts, Austin Energy’s Emergency Management team activated Incident Command on Tuesday, January 31, in preparation for the storm. Incident Command provided a centralized hub for emergency response activities including real-time situational awareness, resource tracking, and updates every four hours for decision-making. However, Austin Energy recognizes several areas for improvement:

Key Findings

1. **Dedicated Emergency Management Personnel:** Austin Energy had only one full-time employee dedicated to emergency management at the time of Winter Storm Mara, which is insufficient given the size of the utility and the severity of the storm.

2. **Documentation of Emergency Operations Plan:** Portions of Austin Energy’s Emergency Operations Plan (EOP) lacked updated documentation to support storm response and operational practices.

Follow-Up Actions

AI 6.1 - Establish and hire a director-level Emergency Management position to lead the Austin Energy Emergency Management team.

AI 6.2 - Hire additional personnel for the Emergency Management team to support utility preparedness.

AI 6.3 - Review and update Austin Energy Operations Plans to reflect changes and current practices.
STORM RESPONSE & COORDINATION

Storm response and coordination play a vital role in Austin Energy’s restoration efforts, requiring teamwork and effective communication among multiple teams. Austin Energy acknowledges several areas in need of improvement and is fully committed to addressing the following observations. This is how Austin Energy will enhance its storm response and coordination capabilities to better support customers and the community.

Observation 7 - Damage Assessment

During the ice storm, a significant number of damaged trees and branches created hazardous conditions including fallen power lines, large debris in roadways, and weakened tree branches overhead. Austin Energy mobilized patrollers to assess the damage and prioritize the safety of crews as an initial approach.

Austin Energy identified areas of improvement in the damage assessment process:

Key Findings

1. **Incomplete Damage Assessment**: Austin Energy patrollers did not perform an effective damage assessment because of unclear expectations on what and how to report back to Incident Command and a lack of established procedures. This meant Austin Energy did not have the information needed to establish an accurate systemwide estimated time of restoration, such as severity of damage at each location.

2. **Experience with ADMS Field Client Software**: Some patrollers involved in the operation were not thoroughly experienced with the Field Client software, the ADMS module that allows field personnel to provide updated information on field conditions. This impacted their ability to efficiently carry out their tasks. For example, some sections of circuits were energized in the field but showed de-energized in the software. Once confirming this, patrollers should have made updates in ADMS Field Client to reflect the current field conditions by closing out incidents to indicate they were resolved.

Follow-Up Actions

AI 7.1 - Establish and train on a damage assessment process for emergency response.

AI 7.2 - Re-evaluate how Austin Energy uses patrollers during these events to maximize productivity and train them accordingly.

AI 7.3 - Retrain patrollers on updating ADMS Field Client software properly and establish a verification procedure.
Observation 8 - Restoration Coordination

Austin Energy’s Restoration Operations team mobilized additional personnel and restored a significant number of outages daily. However, Austin Energy recognizes several areas of improvement related to coordination that impacted the restoration:

Key Findings

1. **Challenges with Repeat Outages**: The process and prioritization of restoration became complicated when Austin Energy restored areas that subsequently experienced repeat outages for various reasons. For example, branches continued to break as trees weakened over time. This created difficulties in tracking and managing the restoration efforts effectively.

2. **Updating Tickets in the Field**: Some crews did not update and close out tickets as assignments were completed in the field. This caused dispatchers to believe these tickets were not completed and reassigned the work. This was due, in part, to a need for additional training.

3. **Dispatching Tools and Communication**: Service dispatch and service crews used two different dispatching tools, ADMS Field Client and Mobile Workforce Management, leading to miscommunications and inefficiencies in restoration activities.

4. **Limited Access to Electronic Records System**: Some field personnel removed meters and reinstalled them without proper tracking in the electronic records system. In some cases, the field personnel did not have access to the electronic systems, and they did not always write down the outgoing meter read so the customer could be billed properly. At other times, paper-based methods used for documentation created inconsistencies. Customer-Sided Repairs: There is no automated way of determining whether single outages are due to issues on the customer side or the utility side of the meter without dispatching field crews. As a result, creating the list of customers needing repair is a manual and ever-changing process. Further, it is not always known whether customers need to initiate repair work on their side until after the larger outages are restored. This contributes to single outages being the last to be restored.

Follow-Up Actions

- **AI 8.1** - Re-evaluate storm prioritization process and optimize restoration criteria in phases to support emergency response.
- **AI 8.2** - Conduct ADMS Field Client refresher training.
- **AI 8.3** - Retrain field staff on updating ADMS properly, and establish a verification procedure.
- **AI 8.4** - Evaluate and establish a process to ensure ADMS cross references with Mobile Workforce Management incidents.
- **AI 8.5** - Establish a meter removal and installation process for mutual aid personnel and those without access to electronic record systems.
- **AI 8.6** - Establish a single-ticket restoration process during emergency response events, and establish a standardized tracking mechanism.
Observation 9 - Response Planning

Austin Energy’s Incident Command Planning team, specifically the Documentation unit, maintained accurate documentation of incident response activities. This included detailed incident summaries and progress reports, which provided a comprehensive record of response efforts. Accurate documentation is essential for tracking progress, planning for the next operational period, evaluating effectiveness, and facilitating post-incident analysis. Additionally, the Planning Analysis unit’s data analysis enabled Incident Command to gain insights into the incident’s scope and impact as more data became available. This facilitated decision-making and response planning.

While Austin Energy provided progress reporting and analysis, there were areas of opportunity identified related to response planning:

Key Findings

1. **Shortage of Subject Matter Experts (SMEs):** Because of employee turnover and insufficient training, there were not enough transmission, substation, and distribution SMEs available during shifts to adequately monitor and analyze the evolving event. Historically, Austin Energy’s Planning team included a more diverse mix of subject matter experts from the Austin Energy Engineering workgroups.

2. **Reports Not Sent to Documentation Unit:** Section Chiefs and Branch Directors did not always email their report-out to the Documentation unit after briefings, which delayed the communication to the larger team as the Documentation unit worked to gather information following briefing calls.

3. **Communication on Assigned Role:** Some personnel were unaware of their assignments or role within the Planning units, indicating a breakdown in pre-event planning and affecting their ability to fulfill responsibilities.

Follow-Up Actions

AI 9.1 - Add more subject matter experts in the Planning section to support Incident Command and operations with engineering expertise.

AI 9.2 - Establish a mechanism to communicate the documentation reporting process to all sections prior to the event.

AI 9.3 - Update the Planning section staffing chart to reflect active/current team members and establish a review and notification mechanism.
Observation 10 - Tree Trimming/Vegetation Management Coordination

Ice accumulation adds significant weight to power lines and tree branches, bringing vegetation in contact with wires and breaking poles and cross-arms. According to Texas A&M Forest Service, Winter Storm Mara affected about 10.5 million trees. These conditions created widespread outages, service fluctuations, and hazardous conditions for Austin Energy field crews to manage both during and after the storm. Winter Storm Mara highlighted areas of improvement relating to tree trimming/vegetation management coordination:

Key Findings

1. **Coordinating Tree Crews with Line Crews**: Austin Energy initially assigned more tree trimming crews than necessary to deploy with line crews working to repair fully de-energized circuits. This delayed repairs on circuits with only partial outages.

2. **Tracking Tree Crews**: When tree crews were assigned to work with line crews on de-energized circuits, the line crews did not track the properties tree crews worked. This led to insufficient knowledge of which areas had been cleared.

3. **Challenges with Tree Limb on Wire (TLOW) Tickets**: TLOW tickets normally only require tree trimming crews to resolve the issue. Some TLOW tickets during the February winter storm, though, also involved outages with wires down — particularly service drops, the wire connecting buildings with the electric system. When line crew personnel were not available to address these issues, the vegetation planner had to stay on-site until it was made safe, resulting in delays for the planner in addressing other TLOW tickets.

4. **Tree Crews on Standby**: As more tree crews were activated to respond to storm conditions, it was a challenge to manage and coordinate their deployment throughout the service area and make full, efficient use of their expertise.

5. **Tree Trimming Process and Outages**: Historical tree trimming clearance standards (8 feet for fast growing species and 4 feet for slow growing species) may have contributed to the number of outages and hazards experienced during Winter Storm Mara. Austin Energy returned to industry standards (15 feet for fast growing species and 10 feet for slow growing species) several years ago, but it takes time and sufficient crews to bring the entire system up to the new standards.

6. **Outages Caused by Vegetation and Communications Lines**: Communication carriers often lease space on Austin Energy poles to attach communication lines (for example, cable and internet) under electric lines. Austin’s Utility Criteria Manual makes communication carriers responsible for all tree trimming necessary for the safe and reliable installation, use, and maintenance of their attachments and to avoid stress on poles caused by contact between tree limbs and attachments. However, during Winter Storm Mara, broken branches and uprooted trees coming into contact with communications lines often added enough weight to break poles and pull down power lines.

7. **Responsibility for Debris Removal**: Some customers expected Austin Energy Vegetation Management crews to remove debris from their yards and place it on the curb in front of their houses. These are customers’ trees, and that work is the homeowner’s responsibility. Once debris is placed on the curb, Austin Resource Recovery or other jurisdictional entities were responsible for removal.
### Follow-Up Actions

**AI 10.1** - Improve tree trimming coordination processes with restoration operations.

**AI 10.2** - Hire more tree trimming/vegetation management personnel for regular vegetation preventative maintenance work.

**AI 10.3** - Participate in the City Auditor’s evaluation of Austin Energy’s tree trimming/vegetation management program.

**AI 10.4** - Describe the potential risks of vegetation near communication lines to carrier companies and communicate the need for them to trim.

**AI 10.5** - Define and communicate Austin Energy’s responsibilities versus other department and entity responsibilities for debris removal from customer properties.

> In some cases, crews have to clear the site of an outage before they can begin repairs.
A mutual aid crew with Bird Electric hand-carried and manually set a new utility pole on a steep hillside. Utility poles can weigh anywhere from 800 to 4,000 pounds.
Observation 11 - Mutual Aid Efforts

Mutual aid allows utilities to collaborate and share resources, personnel, and expertise to enhance response capabilities and expedite power restoration efforts during emergencies. Austin Energy requested mutual aid support on the morning of Wednesday, February 1, the first day of the ice storm. The first round of mutual aid personnel arrived later that day. In total, 455 mutual aid crews arrived to assist with outage restoration. This coordination and deployment of additional resources greatly assisted Austin Energy Operations teams in the restoration efforts. Mutual aid crews remained until Saturday, February 11, the final day of storm outage restoration, and, notably, they performed all their work without any recordable safety incidents.

Austin Energy identified areas of opportunities within the Mutual Aid program:

Key Findings

1. Development and Refresh of Mutual Aid Agreements and Emergency Services Contracts: While Austin Energy had existing mutual aid agreements through industry association group participation, many were signed several years ago and needed additional terms and conditions before being ready for use during Winter Storm Mara. Austin Energy also used the opportunity to sign contracts with emergency electric service companies to support restoration. However, Austin Energy lacks an established and recurring process for developing, executing, and updating mutual aid and emergency services contracts as part of its emergency management preparedness procedures.

2. Facilities for Mutual Aid Coordination: It was challenging to provide suitable staging facilities to accommodate the overflow of mutual aid crews, vehicles and equipment that exceeded existing service center space. Historically, Austin Energy has been able to support employees and contractors through existing service centers, but it did not have direct experience setting up a large staging area for mutual aid support. In managing this issue, Austin Energy successfully worked with the Texas Division of Emergency Management, who accommodated a large number of crews at a Texas Department of Transportation facility.


4. Demobilizing Mutual Aid: There was a large amount of work associated with closing out mutual aid activities after Incident Command was deactivated, but there was no clear process to establish who was responsible for closing out contracts, reviewing invoices, and drafting approval documents.

5. Mutual Aid/Emergency Services Agreement Terms and Conditions: The mutual aid agreements and emergency electrical services contracts used during Winter Storm Mara had the potential to expose Austin Energy to financial risk. Appropriate terms and conditions related to working on electric infrastructure take time to establish and, ideally, agreements are executed well before an emergency event.

Follow-Up Actions

AI 11.1 - Establish and update mutual aid agreements and Emergency Electrical Services Contracts as well as a process for maintaining them.

AI 11.2 - Develop and maintain agreements for scalable, offsite staging areas for emergency management operations including facilities, yards, and parking lots as required.

AI 11.3 - Establish contracts for storm contract services as well as a process for billing, communicating objectives, and standardizing close-out requirements for contracts.

AI 11.4 - Define roles and responsibilities for mutual aid demobilization activities.
Observation 12 - Collaboration with City of Austin Departments and Other Governmental Entities

During the storm, Austin Energy’s Emergency Operations Center (EOC) Liaison Officer team coordinated and facilitated the flow of information with the Austin/Travis County Emergency Operations Center and other agencies that were involved in emergency response activities. A member of Austin Energy’s EOC Liaison Officer team is stationed at the Combined Transportation, Emergency and Communications Center (CTECC) for the duration of the City’s Incident Command activation. The AAR identified opportunities to improve coordination, communication, and response with EOC and other City departments:

**Key Findings**

1. **Insufficient Process and Tool for Coordinating Requests:** Austin Energy’s EOC Liaison Officer team faced challenges coordinating the high volume of requests received from other EOC representatives through the WebEOC portal. There was a need for a process or tool to manage these requests with Austin Energy Incident Command personnel and prioritize them efficiently.

2. **Insufficient Information about Traffic Signals and Backup Power Systems:** There was a lack of clear information between Austin Energy and Transportation Public Works crews regarding the equipment and power sources for traffic signals. Crews arrived at pole locations and had to conduct field research to identify power source locations, leading to delays in addressing issues.

3. **Threats and Acts of Violence:** Austin Energy crews experienced threats and acts of violence that posed a risk to crew safety and delayed outage restoration activity. Austin Energy routed these reports through Incident Command and the EOC, requesting law enforcement to dispatch officers. Due to various constraints, including resource availability and jurisdictional uncertainties, there were delays in dispatching first responders.

**Follow-Up Actions**

- **AI 12.1** - Develop a better process for Liaisons to obtain and share status updates with Austin Energy Incident Command personnel on EOC requests.

- **AI 12.2** - Optimize collaboration between Austin Energy and Transportation Public Works (TPW) to mitigate the impacts of power outages on traffic signal operations. TPW is identifying and mapping power source pole locations to expedite the coordination between Austin Energy and TPW, and power restoration to signal infrastructure.

- **AI 12.3** - Work with the law enforcement entities to revisit the best way to obtain support for threats and acts of violence against Austin Energy employees during restoration activities.
Managing resources and equipment is important in getting through an emergency. When Austin Energy brought in mutual aid crews, the utility had to find areas to stage vehicles.
Observation 13 - Logistics Coordination & Supply Chain Management

Austin Energy’s Logistics section serves an important function during Incident Command activations. This team provided meals and lodging for Austin Energy, contractor, and mutual aid personnel. Logistics also coordinated fleet services, including repairs, fueling cards, and backup vehicles. The team had materials on hand and access to inventory to support restoration operations. Despite many logistical and supply chain successes, Austin Energy identified areas of opportunities within these areas:

Key Findings

1. Insufficient Emergency Supplier/Vendor Agreements: Austin Energy does not have pre-identified emergency vendors and agreements for necessary supplies such as fuel.

2. Challenges with Meal Logistics: In some instances, staff did not receive meals or received meals late. The Logistics team did not always receive accurate crew counts or locations with sufficient time to coordinate with food vendors.

3. Challenges with Hotel Accommodations: Austin Energy did not secure hotel rooms in time for some staff to receive room assignments by the end of their first shift. At times, Austin Energy had difficulty securing suitable accommodations for personnel.

4. Need for Laundry Facilities at Power Plants/Service Centers: Austin Energy does not have washers and dryers or hookups at the power plants and service centers where personnel sequester during emergency events and long-duration outages.

5. Backup Generators for Austin Energy Facilities: In some instances, backup generators at Austin Energy facilities did not start up as expected when they lost power. Ensuring key facilities have functioning backup power is crucial for continuous operations and safely restoring power.

Follow-Up Actions

AI 13.1 - Identify suppliers/vendors capable of meeting service demands and establish agreements.
AI 13.2 - Optimize the catering service procurement and coordination process.
AI 13.3 - Optimize the lodging procurement and coordination process.
AI 13.4 - Re-evaluate the identification process and tracking system requirements to manage, and coordinate logistic services during emergency response.
AI 13.5 - Improve Incident Command sequester support during long-duration outage events.
AI 13.6 - Implement third-party review of Austin Energy critical facility backup generators, and establish a maintenance plan for fuel testing.
From making sure crews are fed to gathering additional equipment, responding to an emergency is a team effort.
Observation 14 - Financial Management

Austin Energy’s Finance and Administration section tracked and reported expenses including costs related to personnel, equipment, supplies, contracts, and other resources; provided cost estimations to aid in resource allocation and decision-making; allocated financial resources to various response priorities; sought reimbursement from federal and state sources; and provided procurement and contract oversight. Austin Energy ensured financial transactions were conducted in accordance with established policies and regulations, maintaining the integrity of the incident response efforts. Austin Energy identified improvement opportunities within these areas:

Key Findings

1. **Challenges with ProCard Readiness**: There were Emergency ProCard holders that were not available and some Emergency ProCard holders had not picked up their renewed card. There was no established process to increase spending limits when needed. Further, some key personnel in the Technology section did not obtain Emergency ProCards after their previous counterparts departed from Austin Energy.

2. **Lack of Documented Process**: Some Emergency ProCard holders did not follow established protocol for managing transactions, making it difficult to track lodging requirements and burn rates. Some failed to keep invoices and receipts.

3. **Unable to Track Contractor Work Dates**: The Contractor Work Reporting (CWR) module in Maximo tracks work by service period not by a daily date entry. This required Finance and Administration personnel to separately collect and combine contractor timesheets with the CWR reports.

4. **Emergency Work Time Coding**: City of Austin personnel activated emergency time codes after many exempt employees who worked the storm already reported their time. This resulted in extra administrative work for employees, managers, and timekeepers.

Follow-Up Actions

- **AI 14.3** - Establish a protocol to send out reminders about mandatory backup documentation for purchases during emergency events.
- **AI 14.4** - Ensure essential and designated response personnel have Emergency ProCards.
- **AI 14.5** - Evaluate and modify the Contractor Work Reporting module in Maximo to require work to be entered by date instead of service period.
- **AI 14.6** - Establish event time code accountability.
- **AI 14.7** - Establish an Event Accounting Codes Process.
Austin Energy and CPS Energy staff met after the February 2023 winter storm to discuss best practices and improve response.
A focus on safety, planning, and repairs was how Austin Energy restored power after Winter Storm Mara.
V. CONCLUSION

Austin Energy acknowledges the impact extended outages have on our customers and community. The utility deeply regrets the hardships and disruptions caused during this challenging time. Austin Energy failed to meet customers’ expectations, and for that, the utility sincerely apologizes. The community’s patience and understanding has been commendable, and Austin Energy expresses its sincerest gratitude.

With extreme weather occurring more frequently, power outages are inevitable. While Austin Energy cannot eliminate the possibility of long-duration outage events, the utility must work to minimize the impact to customers and provide better information in a more timely manner.

The comprehensive evaluation and analysis conducted for this After Action Report has provided valuable insights into the strengths and weaknesses of Austin Energy’s response efforts. It identified key findings and areas for improvement, captured valuable lessons learned, and highlighted targeted strategies to ensure a more resilient and effective response in the face of future ice storms or other types of extreme events.

Throughout this AAR, Austin Energy recognizes the importance of proactive planning and preparedness. The ice storm presented unique challenges, testing the utility’s infrastructure, response capabilities, and coordination efforts. Austin Energy will continue to work toward comprehensive risk assessments, refined emergency response plans, and enhanced communication strategies. These measures will enable Austin Energy to anticipate and adapt to the specific challenges posed by ice storms and other long-duration outage events, improving the overall response efficiency.

Another key takeaway from this AAR is the significance of collaboration and coordination. Austin Energy appreciates the support and partnership of other City of Austin departments, emergency management agencies, and neighboring utilities during the ice storm response. The utility will continue to foster and strengthen these relationships to facilitate swift restoration, mutual aid, and shared resources during future events.

Ultimately, the AAR serves as a roadmap for change and improvement within Austin Energy. The insights gained from this AAR are integral to Austin Energy’s ongoing efforts to enhance its preparedness, response, and recovery capabilities. With this completed report, the utility now turns toward the implementation process for each action item listed in the previous sections. As Austin Energy moves forward, it will remain transparent, accountable, and focused on providing the highest level of service to our valued customers.

In addition to the immediate actions identified in Section III of this report (internal emergency management leadership, long-duration outage best practices, outage map improvements, improved communication planning, vegetation management contracts, and undergrounding feasibility study), Austin Energy will proceed as swiftly as possible on follow-up actions that prioritize improved customer experience, enhanced emergency preparedness, storm response and coordination, and mutual aid efforts that will have the greatest possible impact coming into winter of 2024. In establishing that accountability, Austin Energy will provide written, quarterly updates on all actions completed or operationalized.

All these efforts will help navigate future challenges with increased resilience and ensure that power is restored to the community as quickly as possible.
After-Action Review Process Overview

Austin Energy’s Corporate Quality Services team led the coordination of a five-step After-Action Review process, which aimed to provide a comprehensive analysis of the event and identify areas for improvement.

Corporate Quality Services is an internal continuous improvement team within Austin Energy dedicated to improving processes, developing systems, mitigating risks, and increasing quality throughout the utility. Having a deep understanding of Austin Energy’s operations, processes, and organizational structure and expertise in utility-related areas, Corporate Quality Services provides unbiased assessments and recommendations to identify and implement areas for improvement.

In addition to the internal process, Austin Energy worked with third-party organizations to review the method and provide oversight and feedback. One organization — NSAI, Inc. — performed an audit of the After-Action Review process. NSAI, or National Standards Authority of Ireland, specializes in standards and certifications around Quality Management Systems, giving them the ability to evaluate Austin Energy’s After-Action Review. Based on their analysis, the auditor determined Austin Energy’s process was effective in highlighting recommendations and areas of improvement.

The five-step process phases are:

- Plan
- Discover
- Analyze
- Improve
- Report

The Plan phase. The scope of the plan phase encompassed all relevant aspects of Austin Energy’s emergency response to the Winter Storm Mara event. Gathering documentation and reports related to the event was a crucial part of this phase, as it allowed Austin Energy to have an overall understanding of the incident. Additionally, internal stakeholders such as Incident Command teams and Austin Energy leadership were engaged to ensure key individuals and teams were included in the review process. In addition, external stakeholders were identified, and their perspectives were considered. This included considering comments and questions from City Council, feedback from the Electric Utility Commission, and input from mutual aid personnel.

The Discover phase. This phase involved gathering information including General Work Processes, Emergency Operations Plans (EOP), incident logs, critical questions from key stakeholders such as City Council, and lessons learned from previous storms.

The Analyze phase. This phase involved analyzing the data gathered and identifying underlying root causes. By examining the contributing factors, the team identified patterns, systemic weaknesses, and areas where processes or procedures may have fallen short. Analyzing the incidents allowed Austin Energy to assess how well its emergency response aligned with the specific needs of customers, stakeholders, and the requirements of its utility operations. This phase also involved ensuring questions from key stakeholders like City Council were addressed through the findings of the After-Action Review. Finally, Austin Energy compared the findings from the Winter Storm Uri AAR to those of the Winter Storm Mara AAR to determine if there were any gaps in implementing the Uri AAR that need to be revisited.
The Improve phase. Austin Energy focused on using the insights gained from the previous phases to identify strategies for enhancing the utility’s emergency response. Austin Energy leveraged the findings to generate recommendations for improvement, considering both immediate corrective actions and long-term solutions.

The goal was to identify practical recommendations and effective strategies that would strengthen Austin Energy’s ability to mitigate future incidents and optimize overall emergency response capabilities. This phase emphasized customer-centric and utility perspectives to ensure that the strategies are tailored to the specific demands and challenges faced by Austin Energy’s utility operations.

The Report phase. Austin Energy summarized the findings by defining major observation topics (each, an aggregated observation) then listing associated recommendations for improvement. This comprehensive After-Action Review report serves as a valuable resource for Austin Energy, providing a detailed account of the Winter Storm event and the proposed strategies for improvement. In addition, by compiling this information, Austin Energy ensures that its insights and recommendations are effectively communicated and can be easily referenced by key stakeholders and decision-makers within the organization.

While the Report Phase concludes the After-Action Review, the work continues as Austin Energy focuses on implementing the recommendations derived from the AAR.

The implementation process involves a series of activities to enact the recommended changes. Austin Energy will record each recommendation’s actions and provide a completion status to key stakeholders to ensure accountability and transparency.

Leveraging Incident Command

Austin Energy’s internal review team leveraged its Incident Command structure to systematically capture strengths and weaknesses related to the utility’s emergency response to the storm. Based on the National Incident Management System (NIMS), the Incident Command structure provides a framework for effective coordination and communication among various sections responsible for different aspects of emergency management.

By using this structure, Austin Energy was able to identify and address specific areas of improvement within each section, with the objective of leading to the improvement of the collective whole.

For Winter Storm Mara, Austin Energy’s Incident Command structure consisted of the following primary areas. Each section is staffed by an individual or teams who worked 24/7 on a rotating basis through the entirety of the event:

1. Incident Commander: The Incident Commander is responsible for the overall management of the incident. This role provided strategic direction and coordinated the efforts of all other sections within the Incident Command structure.

2. Emergency Management: The Emergency Management section coordinated resources, conducted briefings every four hours throughout Incident Command activation, and ensured the response efforts aligned with established emergency management protocols and procedures.

3. Public Information: The Public Information section was responsible for managing public communications and ensuring timely and accurate dissemination of information related to the storm and Austin Energy’s response efforts. Public Information facilitates communication with the media, customers, and other stakeholders to keep them informed about restoration progress, safety guidelines, and other relevant storm-related updates.

4. Liaisons: This section served as the point of contact between Austin/Travis County Emergency Operations and Austin Energy’s Incident Command activation. Liaisons are stationed at the Combined Transportation, Emergency and Communications Center (CTECC) and work alongside other City of Austin department representatives. This role facilitates coordination, collaboration, and information exchange between Austin Energy and stakeholders.
5. **Safety:** This section focused on ensuring the safety of personnel and the public during the emergency response. The team developed and enforced safety protocols, conducted risk assessments, and provided training and guidance to mitigate potential hazards and accidents.

6. **Restoration Operations:** This section was responsible for the actual restoration of utility services, including power restoration, line clearance (tree trimming/vegetation management), and any necessary repairs or replacements.

7. **Customer Care:** This section addressed customer concerns and inquiries related to the storm and utility service disruptions. They provided support, information, and assistance to customers.

8. **Mutual Aid:** This section facilitated coordinating and using resources from neighboring utilities and emergency electrical services companies, who served as mutual aid partners during the event. This role established and maintained effective partnerships with other entities to leverage additional personnel and equipment for the emergency response.

9. **Technology:** This section managed and supported technological systems and tools used during the emergency response. They ensured the availability and functionality of communication systems, data management tools, and other technology-driven resources necessary for Austin Energy’s response.

10. **Planning:** This section was responsible for gathering and analyzing information, developing situational assessments, and creating response plans. They worked closely with other sections to ensure that the response efforts were coordinated and adaptive to the various phases of outage restoration.

11. **Logistics:** This section managed the procurement, deployment, and distribution of resources and supplies needed for the emergency response. They ensured personnel, equipment, materials, and other necessary resources were available and distributed throughout the response effort.

12. **Finance & Administration:** This section handled the financial and administrative aspects of the emergency response. They managed emergency ProCard issuance, maintained records, and provided support services to other sections within the Incident Command structure.
A lineworker replaces a blown fuse in the wake of Winter Storm Mara.
While linemen are out in the field making repairs, staff at the Energy Control Center monitor the system and send crews to outages.
Lineworkers take to the air to install equipment on a new pole and move lines over from a broken one.
Appendix E: Austin Resource Recovery
After-Action Report
This report describes the events related to Austin Resource Recovery’s emergency response to Winter Storm Mara, to identify the unique issues and challenges faced throughout the overall response from January 31, 2023, through April 19, 2023, and identify effective strategies for responding to similar incidents in the future.
OVERVIEW

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On Monday, January 30, 2023, Austin Resource Recovery (ARR) began to monitor and communicate storm updates to ARR’s management and crews. Based on weather conditions, ARR deployed personnel to Emergency Operations Center (EOC). On Tuesday, January 31, 2023, ARR had emergency response structure and personnel in place and ready to respond to a half inch of ice accumulation according to weather predictions. The weather event was worse than expected. Winter Storm Mara was a natural disaster with a historic amount of freezing rain and the actual ice accumulation measured approximately .71 inch – the most in Austin’s history. The weight of the ice caused trees, limbs, communications infrastructure, wires, and poles to sag or snap resulting in additional “hurricane level” damage. The storm damage caused loss of electricity for a significant portion of the Austin-metro area. The icy conditions also led to hundreds of car crashes in Central Texas, and many roadways contained storm debris that presented hazards. The storm resulted in a boil-water notice in western Travis County.

On February 3, 2023, ARR activated existing emergency contracts for storm debris management and monitoring. ARR used various platforms to communicate available storm response updates to customers and stakeholders as part of Citywide press conferences, TV, radio and print interviews, social media messaging, emails, text alerts, and through ARR website resources.

Between February 3, 2023, and April 19, 2023, ARR crews and contractors collected over 170,000 tons of storm debris. This is enough storm debris to fill the Q2 Stadium four times over. ARR demobilized contractor operations on April 19, 2023. ARR crews continued storm debris collections for customers who still needed it through the end of May and early June.
The impact of the storm and the aftereffects were spread citywide. Winter Storm Mara produced a large volume of storm debris consisting of tree limbs and associated brush. Fallen tree limbs and downed powerlines created a challenge for residents and businesses to return to normal. Citywide field observations revealed the magnitude of the damage and the need for an emergency response by ARR and other City of Austin departments.

The following are the total tons collected by ARR crews and contractors. As of April 19, 2023, ARR crews collected a total of 3,306 tons. ARR’s storm debris management contractors collected a total of 164,116.52 tons. ARR crews at Hornsby Bend accepted over 3,000 tons in drop offs. This combined to total over 170,000 tons of storm debris collected from ARR residential customers. Private businesses and multifamily properties managed the collection and removal of storm debris through private haulers or through their established private contracts. ARR was not able to obtain that tonnage amount that was collected.
Overview

The City of Austin Recovery Plan defines responsibilities, establishes a recovery organization, defines lines of communications, and is designed to be part of the City of Austin Emergency Management Program. ARR also maintains a Continuity of Operations Plan and an Emergency Operations Plan that guide the department during emergency events. These plans will be updated with information from this incident, information obtained from Austin/Travis County Homeland Security and Emergency Management and the Federal Emergency Management Agency (FEMA).

Strengths

Debris collection and monitoring contracts were in place and ready to execute prior to the storm event.

Some temporary debris sites were pre-identified.

Plan and supplies to prepare equipment for a cold weather event were in place prior to the storm event.

Areas for Improvement

1 Observation: Expenses from emergency events are expensed to enterprise department’s operational budgets.
Recommendation: Create a citywide budget to fund emergency events so that event expenses are not charged to individual department operating funds.

2 Observation: TCEQ approval process should start when our vendors are put on notice.
Recommendation: Identify additional temporary debris collection sites prior to next storm event to prevent additional delays with debris collection and improve drop-off functionality. Identification and communication of predetermined sites would allow the City of Austin departments to function at a higher level of efficiency and allow public awareness.
Overview

The Field Operations focus area encompasses those specific actions related to the management of debris resulting from the incident and the recovery activities associated with the return to normal operations for residents, responder agencies as well as critical infrastructure.

Strengths

Plan for supervisors and safety personnel to evaluate routes for safety ahead of the crews.

Well-defined operations zones for ARR crews and contractors.

Cold weather operations vehicle preparation plan.
Observation: Supervisors and employees experienced difficulty when completing storm event related documentation as they lacked proper training in completing disaster related paperwork and documentation.

Recommendation: Be more vigilant with monitoring the weather. Complete training on emergency event documentation with employees and supervisors based on weather forecasts and/or at the beginning of January for winter events.

Observation: Hornsby Bend truck scale and housing experienced various calibration issues and power failure during weather event.

Recommendation: Strengthen by developing a bi-annual maintenance schedule for ensuring the operation and functionality of the equipment to guarantee readiness for any emergency.

Observation: The event caused excessive wear and tear on ARR's fleet, increasing the rate of repairs. Fleet Services could not keep up with the increased repair needs with its normal staffing.

Recommendation: An established/standing contract for emergency fleet repair should be solicited for future disaster events. In addition to this, ARR should hire additional staff to supplement fleet personnel.

Observation: Not all division manager level staff qualified to work the storm event due to lack of emergency operations management training.

Recommendation: Create an assignment list of division manager level employees who will be assigned to work at the emergency operations center (EOC) during emergency events. This would entail sending all Division Managers through EOC certification training.
Observation: Departmental contract management teams needed Corporate Purchasing support but was unaware of who to contact.
**Recommendation:** Request schedule of on-call Corporate Purchasing support personnel.

Observation: There was not enough administrative support staff for operations during the storm event. Administrative staffing was needed for departmental on the spot purchasing, initial operational paperwork review, and associated tasks related to field employee support.
**Recommendation:** Assign administrative personnel to department command center to answer questions, process paperwork and ensure all documents are completed correctly.

Observation: Contractors displaying unsafe behaviors during storm event.
**Recommendation A:** Review and approve contractor safety plans prior to next emergency event.
**Recommendation B:** Establish a process to document, report and correct contractor’s unsafe behavior during an emergency event.

Observation: Operational staff were not aware of what emergency equipment and materials were available to use during the storm event.
**Recommendation:** Maintain an updated list of all ARR equipment, including emergency equipment needed for disaster response, this list will include materials available during emergency events across City of Austin departments. Example: tire chains, PPE, de-icing equipment.
11 **Observation:** Employees who were required to work the storm event received the same compensation as employees that are not considered “essential employees.”

**Recommendation:** Consider changing City policy to compensate employees who are required to work storm events with a stipend during the emergency event in addition to the compensation permitted for exempt employees during EOC activations and administrative leave.

12 **Observation:** Operational and administrative staff unable to respond for several days, regardless of “essential status.”

**Recommendation:** Create a plan to provide transportation and lodging for essential personnel who do not have access to a vehicle capable of operating safely in inclement weather and consequences for essential personnel who do not report. This would require establishing some standing contracts for both alternative transportation and for hotel lodging.

13 **Observation:** Gated communities and private streets created collection challenges for ARR, contractors and other city departments. Private contractors were not permitted entry or access to these communities as assigned by ARR.

**Recommendation:** Create a plan to communicate with residents of the gated communities and those residents on private drives to obtain documented permission and/or waivers to grant access to provide collection services for storm and or disaster debris.
LEADERSHIP AND COORDINATION

Overview

The Leadership and Coordination focus areas includes the performance of leadership and their ability to coordinate the storm event and subsequent cleanup effort. This evaluation includes the leadership and coordination at the City and departmental levels and with outside organizations.

Strengths

Departmental internal communication.
• Daily meeting with COA staff and contractors was very effective.
• Departmental coordination meetings prior to HSEM daily meetings worked well.

Interdepartmental communication and coordination.

Ability to shift personnel and equipment to respond to event.

Areas for Improvement

**Observation:** Departmental emergency operations would function more effectively and efficiently with a departmental emergency operations center.

**Recommendation A:** Designate and establish a departmental emergency operations center/communication hub equipped with communication and monitoring equipment.

**Recommendation B:** Assign a fully-trained administrative staff person to assemble all information and data, produce reports, set meetings, ensure all necessary sections are represented in the meetings and ensure personnel receive all necessary communications. This would require the department to train and certify all admin staff in the areas of administrative disaster response.
INCIDENT ANALYSIS

COMMUNICATION

Overview

The Communications Focus Area included issues associated with providing timely and accurate information to the maximum number of customers enabling them to take appropriate protective actions to minimize storm impact and property losses. ARR used various platforms to communicate available storm response updates to customers and stakeholders as part of Citywide press conferences, TV, radio and print interviews, social media messaging, emails, text alerts and through ARR website resources.

Strengths

Council communication, press releases and community communication.

Coordination with other City of Austin departments.

Daily meetings with ARR staff and contractors.

TEAMS chat worked well to disseminate information across divisions.

Areas of Improvement

15 Observation: Austin 3-1-1 was relaying 14-day collection timeframe and not allowing the service delivery timeframe to change.

Recommendation: ARR should provide a specific timeframe for collections and Austin 3-1-1 should communicate information provided by and authorized by the department.

16 Observation: Confusion regarding which personnel were classified as “essential personnel.”

Recommendation: Establish and communicate which employees are essential and that business needs during an emergency event may change the status of nonessential personnel to essential.
Observation: Internal and external disaster related maps created overlap, duplication and confusion when rolled out to the public. It would be valuable for the departments and the public to have a real-time map with consolidate information with departments such as Austin Fire Department, Transportation and Public Works Department, along with outside organizations.

Recommendation: Create a consolidated emergency response map that may be adapted to the type of emergency response experience. This would include city departments and outside organizations assisting with disaster response. Establish a standard for departmental reporting and authorization to release information.

Observation: There was a shortage of ARR handheld frequency radios, and some vehicle-mounted communication radios were not functioning.

Recommendation: Ensure that all emergency-response management staff are issued a handheld radio and maintain a reserve of backup handhelds that may be issued to vendors or when vehicle mounted radios are inoperable. Ensure vehicle equipment is in good operating condition. Additional purchase of handheld radios should occur before the next emergency.

Observation: There is no standardized departmental SitRep that is used to communicate updates during a storm event.

Recommendation: Create a departmental SitRep that the admin can use and make available digitally. This SitRep will provide decision makers and readers with a quick understanding of the current emergency. Conduct training on capability of tool.

Observation: ARR management did not have key points of contact information for all COA departments, surrounding cities, and nonprofit organizations.

Recommendation: Create a list of key contacts for all COA departments, surrounding cities and nonprofit organizations.

Observation: ARR’s staff was unclear as to who the PIO and Media contact was for the department, so messaging and responses were sent to various ARR staff members.

Recommendation: ARR Director should identify and designated the spokesperson(s) for the department regarding PIO and media disaster response. Designated spokesperson(s) should have necessary training, knowledge, and experience in media communication and response. This designation should be shared with department staff, City of Austin Corporate Communications Department, and other departments.
Improvement Outcome 1

Establish a citywide emergency operations fund. This would alleviate the negative budget impacts on each of the responding operational departments.

**Critical Root Causes of Incident Impact**
Currently, departments must fund emergency operations from their departmental operating budget.

**Key indicators of Progress Towards Resilience**

**Key Recommendations**
COA should establish an emergency budget so that event expenses are not charged to individual department operating funds.

**Measuring Progress**
Emergency fund established in the general fund prior to next emergency event.
Improvement Outcome 2

Establish a departmental emergency operations center/communication hub. This will allow the department to communicate in real time and provide transparency in critical operational decision making.

Critical Root Causes of Incident Impact
- Lack of communication and coordination hub.

Key indicators of Progress Towards Resilience

Key Recommendations
- Assign administrative personnel to department command center to answer questions, process paperwork and ensure all documents are completed correctly. Example: Finance (contract management, purchasing and accounting), HR (timekeeping and employee questions) and general administrative staff for paperwork completion.

Measuring Progress
- Departmental emergency response team is established and trained on an annual basis.

Improvement Outcome 3

Make all emergency contracts “citywide” contracts. This would allow all city departments access to critical emergency contracts.

Critical Root Causes of Incident Impact
- Requesting authorization during emergency events made it difficult to access emergency contracts and resulted in excessive delays.

Key indicators of Progress Towards Resilience

Key Recommendations
- Make all emergency contracts “citywide” contracts.
- Request corporate purchasing personnel schedules during emergency events.

Measuring Progress
- Emergency contracts are made “citywide” contracts prior to next emergency event.
Establish departmental emergency response team. The established response team would already know their roles and be able to respond to emergencies immediately.

Critical Root Causes of Incident Impact
- Lack of pre-identified personnel led to duplication of efforts.

Key Indicators of progress Towards Resilience
- Planning, Operational Coordination, Situational Assessment, Logistics and Supply Chain Management, Operational Communications, and Environmental Response/Health and Safety.

Key Recommendation
- ARR should establish a departmental emergency response team.
- ARR will designate roles and responsibilities for each emergency response team member.

Measuring Progress
- ARR has identified emergency response team members and has assigned specific duties for each of the team members.
Pre-Approved Temporary Brush Collection Locations. The pre-approved sites would allow departments the ability to respond immediately to disaster collection efforts.

**Critical Root Causes of Incident Impact**
Waiting for TCEQ approval of debris sites caused inefficiencies in debris collection.

**Key indicators of Progress Towards Resilience**
Planning, Operational Coordination, Situational Assessment, Logistics and Supply Chain Management, Operational Communications, and Environmental Response/Health and Safety.

**Key Recommendations**
ARR should identify additional viable locations for temporary brush collection sites.
ARR should complete site plan, traffic plan, and required equipment for each site.

**Measuring Progress**
Temporary brush collection locations have been identified and approved by Austin Resource Recovery and other departments. The TCEQ approval process will begin in October of each year to eliminate any waiting periods.
<table>
<thead>
<tr>
<th>#</th>
<th>Recommendation</th>
<th>Focus Area</th>
<th>POC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create a City-wide budget to fund emergency events so that event expenses are not charged to individual department operating funds.</td>
<td>Corporate Budget Office</td>
<td>Ed Van Eenoo</td>
</tr>
<tr>
<td>2</td>
<td>Identify and seek authorization for temporary debris collection sites on an annual basis.</td>
<td>ARR Diversion Facilities Services</td>
<td>Donald Hardee</td>
</tr>
<tr>
<td>3</td>
<td>Complete training on emergency event documentation with employees and supervisors prior to next emergency event.</td>
<td>ARR HR</td>
<td>Wendy Riggins</td>
</tr>
<tr>
<td>4</td>
<td>Complete Hornsby Bend truck scale and housing maintenance bi-annually.</td>
<td>ARR Diversion Facilities Division</td>
<td>Donald Hardee</td>
</tr>
<tr>
<td>5</td>
<td>Ensure ARR has resources needed to keep up with departmental fleet needs during emergency events. An established/standing contract for emergency fleet repair should be solicited for future disaster events. In addition to this, ARR should hire additional staff to supplement fleet personnel.</td>
<td>ARR Contract Mgmt</td>
<td>Victoria Rieger</td>
</tr>
<tr>
<td>6</td>
<td>Ensure that all non-operational division manager level staff had completed HSEM training prior to emergency event.</td>
<td>ARR Emergency Manager</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>7</td>
<td>Create an assignment list of division manager level employees who will be assigned to work at the EOC during emergency events.</td>
<td>ARR Emergency Manager</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>#</td>
<td>Recommendation</td>
<td>Focus Area</td>
<td>POC</td>
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<tr>
<td>8</td>
<td>Request Corporate Contract Management staff on-call schedules during emergency events.</td>
<td>ARR Finance Manager</td>
<td>Victoria Rieger</td>
</tr>
<tr>
<td>9</td>
<td>Assign administrative personnel to department command center to answer questions, process paperwork, and ensure all documents are completed correctly.</td>
<td>ARR Emergency Manager</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>10a</td>
<td>Review and approve contractor safety plans prior to next emergency event.</td>
<td>ARR Operations Support</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>10b</td>
<td>Establish a process to document, report, and correct contractor’s unsafe behavior during an emergency event.</td>
<td>ARR Operations Support</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>11</td>
<td>Make a list of emergency equipment and materials available during emergency events. Example: tire chains, PPE, de-icing equipment.</td>
<td>ARR Operations Support</td>
<td>Raymond Benavidez</td>
</tr>
<tr>
<td>12</td>
<td>Consider changing City policy to compensate employee who are required to work storm events with a stipend during the emergency event.</td>
<td>Corporate HRD</td>
<td>Rebecca Kennedy</td>
</tr>
<tr>
<td>13</td>
<td>Create a plan to provide transportation for essential personnel who do not have access to a vehicle capable of operating safety in inclement weather and consequences for essential personnel who do not report.</td>
<td>ARR Operations Support</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>14a</td>
<td>Establish a departmental emergency operations center/ communication hub.</td>
<td>ARR Emergency Manager</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>14b</td>
<td>Assign administrative staff to assemble all information and data, produce reports, set meetings, ensure all necessary sections are represented in the meetings and ensure personnel receive all necessary communications.</td>
<td>ARR Emergency Manager</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>#</td>
<td>Recommendation</td>
<td>Focus Area</td>
<td>POC</td>
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</tr>
<tr>
<td>15</td>
<td>Austin 3-1-1 should request and communicate information provided by and authorized by the department.</td>
<td>3-1-1</td>
<td>Patty Martinez</td>
</tr>
<tr>
<td>16</td>
<td>Establish and communicate that all ARR employees are essential and create a process to pre-identify and notify what employees are essential in a specific emergency.</td>
<td>ARR HR</td>
<td>Wendy Riggins</td>
</tr>
<tr>
<td>17</td>
<td>Create a consolidated emergency response map that may be adapted to the type of emergency response experience. Establish standard for departmental reporting and authorization to release information.</td>
<td>HSEM</td>
<td>Tanner Hunt</td>
</tr>
<tr>
<td>18</td>
<td>Ensure that all operational management are issues a handheld radio and maintain a reserve of backup handheld that may be issued to vendors or when vehicle mounted radios are inoperable.</td>
<td>ARR HR</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>19</td>
<td>Create a standardized departmental SitRep that the admin can use and make available digitally.</td>
<td>ARR HR</td>
<td>Chad Presley</td>
</tr>
<tr>
<td>20</td>
<td>Create a list of key contacts for Travis County, surrounding counties and cities, and nonprofit organizations.</td>
<td>ARR HR</td>
<td>Ron Romero</td>
</tr>
<tr>
<td>21</td>
<td>Identify the spokesperson for the department</td>
<td>ARR HR</td>
<td>Gena McKinley</td>
</tr>
</tbody>
</table>
APPENDIX 2

SUMMARY OF EVENTS

Pre-Event Preparation
- Completed winterization of vehicles and equipment prior to weather event.
- Eliminated biodiesel before (and during) freezing events.
- Obtained tire cables for vehicles.
- Obtained better cold weather PPE for operators.
- Acquired Emergency Preparedness Conex to store the items that would be needed in weather events.

Saturday, Jan. 28, 2023
- No activity.

Sunday, Jan. 29, 2023
- Weather Summary: The National Weather Service predicted that western Travis County could see 0.1-inch ice accumulation, but downtown Austin would not see winter impacts.
- Senior management and safety staff monitored weather reports.

Monday, Jan. 30, 2023
- Weather Summary: Temperatures dropped below freezing. The National Weather Service predicted one quarter inch to half a inch of ice accumulation possible.
- Public Works Street and Bridge was contacted in advance and asked to lay down sand in our parking lots and equipment yard to allow for traction when leaving for the routes.
- Completed facilities cold weather event preparation.
- Ensured adequate levels of winter weather PPE were on hand.
- Began schedule for ARR representatives at the EOC.

Tuesday, Jan. 31, 2023
- Weather Summary: The National Weather Service predicted half an inch of ice accumulation possible, mostly north and west of Austin area.
- Personnel activated as ARR EOC representative.
- Safety and supervisors completed reconnaissance of routes prior to deploying crews to obtain roads conditions in the areas of collection.
Tuesday, Jan. 31, 2023, Cont.
- Operators were instructed to contact Dispatch with information on any hazardous areas or roads.
- Operations were suspended when roadways conditions became hazardous. Crews were directed to return to Service Center without dumping to reduce the potential for accidents.
- Austin police responded to 215 collision reports on Tuesday.

Wednesday, Feb. 1, 2023
- Personnel activated as ARR EOC representative.
- No field operations.

Thursday, Feb. 2, 2023
- Weather Summary: Actual ice accumulation reaches 0.71 inch in Central Austin; the worst ice storm in Austin history.
- Delayed collections start time to 11 a.m.
- Personnel activated as ARR EOC representative.
- Ten ARR employees were assigned to the EOC to operate large vans for passenger transportation to warming shelters, hotels and other locations.
- Safety and supervisors completed reconnaissance of routes prior to deploying crews to obtain road conditions in the areas of collection.
- Crews were assigned to complete areas on routes not serviced on Tuesday and Wednesday.
- Instructors were reassigned to assist Safety.
- Safety and supervisors drove routes assigned ahead of crews to identify additional hazards.
- All hazards were called in to Dispatch to assemble a list of hazards.

Friday, Feb. 3, 2023
- Austin declared to be a local disaster.
- Personnel activated as ARR EOC representative.
- Two employees were assigned to the EOC for transportation activities.
- Safety and supervisors completed reconnaissance of routes prior to deploying crews to obtain road conditions in the areas of collection.
- Crews were assigned to complete areas on routes not serviced on Thursday and Friday.
- Safety and supervisors drove routes assigned ahead of crews to identify additional hazards.
- Collections deployed at normal start time.
- Instructors were reassigned to assist Safety.
- All hazards were called in to Dispatch to assemble a list of hazards.
- Notice To Proceed provided to debris haulers and monitoring contractor.
- Held discussions with Public Works and Austin Energy on assisting with debris removal from impacted rights of way.
Friday, Feb. 3, 2023, Cont.
• Recycle and Reuse Drop-off Center (RRDOC) re-established operations after weather closure and began to reschedule residents affected by the closure. Those residents were rescheduled at their convenience.
• Hornsby Bend public brush collection site received 177 tons of storm debris.

Saturday, Feb. 4, 2023
• Personnel activated as ARR EOC representative.
• Deployed Brush crews to remove storm debris in storm-impacted areas.
• Safety and supervisors drove routes assigned ahead of crews to identify additional hazards.
• Assembled photographs and videos of storm-impacted areas.
• Met with Contractors to discuss plan of action and needs from the City and mobilization timeline.
• Began discussions for potential temporary debris sites.
• Hornsby Bend public brush collection site received 224 tons of storm debris.

Sunday, Feb. 5, 2023
• Personnel activated as ARR EOC representative.
• Deployed Brush crews to remove storm debris in storm-impacted areas.
• Completed site review of potential alternative dump sites.
• Debris removal contractors began truck certification process.
• ARR crews collected 91.68 tons of storm debris.
• Hornsby Bend public brush collection site received 156 tons of storm debris.
• Daily grand total collected: 247.68 tons of storm debris.

Monday, Feb. 6, 2023
• Personnel activated as ARR EOC representative.
• Additional cleanup contractors arrive.
• Debris removal contractor truck certification continues.
• TCEQ and Texas Historical Commission paperwork completed for Circle C Ranch Metropolitan Park Temporary Debris Management Site.
• ARR crews collected 100.00 tons of storm debris.
• ARR's storm debris management contractors collected 972.44 tons of storm debris.
• Hornsby Bend public brush collection site received 109 tons of storm debris.
• Daily grand total collected: 1,181.44 tons of storm debris.
Tuesday, Feb. 7, 2023
• ARR crews collected 105.6 tons of storm debris.
• ARR’s storm debris management contractors collected 1,705.33 tons of storm debris.
• Hornsby Bend public brush collection site received 130 tons of storm debris.
• Daily grand total collected: 1,940.93 tons of storm debris.

Wednesday, Feb. 8, 2023
• ARR crews collected 134.74 tons of storm debris.
• ARR’s storm debris management contractors collected 2,134.14 tons of storm debris.
• Hornsby Bend public brush collection site received 114 tons of storm debris.
• Daily grand total collected: 2,382.88 tons of storm debris.

Thursday, Feb. 9, 2023
• TCEQ and Texas Historical Commission paperwork completed for Bolm District Park and Old Manor Road Temporary Debris Management Sites (TDMS).
• ARR crews collected 131.54 tons of storm debris.
• ARR’s storm debris management contractors collected 2,405.21 tons of storm debris.
• Hornsby Bend public brush collection site received 11 tons of storm debris.
• Daily grand total collected: 2,547.75 tons of storm debris.

Friday, Feb. 10, 2023
• ARR crews collected 98.23 tons of storm debris.
• ARR’s storm debris management contractors collected 3,349.22 tons of storm debris.
• Hornsby Bend public brush collection site received 81 tons of storm debris.
• Daily grand total collected: 3,528.45 tons of storm debris.

Saturday, Feb. 11, 2023
• ARR crews collected 195.27 tons of storm debris.
• ARR’s storm debris management contractors collected 3,899.72 tons of storm debris.
• Hornsby Bend public brush collection site received 168 tons of storm debris.
• Daily grand total collected: 4,262.99 tons of storm debris.
Sunday, Feb. 12, 2023
- ARR's storm debris management contractors collected 3,410.04 tons of storm debris.
- Hornsby Bend public brush collection site received 71 tons of storm debris.
- Daily grand total collected: 3,481.04 tons of storm debris.

Monday, Feb. 13, 2023
- ARR crews collected 80.32 tons of storm debris.
- ARR's storm debris management contractors collected 3,846.36 tons of storm debris.
- Hornsby Bend public brush collection site did not record any drop off tonnage due to the focus on grinding and the relocation of piles of storm debris.
- Daily grand total collected: 3,926.68 tons of storm debris.

Tuesday, Feb. 14, 2023
- ARR crews collected 63.13 tons of storm debris.
- ARR's storm debris management contractors collected 3,989.16 tons of storm debris.
- Hornsby Bend public brush collection site received 61 tons of storm debris.
- Daily grand total collected: 4,113.29 tons of storm debris.

Wednesday, Feb. 15, 2023
- ARR crews collected 89.44 tons of storm debris.
- ARR's storm debris management contractors collected 4,439.11 tons of storm debris.
- Hornsby Bend public brush collection site received 25 tons of storm debris.
- Daily grand total collected: 4,553.55 tons of storm debris.

Thursday, Feb. 16, 2023
- ARR crews collected 61.25 tons of storm debris.
- ARR's storm debris management contractors collected 4,652.98 tons of storm debris.
- Hornsby Bend public brush collection site received 55 tons of storm debris.
- Daily grand total collected: 4,769.23 tons of storm debris.

Friday, Feb. 17, 2023
- ARR crews collected 108.26 tons of storm debris.
- ARR's storm debris management contractors collected 4,710.02 tons of storm debris.
- Hornsby Bend public brush collection site received 31 tons of storm debris.
- Daily grand total collected: 4,849 tons of storm debris.
Saturday, Feb. 18, 2023
• ARR crews collected 202.51 tons of storm debris.
• ARR’s storm debris management contractors collected 5,327.71 tons of storm debris.
• Hornsby Bend public brush collection site received 47 tons of storm debris.
• Daily grand total collected: 5,577.22 tons of storm debris.

Sunday, Feb. 19, 2023
• ARR’s storm debris management contractors collected 4,876.78 tons of storm debris.
• Hornsby Bend public brush collection site received 53 tons of storm debris.
• Daily grand total collected: 4,929.78 tons of storm debris.

Monday, Feb. 20, 2023
• ARR crews collected 79.77 tons of storm debris.
• ARR’s storm debris management contractors collected 4,963.38 tons of storm debris.
• Hornsby Bend public brush collection site received 14 tons of storm debris.
• Daily grand total collected: 5,057.15 tons of storm debris.

Tuesday, Feb. 21, 2023
• ARR crews collected 93.76 tons of storm debris.
• ARR’s storm debris management contractors collected 5,010.18 tons of storm debris.
• Hornsby Bend public brush collection site received 34 tons of storm debris.
• Daily grand total collected: 5,137.94 tons of storm debris.

Wednesday, Feb. 22, 2023
• ARR crews collected 108.55 tons of storm debris.
• ARR’s storm debris management contractors collected 4,931.36 tons of storm debris.
• Daily grand total collected: 5,039.91 tons of storm debris.

Thursday, Feb. 23, 2023
• ARR crews collected 73.84 tons of storm debris.
• ARR’s storm debris management contractors collected 4,963.58 tons of storm debris.
• Hornsby Bend public brush collection site received 47 tons of storm debris.
• Daily grand total collected: 5,084.42 tons of storm debris.
Friday, Feb. 24, 2023
• Haul-outs of mulch began from Contractor TDMS sites to Hornsby Bend.
• ARR crews collected 131.11 tons of storm debris.
• ARR’s storm debris management contractors collected 5,133.89 tons of storm debris.
• Hornsby Bend public brush collection site received 26 tons of storm debris.
• Daily grand total collected: 5,293 tons of storm debris.

Saturday, Feb. 25, 2023
• ARR crews collected 261.65 tons of storm debris.
• ARR’s storm debris management contractors collected 5,764.26 tons of storm debris.
• Hornsby Bend public brush collection site did not record any drop off tonnage due to the focus on grinding and the relocation of piles of storm debris.
• Daily grand total collected: 6,025.91 tons of storm debris.

Sunday, Feb. 26, 2023
• ARR’s storm debris management contractors collected 5,400.58 tons of storm debris.
• Hornsby Bend public brush collection site did not record any drop off tonnage due to the focus on grinding and the relocation of piles of storm debris.
• Daily grand total collected: 5,400.58 tons of storm debris.

Monday, Feb. 27, 2023
• ARR crews collected 119.61 tons of storm debris.
• ARR’s storm debris management contractors collected 5,150.40 tons of storm debris.
• Hornsby Bend public brush collection site received 121 tons of storm debris.
• Daily grand total collected: 5,391.01 tons of storm debris.

Tuesday, Feb. 28, 2023
• ARR crews collected 66.46 tons of storm debris.
• ARR’s storm debris management contractors collected 5,138.39 tons of storm debris.
• Hornsby Bend public brush collection site received 60 tons of storm debris.
• Daily grand total collected: 5,264.85 tons of storm debris.
Wednesday, March 1, 2023
• ARR crews collected 66.33 tons of storm debris.
• ARR’s storm debris management contractors collected 5,080.59 tons of storm debris.
• Hornsby Bend public brush collection site received 79 tons of storm debris.
• Daily grand total collected: 5,225.92 tons of storm debris.

Thursday, March 2, 2023
• ARR crews collected 10.04 tons of storm debris.
• ARR’s storm debris management contractors collected 5,019.72 tons of storm debris.
• Hornsby Bend public brush collection site received 97 tons of storm debris.
• Daily grand total collected: 5,126.78 tons of storm debris.

Friday, March 3, 2023
• ARR crews collected 85.24 tons of storm debris.
• ARR’s storm debris management contractors collected 5,050.11 tons of storm debris.
• Daily grand total collected: 5,135.35 tons of storm debris.

Saturday, March 4, 2023
• ARR crews collected 202.61 tons of storm debris.
• ARR’s storm debris management contractors collected 4,977.25 tons of storm debris.
• Hornsby Bend public brush collection site received 3 tons of storm debris.
• Daily grand total collected: 5,128.86 tons of storm debris.

Sunday, March 5, 2023
• ARR crews collected 1.99 tons of storm debris.
• ARR’s storm debris management contractors collected 4,932.13 tons of storm debris.
• Daily grand total collected: 4,934.12 tons of storm debris.

Monday, March 6, 2023
• ARR crews collected 59.50 tons of storm debris.
• ARR’s storm debris management contractors collected 4,466.28 tons of storm debris.
• Daily grand total collected: 4,525.78 tons of storm debris.
Tuesday March 7, 2023
• ARR crews collected 41.48 tons of storm debris.
• ARR’s storm debris management contractors collected 4,663.61 tons of storm debris.
• Hornsby Bend public brush collection site received 168 tons of storm debris.
• Daily grand total collected: 4,873.09 tons of storm debris.

Wednesday, March 8, 2023
• ARR crews collected 12.69 tons of storm debris.
• ARR’s storm debris management contractors collected 4,377.88 tons of storm debris.
• Hornsby Bend public brush collection site received 127 tons of storm debris.
• Daily grand total collected: 4,517.57 tons of storm debris.

Thursday, March 9, 2023
• ARR crews collected 28.71 tons of storm debris.
• ARR’s storm debris management contractors collected 3,932.63 tons of storm debris.
• Hornsby Bend public brush collection site received 150 tons of storm debris.
• Daily grand total collected: 4,111.34 tons of storm debris.

Friday, March 10, 2023
• ARR’s storm debris management contractors collected 3,977.96 tons of storm debris.
• Hornsby Bend public brush collection site received 2 tons of storm debris.
• Daily grand total collected: 3,979.96 tons of storm debris.

Saturday, March 11, 2023
• ARR’s storm debris management contractors collected 3,931.88 tons of storm debris.
• Hornsby Bend public brush collection site received 81 tons of storm debris.
• Daily grand total collected: 4,012.88 tons of storm debris.

Sunday, March 12, 2023
• ARR’s storm debris management contractors collected 3,555.59 tons of storm debris.
• Hornsby Bend public brush collection site received 84 tons of storm debris.
• Daily grand total collected: 3,639.59 tons of storm debris.
Monday, March 13, 2023
- ARR's storm debris management contractors collected 3,367.88 tons of storm debris.
- Hornsby Bend public brush collection site received 34 tons of storm debris.
- Daily grand total collected: 3,401.88 tons of storm debris.

Tuesday, March 14, 2023
- ARR's storm debris management contractors collected 3,066.85 tons of storm debris.
- Hornsby Bend public brush collection site received 36 tons of storm debris.
- Daily grand total collected: 3,092.85 tons of storm debris.

Wednesday, March 15, 2023
- ARR's storm debris management contractors collected 2,686.24 tons of storm debris.
- Hornsby Bend public brush collection site received 29 tons of storm debris.
- Daily grand total collected: 2,715.24 tons of storm debris.

Thursday, March 16, 2023
- ARR crews collected 3.94 tons of storm debris.
- ARR's storm debris management contractors collected 2,047.49 tons of storm debris.
- Hornsby Bend public brush collection site received 110 tons of storm debris.
- Daily grand total collected: 2,161.43 tons of storm debris.

Friday, March 17, 2023
- ARR crews collected 12.58 tons of storm debris.
- ARR's storm debris management contractors collected 1,207.60 tons of storm debris.
- Hornsby Bend public brush collection site received 7 tons of storm debris.
- Daily grand total collected: 1,227.18 tons of storm debris.

Saturday, March 18, 2023
- ARR's storm debris management contractors collected 965.80 tons of storm debris.
- Hornsby Bend public brush collection site received 34 tons of storm debris.
- Daily grand total collected: 999.80 tons of storm debris.

Sunday, March 19, 2023
- ARR's storm debris management contractors collected 465.14 tons of storm debris.
- Hornsby Bend public brush collection site received 93 tons of storm debris.
- Daily grand total collected: 558.14 tons of storm debris.
Monday, March 20, 2023
- ARR crews collected 13.24 tons of storm debris.
- ARR’s storm debris management contractors collected 134.09 tons of storm debris.
- Hornsby Bend public brush collection site received 51 tons of storm debris.
- Daily grand total collected: 198.33 tons of storm debris.

Tuesday, March 21, 2023
- ARR crews collected 9.94 tons of storm debris.
- ARR’s storm debris management contractors collected 32.06 tons of storm debris.
- Hornsby Bend public brush collection site received 83 tons of storm debris.
- Daily grand total collected: 125.00 tons of storm debris.

Wednesday, March 22, 2023
- ARR crews collected 32.81 tons of storm debris.
- Hornsby Bend public brush collection site received 65 tons of storm debris.
- Daily grand total collected: 97.81 tons of storm debris.

Thursday, March 23, 2023
- ARR crews collected 26.81 tons of storm debris.
- Hornsby Bend public brush collection site received 79 tons from 66 drop-offs.
- Daily grand total collected: 105.81 tons of storm debris.

Friday, March 24, 2023
- ARR crews collected 39.96 tons of storm debris.
- Hornsby Bend public brush collection site received 20 tons of storm debris.
- Daily grand total collected: 59.96 tons of storm debris.

Saturday, March 25, 2023
- Hornsby Bend public brush collection site received 140 tons of storm debris.
- Daily grand total collected: 140 tons of storm debris.

Sunday, March 26, 2023
- Hornsby Bend public brush collection site received 78 tons of storm debris.
- Daily grand total collected: 78 tons of storm debris.

Monday, March 27, 2023
- ARR crews collected 22.58 tons of storm debris.
- Hornsby Bend public brush collection site received 36 tons of storm debris.
- Daily grand total collected: 58.58 tons of storm debris.
Tuesday, March 28, 2023
• ARR crews collected 42.22 tons of storm debris.
• Daily grand total collected: 42.22 tons of storm debris.

Wednesday, March 29, 2023
• ARR crews collected 39.67 tons of storm debris.
• Daily grand total collected: 39.80 tons of storm debris.

Thursday, March 30, 2023
• ARR crews collected 34.33 tons of storm debris.
• ARR’s storm debris management contractors collected 0.25 tons of storm debris.
• Daily grand total collected: 34.58 tons of storm debris.

Friday, March 31, 2023
• ARR crews collected 24.80 tons of storm debris.
• Daily grand total collected: 25.18 tons of storm debris.

Saturday, April 1, 2023
• Hornsby Bend public brush collection site received 125.83 tons of storm debris.
• Daily grand total collected: 125.83 tons of storm debris.

Monday, April 3, 2023
• ARR crews collected 29.07 tons of storm debris.
• Daily grand total collected: 29.57 tons of storm debris.

Tuesday, April 4, 2023
• ARR crews collected 16.64 tons of storm debris.
• ARR’s storm debris management contractors collected 0.63 tons of storm debris.
• Daily grand total collected: 17.27 tons of storm debris.

Wednesday, April 5, 2023
• ARR crews collected 18.55 tons of storm debris.
• Hornsby Bend public brush collection site received 121.07 tons of storm debris.
• Daily grand total collected: 140.37 tons of storm debris.
Thursday, April 6, 2023
• ARR crews collected 4.56 tons of storm debris.
• Hornsby Bend public brush collection site received 93.99 tons of storm debris.
• Daily grand total collected: 99.43 tons of storm debris.

Tuesday, April 11, 2023
• ARR’s storm debris management contractors collected 462.54 tons of storm debris.
• Daily grand total collected: 462.54 tons of storm debris.

Wednesday, April 12, 2023
• ARR crews collected 3.53 tons of storm debris.
• ARR’s storm debris management contractors collected 568.88 tons of storm debris.
• Daily grand total collected: 572.41 tons of storm debris.

Thursday, April 13, 2023
• ARR’s storm debris management contractors collected 472.58 tons of storm debris.
• Hornsby Bend public brush collection site received 32.52 tons of storm debris.
• Daily grand total collected: 505.10 tons of storm debris.

Friday, April 14, 2023
• ARR’s storm debris management contractors collected 354.19 tons of storm debris.
• Daily grand total collected: 354.19 tons of storm debris.

Saturday, April 15, 2023
• ARR crews collected 22.85 tons of storm debris.
• ARR’s storm debris management contractors collected 102.03 tons of storm debris.
• Daily grand total collected: 124.88 tons of storm debris.

Sunday, April 16, 2023
• ARR’s storm debris management contractors collected 69.42 tons of storm debris.
• Hornsby Bend public brush collection site received 39.28 tons of storm debris.
• Daily grand total collected: 108.70 tons of storm debris.
Monday, April 17, 2023
- ARR’s storm debris management contractors collected 63.69 tons of storm debris.
- Hornsby Bend public brush collection site received 28.02 tons of storm debris.
- Daily grand total collected: 91.71 tons of storm debris.

Tuesday, April 18, 2023
- ARR’s storm debris management contractors collected 77.98 tons of storm debris.
- Hornsby Bend public brush collection site received 59.93 tons of storm debris.
- Daily grand total collected: 136.91 tons of storm debris.

Wednesday, April 19, 2023
- ARR’s storm debris management contractors collected 45.5 tons of storm debris.
- Hornsby Bend public brush collection site received 37.69 tons of storm debris.
- Daily grand total collected: 83.19 tons of storm debris.

June 2023
- ARR was presented a 2023 Best of Austin Award for the Best Disaster Response by the Austin Chronicle. An excerpt from the award read, “One city agency went above and beyond when it came to not just cleaning up, but keeping everyone updated on what was happening and when. Austin Resource Recovery not only kept the trash from piling up, but worked for months to clear away the massive brush piles and stacks of branches that covered the melted city. Next time, can we just have them handle a crisis?”