



TO: Mayor and Council
FROM: Office of Emergency Management & Ann Arbor Fire Department
DATE: September 2023
RE: Response to Resolution [R-23-293](#)

2023 Storm Events Overview

1. February 22, 2023, Ice Storm and Widespread Power Outages
 - a. Tuesday, February 21, 3:30 AM: The National Weather Service (NWS) issues a Winter Storm Watch from 12 PM Wednesday to 12 PM Thursday. Ann Arbor is predicted to receive 0.1 inches of ice accumulation.
 - b. Tuesday, February 21, 5:30 PM: NWS issues a Winter Storm Warning from 12 PM Wednesday to 4 AM Thursday. Ann Arbor is predicted to receive 0.25 – 0.50 inches of ice accumulation.
 - c. Wednesday, February 22, 6:30 PM: Ann Arbor received 0.5 – 0.75 inches of ice accumulation.
 - d. According to NWS, an icing event of this severity had not been observed since April 2003.
2. March 3, 2023, Heavy Snow Fall Event
 - a. Thursday, March 2, 5:30 AM: NWS issues a Winter Storm Watch from 12 PM Friday to 3 AM Saturday. Ann Arbor is predicted to receive 4-6 inches of heavy wet snow.
 - b. Friday, March 3, 12 PM: NWS issues a Winter Storm Warning from 1 PM Friday to 4 AM Saturday. Ann Arbor is predicted to receive 6 to 10 inches of heavy wet snow.
 - c. Friday, March 3, 9:00 PM: Ann Arbor receives 8 to 9 inches of heavy wet snow.
3. July 26, 2023, Severe Thunderstorms and Widespread Power Outage
 - a. Tuesday, July 25, 3:30 PM: NWS issues a Severe Weather Outlook. Ann Arbor has an enhanced risk for severe weather on Wednesday, July 26.
 - b. Wednesday, July 26, 5:00 AM: NWS issues a Severe Weather Outlook. Ann Arbor remains at an enhanced risk for severe thunderstorms. Threats include winds 65 mph or greater, hail one inch or greater, and isolated tornado possible.
 - c. Wednesday, July 26, 2:00 PM: NWS issues a Thunderstorm Watch for Washtenaw County until 7 PM.
 - d. Wednesday, July 26, 2:30 PM: NWS issues a Severe Thunderstorm Warning for Washtenaw County until 3:30 PM. Radar detecting 60 mph winds.

- i. 2:50 PM: NWS issues an update. Radar detecting 70 mph winds.
- ii. 2:58 PM: NWS issues an update. Radar detecting 80 mph winds.

An analysis of geographic patterns of weather-related power outages within Ann Arbor and possible causes;

Specific, geographic information is not data the City has been maintaining. All of the weather events had incidents throughout the City. There was not a particular ward that had a disparate impact compared to other wards.

An inventory of community cooling and warming centers that have been made available;

February 22 Ice Storm and Widespread Power Outages

Six warming centers were activated and promoted throughout the duration of this power outage event:

- 1. AADL – Downtown Library
- 2. AADL – Pittsfield Branch
- 3. AADL – Malletts Creek Branch
- 4. AADL – Westgate Branch
- 5. AADL – Traverwood Branch
- 6. Veterans Memorial Park

Timeline of Operation:

- Wednesday, February 22 - Emergency Management and OSI contacted AADL and Parks as the icing event was starting to impact Ann Arbor to confirm warming center support.
- Thursday, February 23 - All 6 sites were activated from 10 AM to 10 PM. AADL extended its normal business hours from 8 PM to 10 PM.
- Friday, February 24 - Sunday, February 26 – All 6 sites were activated from 10 AM to 8 PM.

AADL Warming Centers Door Count Data:

Date	Downtown	Malletts Creek	Pittsfield	Traverwood	Westgate	Total
Thursday, Feb 23	1,654	933	848	638	2,992	7,065
Friday, Feb 24	1,740	827	732	671	2,845	6,815
Saturday, Feb 25	1,646	650	618	541	1,962	5,417

July 26 Severe Thunderstorm and Widespread Power Outages

Four cooling centers were activated and promoted throughout the duration of this power outage event:

- 1. AADL – Downtown Library
- 2. AADL – Pittsfield Branch
- 3. AADL – Malletts Creek Branch
- 4. AADL – Traverwood Branch

Timeline of Operation:

- Wednesday, July 26 - Emergency Management contacted AADL in the morning to provide an update on the forecast and confirm cooling center support if needed.
- Thursday, July 27 – AADL reported that Westgate was without power. All other branches were operational and activated as cooling centers from 10 AM – 8 PM.
- Friday, July 28 – The four AADL sites were activated as cooling centers from 10 AM – 8 PM.

AADL Cooling Centers Door Count Data:

Date	Downtown	Malletts Creek	Pittsfield	Traverwood	Total
Thursday, July 27	2,233	1,235	1,201	1,424	6,093
Friday, July 28	1,748	1,030	840	1,030	4,648

A description and analysis of how emergency-related communication and coordination occurs between different City departments, the City and DTE, and the City and other community organizations (e.g., Red Cross, Ann Arbor District Library);

City Department Communication and Coordination

The Office of Emergency Management manages a Microsoft Teams Channel designated for weather communication and coordination across the City’s Emergency Operations Center (EOC) Team. Our EOC Team is inclusive of our Service Area Administrators and their designated secondary and tertiary contacts. The Office of Emergency Management is subscribed as an early warning point of contact through our local National Weather Service Office. As a result, EM receives emails and texts when NWS issues a weather briefing or alert. EM is also a member of the NWS Chat, which utilizes Slack and has NWS, EM, and media contacts across SE Michigan providing real-time updates. As weather briefings or alerts are issued, EM posts them in the Weather Microsoft Teams Channel to notify the EOC Team. The Weather Teams Channel is also used during our emergency response to weather events to share information such as outages, roadways blocked, number of calls, resource requests, etc.

During significant emergencies that require additional coordination, EM activates the City’s EOC, which has been done virtually post-COVID utilizing either Microsoft Teams or Zoom. EOC activation summary for these storm events:

1. February 22 Ice Storm and Widespread Power Outages: Our full EOC was activated virtually via Microsoft Teams five times throughout the duration of the incident.
2. March 3 Heavy Snowfall Event: Our full EOC activated virtually twice. Once via an Everbridge text, email, and phone call to our EOC team with a Zoom link embedded on the night of Friday, March 3. Once via Microsoft Teams on Saturday, March 4.

3. July 26 Severe Thunderstorms and Widespread Power Outages: Our EOC was partially activated (EM, AAFD, Communications, and Public Services) three times virtually via Microsoft Teams to coordinate the outage impacts at the Water Treatment Plant and the water restrictions.

Other communication tools that also assist with situational awareness and were utilized during these weather events:

- The City's Everbridge Emergency Alert System is a communication tool used to issue weather alerts to those who are registered to receive them. EM also utilized this system to issue and lift the water restrictions during the July 26 event. Folks who register to receive these alerts can choose to receive them via text, phone call, and/or email.
- The National Weather Service and Washtenaw County Emergency Management can issue Wireless Emergency Alerts (WEA), which is the same system that is used to issue AMBER alerts. These alerts are sent to cell phones within an identified geographical area and therefore do not require folks to opt-in. NWS utilized this system for the July 26 severe thunderstorm event due to winds greater than 75 mph. This also triggered EM to activate the City's Outdoor Warning System. EM requested Washtenaw County EM to issue a WEA message for the March 3 heavy snowfall event, encouraging folks to stay off the roads.

Communication and Coordination with Community Organizations

The Red Cross

The Office of Emergency Management contacted the Red Cross around 8 PM on February 22 as the DTE outage map had doubled from 6,000 to 12,000 outages within a 1.5-hour time span. We were anticipating many more outages that night followed by several days with nights below freezing temperatures. Our local Red Cross Disaster Program Manager indicated that they were taking a few days off and there was not an effort underway to activate shelters.

On the morning of February 23, EM contacted Washtenaw County EM and we put a joint request into the Red Cross to activate 3 shelters in the county, one of which would be in Ann Arbor. The Red Cross could only commit to one and the county activated a site in Ypsilanti. EM and OSI partnered with Ann Arbor District Library, Community Action Network, and the Lord of the Light Lutheran Church to activate emergency overnight shelters. In summary:

- Northside Community Center was activated Thursday, February 23 through Monday, February 27, and provided shelter to 31 people. This location was staffed primarily by city staff. EM was able to secure Red Cross staff to cover one night when the county closed its site. However, when we requested Red Cross staff to cover the following night, they were unable to find volunteers.
- Westgate Library served as a warming center throughout the duration of the event, however, was activated as an overnight shelter on Thursday, February 23. This location operated with city staff and provided shelter to 20 people.
- The Lord of the Light Lutheran Church was activated as an overnight shelter on Thursday, February 23, and Friday, February 24, and provided shelter to 10 people. This location was operated by its own staff.

This was a monumental effort for the city to manage and was a service that we had never provided before. We met with Red Cross leadership after this event to share our dissatisfaction and were informed that during regional emergencies, we should be prepared to locally activate and manage shelter operations for 36 hours until the Red Cross can mobilize resources from out of state. Since this event, we have been working on developing an emergency overnight shelter plan in partnership with a community organization.

Ann Arbor District Library & The Community Action Network

EM and OSI communicate with the Ann Arbor District Library and Community Action Network prior to, during, and after these severe weather incidents to coordinate the activation and debriefing of cooling/warming centers, overnight emergency shelters, and resilience hub operations. While the February ice storm and power outage event was the first time we coordinated the activation of these spaces and did so beyond what we had ever intended (i.e., utilizing the Northside Community Center and Westgate as overnight shelters, extending AADL branch hours, etc.), by the July 26 storm and power outage event, we were able to activate them more seamlessly and provide timely communications to the public.

Additional Partners

- EM coordinates regularly with Washtenaw County EM, U-M EM, and Ann Arbor Public Schools. During the February 22 Ice Storm specifically, EM coordinated daily briefings with these partners.
- During the July 26 event EM coordinated multiple briefings with U-M and Michigan Medicine related to the water restrictions.

Emergency Management and DTE

EM has struggled to communicate and coordinate with DTE:

- Their pre-event communication is inconsistent. For some weather events, EM receives an email from DTE's Department of Emergency Preparedness Storm informing us that they are preparing for the incoming weather. We received this communication for the July 26 storm but did not receive this communication prior to the February 22 Ice Storm or the March 3 Heavy Snowfall event.
- The only DTE contact that EM has worked with directly has been our designated DTE Regional Manager. This has not been an effective partnership:
 - During the February 22 Ice Storm and throughout most of the July 26 event, the DTE Regional Manager was communicating with the Washtenaw County EM to discuss City of Ann Arbor issues. This occurred even after EM had made direct contact with this DTE point of contact.
 - During the February 22 Ice Storm, EM contacted the DTE Regional Manager to try to determine the number of customers in Ann Arbor who were without power. We were unable to get a definite answer.
 - During the July 26 event, it was reported that there was a wire down in the Huron River. At 4:30 PM EM coordinated with Parks and City Communications to keep people off the river. EM contacted the DTE Regional Manager to ensure this was listed as a priority. At approximately 8:30 PM the DTE Regional Manager reported that this issue had been

addressed and that the river was safe. EM communicated this to Parks and City Communications and we “re-opened” the river. On July 27, Parks reported that crews were still working on this wire down and the river was not safe. Parks closed canoe livery operations. We were not informed that this issue was corrected until Parks went out to the site on July 28 to find that new poles and lines were up.

- Overall, DTE is the owner of the outage data and has its own prioritization process for restoration. This data and restoration process has never been communicated with EM and therefore, we don’t ever truly have situational awareness of the impact on the city (i.e., the total number of outages, critical facilities impacted, etc.).

Fire Department and DTE

For the February 23, 2023 and March 3, 2023 weather events, the fire department had no means of emergency communication with DTE. During both events, DTE primary reporting phone number, public safety online portal, and “emergency” call number were offline or ineffective. AAFD had no way to report incidents and more importantly, lacked any ability to triage or report priority incidents. Following these experiences, a formal communication was sent to DTE leadership, State of Michigan Public Service Commission, and State of Michigan elected officials representing the City of Ann Arbor.

As part of the March 2023 communication to DTE, AAFD requested the following.

1. Invest in IT infrastructure to allow for reporting of incidents that are robust enough to not predictably crash during times of increased demand. Ideally, this portal would have a map feature so responders could drop a “pin” to show a location. It would also be ideal to show previously reported issues to eliminate duplicative reports along with allowing fire departments to add information or updates.
2. Create a DTE emergency management structure at the county or sub-county level. One suggestion would be using the Michigan Mutual Aid Mutual Aid Box Alarm System geographic division structure. It appears DTE attempts to manage responses system-wide, which has routinely failed. As DTE has crews available, these crews need to receive triage directions from the fire departments. Based on direct experience in the City of Ann Arbor, we found DTE crews addressing low-priority incidents without any input or direction from the fire department. The ability of fire departments to direct DTE crews to priority incidents such as wires blocking roadways or wires on structures is crucial.

An analysis of what systems (e.g., water, fire response, traffic signals, etc.) have been impacted by these events and how the City and/or other community organizations have responded;

During these events, AAFD responded on 602 incidents related to DTE equipment, e.g., power lines, transformers.

An analysis of specific kinds of emergencies that have resulted and how the City or other community organizations have responded;

Fire Department

The types of fire department calls of service during all of these weather events is very consistent: down power lines, blown transformers, downed tree limbs that are arching on live wires, trees on structures, and fire alarms from power outages, reported structure fires from wires down on structure or electrical issue due to the weather event. During the July 26 event, AAFD had reports of people in distress on the Huron River during the height of the severe weather.

For all of the incidents, the following day includes more down power line calls, carbon monoxide responses from misuse of generators, structure fires from misuse of generators, and numerous fire alarms as battery systems fail along with when power is restored.

February 22, 2023 Ice Storm

- 6-day impact to calls for service beyond daily average
- Total incidents: 506
- DTE incident involvement: 304
- DTE impact utilization: 60.08%

March 3, 2023 Snow Storm

- 8-day impact to calls for service beyond daily average
- Total incidents: 361
- DTE incident involvement: 170
- DTE impact utilization: 47.09%

July 26, 2023 Thunderstorm / Wind

- 4-day impact to calls for service beyond daily average
- Total incidents: 236
- DTE incident involvement: 160
- DTE impact utilization: 63.56%

An analysis of the role the City's existing resilience hubs have played in these events;

February 22 Ice Storm

On February 22, 2023, the Northside Community Center was the city's only resilience hub. Due to the widespread power outages, temperatures dropping below freezing overnight, and the lack of Red Cross support, Northside Community Center was activated as an overnight emergency shelter. While this was a significant challenge for the city to manage, utilizing the resilience hub for overnight emergency sheltering was effective.

July 26 Severe Thunderstorm

Northside Community Center and Bryant Community Center were able to remain operational during the multi-day outage event and therefore were able to continue to serve their neighborhoods and frontline populations as they do every day. This was what these spaces were designed to do.

An estimate of the total emergency costs incurred by the City in response to prolonged power outages as a result of the major storm events that occurred on February 22, 2023, March 3, 2023, and July 26, 2023; and

The fire department incurred \$12,915.16 in overtime costs from responding to the 602 incidents associated with these four events. The number does not account for time and salary of the fire chief, assistant chief of operations, and emergency management coordinator all of whom were actively engaged during the response and recovery phases. A conservative estimate is approximately 120 hours of staff time was cumulatively spent by these individuals.

RESOLVED, City Council directs the City Administrator to provide a set of recommended actions that would improve the City's responsiveness, preparedness, and resilience to such events in the future.

1. Continue to modernize critical infrastructure to improve their resilience.
 - a. Three of the five stations do not have automatic, full back-up generator power. Both Station 3 (Veterans Park) and Station 4 (Huron Parkway) experienced multi-day power outages during these events. This creates significant operational constraints from firefighters running from incident to incident for hours straight to return to stations without power, heat, and / or air conditioning. During these multi-day events, there have been periods where Station 3 and Station 4 were closed until power was restored. Crews were relocated to other fire stations, which created coverage gaps.
 - b. The City of Ann Arbor needs to invest in modernization of critical infrastructure such as fire stations to allow for uninterrupted response during weather incidents. A complete listing of fire station facility needs is outlined in the [2023 Fire Station Facilities Plan](#). A new Fire Station 4 includes an area that can serve as a resilience hub for the Pittsfield Village neighborhood, which experiences a routine loss of power.
 - c. The Water Treatment Plant lost power during both the February 22 Ice Storm and the July 26 Severe Thunderstorm. In July, we issued water restrictions because of these power outages and issues with the Barton Pump Station generator. Due to the critical nature of our Water Treatment Plant, this should automatically be a DTE priority for restoration. We should also be exploring ways to mitigate these outages and build resilience in our Water Treatment Plant infrastructure.

2. Continue to advocate to the Michigan Public Services Commission for DTE to make the following improvements to response and incident management.
 - a. Invest in IT infrastructure to allow for reporting of incidents that is robust enough to not predictably crash during times of increased demand. Ideally, this portal would have a map feature so responders could drop a “pin” to show a location. It would also be ideal to show previously reported issues to eliminate duplicative reports along with allowing fire departments to add information or updates.
 - b. Create a DTE emergency management structure at the county or sub-county level. One suggestion would be using the Michigan Mutual Aid Mutual Aid Box Alarm System geographic division structure. It appears DTE attempts to manage responses system-wide, which has routinely failed. As DTE has crews available, these crews need to receive triage directions from the fire departments. Based on direct experience in City of Ann Arbor, we found DTE crews addressing low-priority incidents without any input or direction from the fire department. The ability of fire departments to direct DTE crews to priority incidents such as wires blocking roadways or wires on structures is crucial.
 - c. Similarly, to fire departments providing direction to priority incidents such as wires blocking roadways or wires on structures, DTE should be communicating with local emergency managers on how they are prioritizing restoration to critical infrastructure.
 - d. More broadly, it is not understood how DTE is structured to support emergency operations and how they work with local emergency managers. The disaster cycle has multiple phases, preparedness, mitigation, response, and recovery. It appears that DTE’s regional managers assume an emergency management role during the response phase, which has not been very effective. Otherwise, we do not have a relationship with DTE during sunny sky days in terms of emergency planning, training, exercising, or debriefing post-incident. It is unclear whether DTE has an emergency management department and if they utilize the National Incident Management System to coordinate their response efforts.
 - e. As a reference, the Lansing Board of Water and Light made several improvements to their organization after the December 2013 outage event. A community review team was assembled and developed [a report on LBWL’s response](#). The report provided recommendations for improving the utilities’ preparedness, mitigation, response, and recovery efforts all of which were adopted and led to the creation of an emergency management department, emergency operations plan, continuity of operations plan, training, etc.
3. Communication Improvements
 - a. These 2023 storm events have identified gaps in our internal communication processes. EM communicates and coordinates with our EOC Team with the intent that pertinent

information is being shared at the department level and vice versa. However, due to our existing EOC Team structure, Public Works and Parks, two departments that play a significant role in storm events, have not been included in the larger emergency communication and coordination effort. EM has since added the Parks Manager and Public Works Manager to the Weather Microsoft Teams Channel. However, there is an opportunity to discuss areas for improvement with internal departmental communications and potential tools that can be used to support those communications. This cannot be a responsibility of Emergency Management with the current staffing model.

- b. Our DTE Regional Manager is contacted by a variety of city staff and city council members. This is creating communication and coordination challenges, with multiple reports of outage incidents, redundancies, and competing priority requests. It would be helpful if the city had an identified structure in place to funnel communications and requests to DTE.
4. Shift from Reactive to Proactive Emergency Management
- a. EM has responded to more emergencies over the past two years than it has ever before. New challenges emerge with each of these storm events and we are finding that the larger EM support structure that local emergency managers are supposed to rely on is in fact not reliable. The need to be prepared at the local level is critical. However, with current EM staffing at 1.5 FTEs, we are in a reactive state rather than a proactive state. An expansion in EM would allow us to proactively prepare for and mitigate the impact of future climate disasters.