



Open Data Summary: 2021 Texas Winter Storm



Brief Background

In mid-February 2021, Texas experienced Winter Storm Uri. This unprecedented winter weather event left many without power for days, affected travel and mobility, and caused significant structural damage. The collective impact of this historic storm caused physical and emotional trauma throughout local communities.



Winter Storm in Numbers: City of Austin

- 254 counties in Texas – the whole state – under a disaster declaration
- 6 degrees Fahrenheit – record low temperature in Austin
- 6.4 inches of snow – breaking record for consecutive days of snow on the ground in Austin
- 144 hours of freezing temperatures
- 2,449 calls to Austin Fire Department reporting private site plumbing breaks
- 739 traffic accidents responded to by Austin Fire Department
- 1,100 people sheltered during the storm
- 5 million bottles of water and 120,000 shelf-stable meals distributed by Austin-Travis County
- 100,000+ calls to the City of Austin Utility Customer Care Center about power outages



Winter Storm as A Cascading Disaster

The Winter Storm had cascading effects on other services reliant upon electricity including **drinking water treatment** and **medical service**.

With temperatures plunging inside people's homes, some took **shelter** with friends and family despite the COVID-19 pandemic or sought temporary refuge at warming stations. Others took extraordinary measures to try to warm themselves – using their ovens to heat their homes or burned fences and furniture for warmth – which led to **carbon monoxide poisoning** and **home fires**.

As of March 2021, at least 111 people are known to have **died** during the freeze.

The estimated **economic losses** are considered to be \$130 billion in Texas.



(Figure 1: Busted water pipes and damage during the storm)



(Figure 2: People filled their water containers due to the boil notice)



(Figure 3: People looked for shelter to stay warm)



(Figure 4: Home fire during the storm)



Review Texas Winter Storm

1. Communications
2. Transparency of Information
3. Loss of Community Trust
4. Failure and Breakdown of the Electric Grid
5. Water, Food and Essential Supplies
6. Lack of Accountability and Services
7. Infrastructure Breakdown and Failures
8. Access to Shelter/ Lodging
9. Role of Nonprofits, Community Organizations and Neighborhood Groups
10. Need for Mental Health Resources



1. Communications

- The use of **social media** during the storm to provide sporadic updates was problematic. Most people had no ability to charge devices or connect to the internet in order to connect on social media. Facebook meetings held by city departments were not helpful, as participants could not ask or hear questions.
- **Television** were problematic for the same reason as social media.
- **Text and radio** (e.g., Amber Alert, city trash/ARR text services) appeared to be under-utilized.
- Some neighborhoods established **phone trees**, used existing school-based phone trees and/or visited with neighbors to connect and offer assistance.
- Not enough information was translated into **languages** other than English.
- Warming centers were not equipped to connect with individuals with **disabilities** and the **elderly**. Some citizens reported that due to their disabilities, they were unable to reach out for help, nor were they able to read or hear any communications with instructions and/or up to date information about the crisis.



Communication: Future Disaster Risk Management

- **Vulnerable population.** Communication with the vulnerable populations, such as elderly, individuals with disabilities, needs to be coordinated and improved.
- **Language and cultural issues.** Communication with non-English language speakers needs to be coordinated and improved.
- **Warning system and information infrastructure.** The community should be educated about emergency preparedness ahead of time – e.g., insulate pipes, keep emergency supplies, how to shut off water, who to contact or where to go in an emergency.



2. Transparency of Information

- It was not clear how decisions were being made about access to and locations of warming centers, distribution of resources, and other measures.
- Information about power, water and other resources was either lacking or inconsistent.
- There seemed to be a **lack of official guidance** and knowledge on the part of city officials as to how to direct citizens to protect their plumbing.
- **Contradictory messages** were received to let faucets drip, turn faucets off, cover outdoor spouts, and leave outdoor spouts uncovered.



Transparency of Information: Future Disaster Risk Management

- Before the disaster: Anticipating future emergencies, the city could prepare materials and communicate guidelines before we are in another crisis situation.
- During the disaster: Information should be disseminated quickly and accurately.



3. Loss of Community Trust

- **Inconsistent and incorrect information** led people to distrust authorities, a problem that has long-term consequences even outside of an emergency event. A present-day example is the current inconsistent communications from ERCOT about the possibility of blackouts during hot weather.
- It was jarring for citizens to see broadcasts from **city leaders** in well-lit, heated environments when they were without power and water in their homes, or to see unoccupied downtown offices and parking garages lit up when residential neighborhoods were dark and cold. This contributed to a loss of community solidarity and trust.



Loss of Community Trust: Future Disaster Risk Management

- Individuals who have a distrust of city authority or other officials may have more trust with leaders of faith-based and **community organizations, schools** and **other entities**.
- The city should use those avenues alongside city communications to disseminate information, engage and support community members, and build trust.



4. Failure and Breakdown of the Electric Grid

- There were clear **racial, ethnic, and socio-economic inequities** with regard to those that lost power – some lost for days were glaring and pervasive and another indicator of the lack of racial equity in Austin.
- There was a **lack of conservation** of electricity, e.g., downtown buildings fully lit when no one was there.



Electric Grid: Future Disaster Risk Management

- The City should **install charging stations** capable of being connected to and using alternate sources of power so people can in the future charge phones or computers in disaster situations.
- Issues with the power grid and outages are likely to occur during extreme heat as well as extreme cold. The city should be **preparing and communicating** how to respond to outages year-round.



5. Water, Food and Essential Supplies

- There was a lack of potable **water supplies** and no organized means of distribution of water, food, or other supplies once available.
- **Sanitation** was an issue; citizens used melted snow and water from pools and hot tubs to flush toilets; babies or adults who depend on diapers couldn't get them. Those without power could not boil water to make it safe to drink, and could not prepare food. These issues were more problematic for the **elderly, people with babies and young children, and those with medical conditions**.
- Food provided at some shelters was inadequate, unhealthy or not culturally appropriate, and non-perishable ready-to-eat meals (MRE's) had instructions only in English.
- For communities already experiencing food insecurity and lack of access to healthy foods, these issues were exacerbated by the conditions of the storm.
- Many individual community members donated from their personal accounts to help others. Some non-profits raised significant funds (e.g., Austin Mutual Aid) and have not received reimbursements.
- There were issues with **fire hydrants** freezing and being locked, inhibiting access to an emergency water source that could have supported neighborhoods.



Essential Supplies: Future Disaster Risk Management

- The City needs an **emergency dispatch operation** that can function in times of catastrophe to aid non-profits and individual citizens who have the capability and means to provide aid. For example, fire hydrants should not have been blocked by fire departments, but should have been available to supply water.
- **Access to cash** should be considered, especially if ATMs are not accessible, as many people (e.g., students) don't carry cash, and stores may not be able to process credit cards in an emergency.
- The city needs to maintain **emergency supplies** of water, food and essential supplies, with a **plan** for quick distribution across the city. Distribution of food and water should be done in a way that is healthy, environmentally sound, and culturally competent.



6. Lack of Accountability and Services

- There was **confusion about who should be making decisions and providing services**, since this was a statewide disaster. Was the lack of energy a city or state failure? Where should state or federal authorities provide resources and support?
- Local residents found no one available or responsive to deal with emergencies, and a lack of supply (water/dry foods) stockpiles within complexes that caused residents to rely solely on their existing stockpiles or to call on neighbors, who were also lacking supplies.
- Calls to 311 were not answered and there were no points of contact for emergencies – all lines were busy for hours and/or shut down.



Accountability: Future Disaster Risk Management

- The City needs to define **emergency or catastrophe services**, and have a plan for what will happen when those services don't work. When the people who operate the services cannot do so, who is in charge? How often are drills and training happening that are preparing those who need to execute plans that are in place?
- There needs to be a clearly documented and communicated **plan** for coordination among city, county, state and federal authorities for disaster preparedness and response, with a clarity of roles, authority, decision making and access to resources.
- This plan should be further **coordinated with nonprofit and neighborhood groups, and volunteer citizen groups**.



7. Infrastructure Breakdown and Failures

- The **lack of equipment** to clear roads, and the lack of skill of emergency services personnel to use the equipment in inclement weather, was unacceptable. Some emergency vehicles were stranded, including those trying to transport others or provide medical response.
- There was a lack of dissemination about **emergency transportation options** for **people with disabilities**. The storm presented significant impacts to people with disabilities. Without transportation options, they lost access to caregivers, groceries, medical supplies, etc.
- Residences and businesses were not built for extreme cold, and some building codes do not require adequate insulation. Apartments and condos had outside water tanks and exposed pipes. Many citizens experienced frozen and burst pipes, causing extensive and costly **damage**.



Infrastructure: Future Disaster Risk Management

- The city needs to address **emergency services training and procedures** to be able to operate continually and act in emergency weather situations.
- The city needs access to snow and ice removal **equipment**, generators, chains and tools to install them on tires, and more 4-wheel drive vehicles. There should be a supply of environmentally sound materials for icy roads (salt may pollute groundwater).
- The city should provide record keeping of **medically vulnerable people** in the city and county, to provide adequate emergency response.



8. Access to Shelter

- Some people did not feel safe going to a shelter even if their homes were uninhabitable, because of the **pandemic, road conditions, medical needs**, having young children, pets, or other concerns.
- Some people were unsafe being trapped in their homes, such as those **vulnerable** to abuse and domestic violence.
- **Elderly** residents were isolated and unable to get to shelters or access other resources, and some were without their regular caregivers or access to essential medical equipment.
- Hotels were full and were charging hundreds of dollars over normal rates. Individuals with bookings were turned away or charged higher amounts. Unhoused individuals who lacked IDs couldn't get into hotels. Supplies were available at some shelters and not others, or were stored where they could not readily be brought to shelters where they were needed.
- Animal shelters were closed, and animals left unattended perished.



Shelter: Future Disaster Risk Management

- The city needs **a plan for emergency shelters** that is more accessible, including transportation to shelters. The city should coordinate with organizations like Survive to Thrive to provide safe emergency shelter for vulnerable people.
- The City's Legal Department and Civil Rights Office must review validated reports of price gouging and punish within the full extent of criminal and civil law.



9. Role of Nonprofits, Community Organizations and Neighborhood Groups

- Many nonprofit, community and faith-based organizations stepped up quickly, organizing groups to deliver and distribute bottled water, food, and sanitary supplies in different parts of the city. Breweries produced bottled water quickly.
- Organizations that provide housing, food, and services to vulnerable or marginalized communities were already impacted by the pandemic – cash and resource strapped, restricting programs and services. They were stretched even further by the storm, without financial relief.



Local Groups: Future Disaster Risk Management

- The city needs **an organized dispatch center and procedures** equipped to operate in emergency situations. It should coordinate with organizations such as the American Red Cross, local nonprofits and other organizations that helped or coordinated a response on the ground during and after the storm.
- The city needs to strengthen **relationships** and funding with nonprofits that can provide timely services in a disaster. Funding and/or reimbursement needs to be provided to organizations that supplement city services during an emergency.
- In a disaster where services fail, we are going to have to rely on other institutions and each other to survive. There must be a better understanding of our **interconnected responsibilities as a community**, and built-in redundancy in terms of services the community provides internally. The city, businesses (commercial and residential), nonprofits, schools, community organizations, and individuals within communities must all have a baseline preparedness that allows them to act immediately and work together in a crisis to mitigate worse consequences.



10. Need for Mental Health Resources

- Through the combination of the above issues, a general sense of uncertainty created great anxiety for Austinites. Many individuals were already impacted by the **pandemic** (with associated isolation, job loss, financial insecurity, childcare and schooling challenges, etc), and they experienced added pressure due to the storm and its after-effects.



Mental Health Resources: Future Disaster Risk Management

- The city needs to provide trained **mental health workers** that are accessible to Austinites during catastrophes, to help them manage the trauma and anxiety produced by a crisis. Ongoing resources are also needed to address the stress associated with damage and repair to homes and businesses, and to individuals and families displaced from their homes. Feelings of uncertainty and anxiety may be mitigated if citizens gain a sense of control through better preparedness training and access to supplies.
- There needs to be **a regular system of community checks for individuals who are vulnerable and/or isolated** (e.g., elderly, students, people with disabilities, people at risk of abuse and domestic violence), with capacity to increase such services during an emergency. This should be done by social workers or other service professionals, not police, in collaboration with nonprofits who routinely provide these types of services.
- There also needs to be consideration of animal welfare, rescue, and service animals.



For the research project

- Operation information and operation policies
 - Vulnerable population: Low-income communities
- Operation gap
 - Local community organizations and neighborhood groups as a important part in the resilience work