



Tornado Emergency Plan

A Hazard-Specific Appendix to the

Omaha, Nebraska

Emergency Operations Plan

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Preface

Tornadoes are destructive products of thunderstorms, which are characterized by a funnel-shaped cloud and are often accompanied by lightning, heavy rain, and hail.¹ On average, the United States experiences 800 tornadoes each year, leading to 80 deaths and 1,500 injuries.¹ Tornado Alley is an area in the United States (U.S.) comprised of multiple states that are particularly susceptible to tornadoes² and incur the most tornado-related fatalities.³ Of these susceptible states, Nebraska ranks number 5 for frequency of tornadoes, 23 for number of deaths, and 11 for cost of damages.⁴ Tornadoes may occur year round but are most common in Nebraska during spring and early summer commonly forming along dry lines and typically occurring between 4 and 8 pm.¹

Douglas County located in southwest Nebraska is a metropolitan area. Omaha is the largest city in the county with a population of 463,585⁵ and an elderly population of 14.3% according to the 2020 US Census.⁶ As one of the most densely populated areas of a “Tornado Alley” state, emergency preparedness for tornadoes is imperative. Douglas County’s Health Department acknowledges the hazards associated with tornadoes and provides information and resources for the public on their website.⁷ Among this information and resources are the following: a list of available shelters, links to social media and other platforms that provide official updates and guidance, emergency numbers to report encounters and resulting destruction, post-tornado safety considerations, resources for emergency response workers, and educational links regarding tornado safety.⁷

The Douglas County Department of Health website also offers extensive educational resources covering a broad range of pre- and post-tornado topics. These resources consider post-tornado water and sanitation issues, gas-powered generator safety, food safety, electrical hazards, debris removal safety and guidelines, post-tornado carbon monoxide poisoning prevention, and guidance on safety hazards when working with displaced domestic animals.⁷

This annex to the Douglas County Tornado Emergency Plan sets forth guidelines and recommended actions for managing the response and mitigation in the face of a tornado event.

Douglas County Sheriff Department (DCS)

Date

Nebraska Department of Health Commissioner

Date

Nebraska Medical Center

Date

Mission

The Nebraska Emergency Management Agency is charged by state statute to reduce the vulnerabilities of the people and communities of Nebraska from the damage, injury and loss of life and property resulting from natural, technological or man-made disasters and emergencies. The mission of the Nebraska Emergency Management Agency is to provide and foster leadership through guidance and support to Nebraskans before, during, and after disasters. Nebraska Emergency Management Agency (NEMA) works to reduce the vulnerabilities of the people and communities of Nebraska to damage, injury and loss of life and property resulting from natural, technological or man-made disasters and emergencies. NEMA coordinates the response to large-scale events, such as a tornado, flood or wildfire, and ensures effective response and recovery.⁸

Statement of Purpose

The purpose of this event-specific plan, in accordance with the Nebraska Emergency Management Act, is to promote a guided and coordinated action plan in case of a tornado event. This plan includes methods and procedures for managing a tornado event within the city of Omaha. These procedures are formulated to strengthen disaster awareness and preparedness, mitigation and recovery from the effects of tornado events and disasters.⁸

Authorities

The primary legislation directing the elected officials' responsibilities and actions during an emergency or disaster and for establishing a local emergency management agency is: RRS Sections 81-829.36 to 81-829.75, Nebraska Emergency Management Act of 1996, as amended, Cum. Supp. 2002. County, tribal, city and village officials accept this LEOP plan by resolution; generally the County has the primary responsibilities of implementation.⁹

Under the Emergency Planning and Community Right-to-Know Act, Local or Tribal Emergency Planning Committees must develop an emergency response plan, review the plan at least annually, and provide information about chemicals in the community to citizens.¹⁰

Public Law 93-288, as amended, 42 U.S.C. 5121 - et seq, the Robert T. Stafford Disaster Relief and Emergency Assistance Act, which provides authority for response and recovery assistance under the Federal Response Plan, which empowers the President to direct any federal agency to utilize its authorities and resources in support of State and local assistance efforts.¹¹

Presidential Homeland Security Directives 5 and 8 require State and Local governments to adopt the fundamental principles, language and operational concepts embedded in the National Incident Management System (NIMS) and the National Response Plan (NRP) as a condition for receiving certain categories of federal support for Emergency Management.¹²

Public Law 93-288 authorizes the Federal Emergency Management Agency (FEMA) to task the Corps with disaster recovery missions under the Federal Response Framework.¹¹

Public Law 93-288 authorizes the Federal Emergency Management Agency (FEMA) to task USACE with disaster recovery missions under the Federal Response Plan. The Stafford Act provides the authority for the Federal government to respond to disasters and emergencies in order to provide assistance to save lives and protect public health, safety, and property. The Federal Response Plan (for Public Law 93-288, as amended), hereafter referred to as the Plan, is designed to address the consequences of any disaster or emergency situation in which there is a need for federal response assistance under the authorities of the Stafford Act. It is applicable to natural disasters such as earthquakes, hurricanes, typhoons, tornadoes and volcanic eruptions as well as technological emergencies involving radiological or hazardous material releases and other incidents requiring federal assistance under the Act.¹²

44 CFR Part 206 - Federal Disaster Assistance for Disasters Declared after November 23, 1988
Public Law 106-390, Disaster Mitigation Act 2000 - Public Law 106-390, Disaster Mitigation Act of 2000, to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act to authorize a program for pre-disaster mitigation, to streamline the administration of disaster relief, to control the Federal costs of disaster assistance, and for other purposes.¹²

Definitions

Emergency Operations Center: Maintain and monitor situational awareness for critical events and provide communication and support for all stages of an emergency. (CITATION)

Mutual Aid: Cross agency and departmental collaboration to provide swift response to critical events. An agreement between agencies and organizations.

Incident Command System: A coordinated response to not just critical events but planned events as well. Collaborative response to situations between jurisdictions, organizations, agencies and departments.

Operational Area: All areas county where emergency operations have jurisdiction; a subset of the state emergency response system.

Tornado Classifications: A tier system of classifying tornadoes based on the wind speed, sometimes integrating the Enhanced Fujita Scale (EF-Scale) which tags tornado intensity based on the severity of the damage they cause.

Weak (EF0, EF1)- Winds speeds between 65 to 100 MPH¹³

Strong (EF2, EF3)- Wind speeds between 111 to 165 MPH¹³

Violent (EF4, EF5)- Wind speeds between 166 to 200 MPH¹³

Communications Plan

Preparing staff and other agencies with updated information regarding response protocol to ensure immediate and effective response to emergencies. Ensuring that all mutual aid agencies and organizations have access to this plan. In the event of a critical event we will work with NEMA and EOC to ensure a quick and effective response.

Ensuring that the Douglas County Populations are educated and prepared for tornado related events to occur is essential in managing future critical situations. Regularly testing alert systems such as text messages is an important first step in preparing for events. Secondly, regular testing of sirens to alert persons in Douglas County of the weather conditions.

Mutual Aid

In the event of an emergency wherein the need would surpass the resources of the Douglas County Health Department, we would call upon the following organizations:

- **Douglas County Fire (DCF)**
- **Douglas County Health Center (DCHC)**
- **Douglas County Sheriff Department (DCS)**
- **Federal Emergency Management Agency (FEMA)**
- **Division of Emergency Management and Homeland Security (DEMHS)**
- **Emergency Operations Center (EOC)**
- **Emergency Medical Services (EMS)**
- **Nebraska Emergency Management Agency (NEMA)**

Concept of Operations (CONOPS)

Elected county officials and local government authorities are tasked with protecting the life, environment, and property of the region within their jurisdiction.⁹ In an extreme event, the duties of local government parallels that of non-extreme event operations and likewise, the same resources and personnel will be employed in both scenarios as much as is feasible.

Assessing the needs of those impacted by a tornado event:

In the case of natural and physical disasters, i.e., tornadoes, such extreme events are usually geospatially limited and localized, or, in some cases, they might be impactful across a region. In such cases, a two-pronged approach to assessment is needed: one that addresses immediate damages and local health needs, as well as another, tailored for vulnerable populations. Generally, vulnerable populations include non-English speakers, residents of nursing homes, the elderly, pregnant women, and children, and those with disabilities and special accessibility needs.¹⁴ For these populations, concerted effort should be made for outreach, including targeted visits to nursing homes and assisted living facilities, and those who receive home care services in their own residence. For non-English speakers, all county and state announcements and communications must include translated material as well as interpreters to assure even dissemination of timely information.

In accordance to the guidelines set forth by the Centers for Disease Control and Prevention ref= (<https://www.cdc.gov/index.html>), a critical element to ensure a timely needs assessment is having a pre-designated Disaster Assessment Team made up of public health officials and medical and environmental health specialists who will conduct initial assessments, carry out or report on surveillance and coordinate with local agencies.¹⁴ This team has a defined protocol to be deployed in different extreme events.

An initial rapid needs assessment in the aftermath of a tornado event should prioritize:

1. Medical needs and injuries

1. Deploy EMS dispatcher and first responders to conduct field assessments and treat life-threatening conditions, fractures, and injuries. Another priority would be integrating data and reports from local hospitals, clinics, and emergency departments.

2. Infrastructure damage

1. Conduct assessments on buildings and places of residence and conduct a needs assessment for those in need of shelter; estimate the number of people displaced. Convert public spaces (such as stadiums or schools) that have been pre-designated to serve as areas of shelter in an extreme event, as necessary.
2. Assess and restore water and sanitation services, energy, telecommunications, and gas lines.

3. Address the presence or creation of environmental hazards

1. Prevent any secondary disasters that may occur such as faulty power lines, damaged gas stations, or nuclear plants.

After the initial assessment, ongoing monitoring and follow-up assessments should be conducted to stay updated on the evolving needs of the affected population. These follow-up assessments should shift to long-term recovery efforts that may include reconstruction efforts, economic loss or impact, and public assistance and mental health services.

MOBILIZATION

4. Evacuation

In the event of fire, gas leak, or other event requiring evacuation, follow all signs and evacuation plans. It is possible that disaster- specific circumstances prevent the adherence to evacuation protocol. In these circumstances, alternate routes should be utilized at the discretion of trained employees. All building occupants must evacuate during an emergency. This includes staff, visitors, patients, or other employees.

5. Medical Emergency

- All emergencies must be promptly reported to the incident commander who is responsible for timely response to the emergency including facilitating evacuation, calling 911 and ensuring emergency response operations return as soon as possible.
- Once help arrives (fire, EMS, police) incident command should return to duties
- In the event of an evacuation, repopulation should occur to smoothly return all staff and visitors in a safe manner.

6. Alternate operation locations and continuity

In the event of a disaster, having alternative plans for operations locations is essential to ensure smooth operations. Flexibility for staff to telecommute, identified of pre-designated alternative office spaces, or colocation with another organization should be explicitly planned for. This ensures that emergency response can happen regardless of the extent of damage and location of event.

DISASTER-AFFECTED COMMUNITY NEEDS ASSESSMENT

7. Population Vulnerability

According to the National Weather Service, in an average year, approximately 80 people are killed and 1,500 people are injured by tornado events.¹ Flying debris as a result of tornadoes are the primary cause of tornado related injury and fatality.¹ The National Oceanic and Atmospheric Administration states that people living in mobile and manufactured homes are

especially vulnerable during a tornado due to the fragile nature of these home structures. The risk posed to this special population is two-fold, involving both physical and socioeconomic factors. Financial hardship imposed post-tornado events can be particularly damaging to those of low-socioeconomic status. The lack of available funds to rebuild and/or relocate during and post tornado events could lead to prolonged hardships that may include lack of access to electricity, clean drinking water and/or homelessness. Additionally, population subsets of Nebraska that are most vulnerable to tornado hazards include children, populations over 65 years of age, and people with disabilities.¹⁵ Interviews regarding tornado messaging with residents who are blind, have highlighted and reinforced the importance of detailed verbal communication systems.¹⁵

8. Critical Facilities

- Facilities must be operational post-tornado
- Considerations:
 - Fire Department: as a result of tornado winds, downed power and damaged gas lines can ignite fires.
 - Nebraska Department of Environment and Energy (NDEE) Within the NDEE, the Drinking Water Division (DWD): Flooding conditions can lead to water contamination as well as a tornado-induced infrastructure damage which can destroy water supply systems.
 - Infrastructure damage: in addition to the potential water contamination, infrastructure damage can also destroy communication networks or structures that are associated with essential services and/or emergency response or even communication systems (ex: EMS cars destroyed, power outages from WIFI towers dismantled precluding internet access:
 - Generators → generator safety → regular maintenance
 - Issues with essential/frontlines workers accessing areas
 - Backup inventory
 - Hospital facilities for injured people post-tornado; nursing home for displaced nursing home residents.
 - Ensuring structural integrity of critical facilities roof strength, doors and window reinforcement (including the addition of storm shutters and impact resistant doors and windows, and exterior wall reinforcement).

Utilities failure: any failure associated with utilities (e.g., water, sewage, gas and electric) that may lead to delays or obstructions for emergency responders must be a high priority for swift identification and rapid remediation. All households where there is a household member who is dependent on powered medical equipment and/or devices must be pre-registered with the EMS. To ensure access to all parts of the affected area, contingency route plans, which may include but is not limited to route mapping, should be prepared ahead of the event and updated frequently.

9. Matching Resources to Needs

In response to a Tornado, many critical factors must be accounted for during planning stages. In a community devastated by a tornado event, shelter, food, drinking water, medical care needed and/or unable to be provided at local hospitals due to resulting electrical outages/fires must be considered.

Material Resources

Medical, Pharmaceutical, Food Supply, Housing, Clothing

→ Inventory should be frequently checked, adequate and current. Additionally, inventory should be kept in multiple locations within a set proximity from one another to mitigate against all inventory being destroyed during tornado events

→ Predetermined mutual aid agreements should be made with hospitals within proximity to assist with the transfer of patients should a tornado-impacted hospital need to be evacuated or in the event that a tornado event leads to the oversaturation of the hospital nearest to the event

→ Predetermined shelters must be determined and stocked with frequently checked inventory

→ Shelters must be regularly communicated to the public to ensure that the public is aware of places in which they can report in the event of a tornado emergency

→ Measures to protect and secure generators located in shelters and hospitals should be taken and regularly considered and updated given the latest information and technology

→ Satellite phones should be included in all backup supplies in the event of a highly plausible power outage that would impact electronic and virtual communications

Staff Resources

Incident command should maintain a list of designated emergency operations staff at local fire, police, and hospitals to ensure efficient and effective communication and response during a tornado event. Staff of all sectors should practice emergency training and frequently review roles and delegations in the event of a tornado. All staff should be regularly reminded of tornado shelter locations and mutual aid partners/contacts (this could be reinforced with readily available information sheets including phone numbers posted at job sites). Departments involved with drinking water safety should be prepared to test water potability in the face of a tornado and disseminate warnings and information rapidly.

Outside Resources

The Incident Command is expected to maintain a regularly updated list of partners to assist in disaster events including tornadoes. Need for local, state, and federal resources will be included on the list. Written requests for assistance are informed by needs assessments and may be required for assistance.

10. Evaluating Effectiveness of Response

Assessment of the disaster response is required to determine the effectiveness of the Douglas County Tornado Plan. Evaluation criteria may include post-tornado damage assessment tools including formal surveys provided by FEMA. Of these records, epidemiological data such as deaths and storm-related injuries should be collected. Additionally, economic data should include the cost of destruction and economic impacted communities. The surveys will be administered according to the impact of the storm and the sectors involved in the response

which may include but is not limited to hospital and healthcare staff, fire department, families, partners, community organizations, and volunteers for shelter organizations. The Incident Commander should then conduct personal assessment as well as organizational evaluations and meetings with task force members within the most reasonably possible time frame. A key component of the evaluation should be the tracking of inventory and resources utilized in response which may include: human resources, supplies, and materials, to inform future preparedness plans and to clearly identify supplies/materials/resources that were scarce or limited and should be readily available to respond to future emergencies.

After Action Report

Once evaluation information is compiled, the Incident Commander will prepare an After-Action Review. The review will be both informed and reviewed by relevant stakeholders. Lessons learned from the evaluation of response effectiveness should be immediately used to update best practices for future responses as needed.

Annex 1- THIRA

Natural	Technological	Human-caused
Resulting from acts of nature	Involves accidents or the failures of systems and structures	Caused by the intentional actions of an adversary

<ul style="list-style-type: none"> · Tornadoes: Nebraska, located in Tornado Alley, is prone to tornadoes due to the frequent collision of contrasting air masses. · Flooding although tornadoes are primarily associated with destructive winds, they may also occur in conjunction with thunderstorms or supercells that produce intense rainfall over a short period. · Fires: as a result of tornado winds, downed power and damaged gas lines can ignite fires. · Drinking water contamination: Flooding conditions can lead to water contamination as well as a tornado-induced infrastructure damage which can destroy water supply systems. · Infrastructure damage: in addition to the potential water contamination, infrastructure damage can also destroy communication networks or structures that are associated with essential services and/or emergency response or even communication systems (ex: EMS cars destroyed, power outages from WIFI towers dismantled precluding internet access and crucial access to emergency messaging) · Infectious Diseases: Douglas County is considered a metropolitan area with Omaha as its largest city, which is notably more densely populated than other areas of the state 	<ul style="list-style-type: none"> · Information technology failure: as an example, tornado warning communications mainly disseminated through electronic means. Systems must be tested and maintained to ascertain timely and effective communication ahead of a tornado or other emergency event · Structural Integrity: buildings faced with sudden pressure changes (which occur with rapid drops in atmospheric pressure within a tornado) should be equipped to withstand these changes. Namely, buildings that are tightly sealed have outwardly exploded due to these pressure changes. Additionally, buildings can be flattened if they are not designed to withstand such extreme forces. Therefore, building structures in highly prone tornado should have special considerations in terms of roof strength, doors and window reinforcement (including the addition of storm shutters and impact resistant doors and windows, and exterior wall reinforcement) · Utilities failure: any failure with gas and electric, especially in an emergency situation, that may prevent emergency responders from getting to or from areas of emergency or properly responding to emergency situations should be considered, this includes power outages that prevent the use of medical or communication devices, or transportation disruptions to roads such as debris blockage on major access roads. To this effect, contingency plans should be made in Omaha which may include but is not limited to route mapping. 	<ul style="list-style-type: none"> · Active Shooter: With Omaha being a metropolitan area with densely packed areas, an active shooter situation should be considered with special attention to shopping malls as there have been multiple documented mass shootings occurring in Omaha shopping malls. · Cyber Attack: Omaha is a hub for finance industries including Mutual of Omaha and Berkshire Hathaway. A cyber-attack targeting these firms could pose a threat to the economy.
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Annex 2- Training Drill

Training Seminar Title: Tornado Preparedness for Schools	
Objectives of your Training Seminar (What mitigation strategy are you advocating?)	School Tornado Preparedness
Estimate Length of Training	1 Hour
Target Audience and max size of audience.	Students, teachers and administrators
Who would be a good candidate (e.g., structural engineer, health dept. official, first responder?) as Facilitator of this session? Why?	EMS Representative (i.e. firefighter), Community Disaster Specialist
What do you want community members to do as a result of their attending this session?	<p>Administrators</p> <ul style="list-style-type: none"> ● Oversee and ascertain students, teachers, administrators report to appropriate, safe location within school building ● Ensure safety of students with functional needs and wheelchairs and protect them from falling objects ● Stockpile water and food ● Develop and hold routine drills in the event of a tornado event (including getting under sturdy objects and when possible, covering head with available objects) <p>Teachers</p> <ul style="list-style-type: none"> ● Have updated tornado plan posted in room ● Take diligent attendance daily <p>Students</p> <ul style="list-style-type: none"> ● Know designated safe location in building to report to ● Know proper safety position

<p>Strategies to increase community uptake of your mitigation (We have lots of useful links for checklists on the Course Home page under the Important Links page.)</p> <p>List the ones you think might be useful (in the appropriate language) or provide a title or two of a list or handout that you think would be good to give out to attendees.</p>	<ul style="list-style-type: none">● Give out free drill helmets● Provide home-tornado preparedness drills handout● Give out free mini flashlights at the session
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References:

1. Tornado preparedness: Nebraska hazards: Nebraska Emergency Management Agency. TORNADO PREPAREDNESS | NEBRASKA HAZARDS | NEBRASKA EMERGENCY MANAGEMENT AGENCY. Accessed June 1, 2024.
<https://nema.nebraska.gov/tornado-preparedness.php>.
2. Kuhne M. What is Tornado Alley? Accessed June 1, 2024.
<https://www.accuweather.com/en/weather-news/what-is-tornado-alley-2/432271>.
3. Tornado Alley States 2024. Tornado Alley states 2024. Accessed June 1, 2024.
<https://worldpopulationreview.com/state-rankings/tornado-alley-states>.
4. Created by The Disaster Center: text html and graphics by CE build@alaska.net. The Disaster Center Nebraska Page. Nebraska tornadoes. Accessed June 1, 2024.
<https://www.disastercenter.com/nebraska/tornado.html>.
5. Historical Data - Douglas County, Nebraska. Accessed June 1, 2024.
<https://www.douglascounty-ne.gov/departments/administrative-services/historical-data#:~:text=Douglas%20County%2C%20incorporated%20in%201854,corporations%20headquartered%20in%20the%20county>.
6. Douglas County, Nebraska . Douglas County, Nebraska - Census Bureau Profile. Accessed June 1, 2024.
https://data.census.gov/profile/Douglas_County,_Nebraska?g=050XX00US31055.
7. Tornado Recovery and Response Information. Douglas County Health Department - Tornado Recovery and Response. Accessed June 1, 2024.
<https://www.douglascountyhealth.com/tornado-recovery-and-response>.
8. Department NI. About Nema. NEBRASKA EMERGENCY MANAGEMENT AGENCY. Accessed June 3, 2024. <https://nema.nebraska.gov/about-nema.php>.
9. *COUNTY, NEBRASKA LOCAL EMERGENCY OPERATIONS PLAN. nebraska. 2020. Accessed June 4, 2024.
https://nema.nebraska.gov/admin/assets/files/public/publications/Standardized_LEOP.pdf.
10. State emergency response commission: Community outreach: Nebraska Emergency Management Agency. STATE EMERGENCY RESPONSE COMMISSION | COMMUNITY OUTREACH | NEBRASKA EMERGENCY MANAGEMENT AGENCY. Accessed June 3, 2024.
<https://nema.nebraska.gov/state-emergency-response-commission.php>.
11. Home. Omaha District. Accessed June 3, 2024.
<https://www.nwo.usace.army.mil/Missions/Emergency-Management/>.
12. Douglas County - Emergency Operations Plan (EOP). dgcoks. Accessed June 4, 2024.
<https://www.douglascountyks.org/sites/default/files/media/depts/emergency-management/pdf/douglascountybaseeopfinalpublic.pdf>.
13. Cyalume Technologies. (n.d.). Everything you need to know about tornado classifications. Getcyalume.
14. UCLA Center for Public Health and Disasters. (2005, July). Writing a Disaster Plan: A Guide for Health Departments. Los Angeles.

15. Sherman-Morris, Kathleen & Pechacek, Taylor & Griffin, Darrin & Senkbeil, Jason. (2020). Tornado warning awareness, information needs and the barriers to protective action of individuals who are blind. *International Journal of Disaster Risk Reduction*. 50. 101709. 10.1016/j.ijdr.2020.101709.