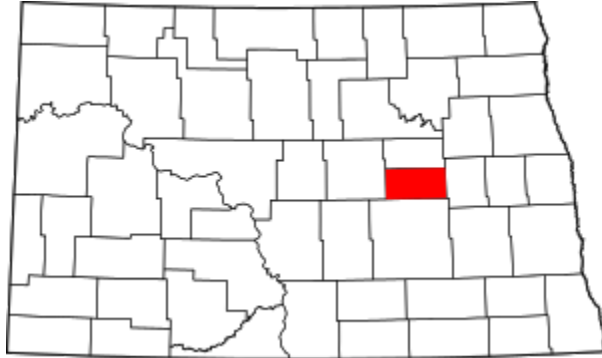


2021 Foster County, North Dakota Multi-Jurisdictional Multi-Hazard Mitigation Plan



Foster County, North Dakota

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1. Introduction

Executive Summary

The updating of the Foster County, N.D. Multi-Jurisdictional Multi-Hazard Mitigation Plan (MHMP) was conducted over a one-year period. It included the review of hazards, risks, vulnerabilities, and capabilities of the county, updating of vulnerable populations and areas, and development of a mitigation strategy for Foster County accurately reflecting plan research and progress. The review of hazard impacts to the county is ongoing by county officials, as are the efforts to mitigate injuries and damages from natural hazards and man-made threats. The planning process and this plan allow the county’s residents, businesses, stakeholders, and federal and state agencies to have input and to identify actions to assure the safety and protection of people and property. The mitigation strategy for Foster County consists of 33 projects. Specific mitigation projects were developed for all incorporated cities. See Table 6.1 in Chapter 6, Mitigation Strategy for a breakdown of prioritization for all projects in the plan. **A mitigation survey was administered during the planning process. A total of 63 responses were received.**

The 14 natural hazards and man-made threats profiled in this plan include:

Natural Hazards

- Drought
- Fire (Urban/Structure and Wildland)
- Flood (Overland and Riverine)
- Geologic Hazards
- Infectious Disease – Animal, Human, and Plant
- Severe Summer Weather
- Severe Winter Weather
- Space Weather

Adversarial (Homeland Security) Threats

- Civil Disturbance
- Criminal, Terrorist or Nation-State Attack
- Cyberattack

Technological Threats

- Dam Failure
- Hazardous Material Release
- Transportation Incident

Goal 1: Improve and expand education and outreach programs to improve public awareness of hazards and threats.

Goal 2: Improve and expand administrative and technical capability to mitigate hazards and threats.

Goal 3: Improve and expand financial capability to mitigate hazards and threats.

Goal 4: Improve and expand planning and regulatory capability to mitigate hazards and threats.

Goal 5: Reduce and/or eliminate impacts of hazards and threats.

Goal 6: Improve resiliency of critical facilities and infrastructure.

Goal 7: Provide places of refuge and early warnings for the public and vulnerable populations to take protective action during active hazard and threats.

To assist in the use, implementation, and updating of this document, the plan includes the federal and state plan approval letters and plan review of this update, and the adoption letters from each of the jurisdictions in Appendix 1. The chapters and appendices provide a history of the data reviewed and analyzed in the production process of the plan.

Jurisdictions

Impacts from natural hazards and man-made threats varies between jurisdictions. Problem statements from the 2015 plan were revised based on information gathered at jurisdictional workshops and Steering Committee meetings.

Foster County

Foster County can be impacted by civil disturbance; criminal, terrorist or nation-state attack; cyberattack; dam failure; drought; fire (urban and wildland); flood (overland and riverine); geologic hazard; hazardous material release, infectious disease, severe summer weather, severe winter weather, space weather and transportation incidents. Economic loss to the agriculture and livestock industry, and hunting/recreational industry from natural hazards impacts the county's economy. Poor drainage in rural areas causes overland flooding resulting in blocking of roads and highways limiting access for emergency services and economic activity. Critical facilities and infrastructure lack sources of backup power. Small jurisdictions lack outdoor emergency sirens and storm shelters. The county is enrolled in the National Flood Insurance Program. Severe summer weather and severe winter weather are frequent and impose property damage. The county has existing mitigation capabilities that need to be expanded and upgraded. The county has integrated small-scale mitigation measures into its existing departments but relies on outside sources for funding and to accomplish large-scale mitigation projects.

Improvement and expansion of existing mitigation capabilities; upgrading of existing and installation of new outdoor emergency sirens, equipment, and communications; installation of generators at critical facilities and infrastructure; conducting of engineering studies to identify and implement improved drainage and drainage maintenance measures; construction of storm shelters; and upgrading/expansion of administrative and technical, education and outreach, financial, and planning and regulatory capabilities are a priority for the county.

City of Carrington

The city of Carrington lacks sources of backup power at critical facilities and infrastructure. The city own's a fire index sign, but it is not installed. The outdoor emergency siren at the Carrington Armory is manually-activated and needs to be upgraded. The city's sanitary sewer and storm water systems are designed in a "barrel-vault" style with the sanitary sewer lines located directly above the storm water lines. The city's storm water system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence. Sinkholes have resulted in city streets collapsing. Flooded streets have resulted in backup of water into homes and businesses. The city needs a capital improvement plan to complement or become an annex to the city's strategic plan to strategize investments in critical facilities and infrastructure. The city's comprehensive plan and zoning ordinances need updating. The city's continuity of operations plan and building permits should be evaluated annually.

Installation of generators for backup power, installation of a dispatch/radio-activated emergency siren at the Carrington Armory, engineering to retrofit/upgrade the sanitary sewer and storm water systems and updating of planning regulatory and education and outreach capabilities are a priority for the city.

City of Glenfield

The city of Glenfield lacks sources of backup power at critical facilities and infrastructure. The outdoor emergency siren is outdated/inactive. The city's storm water system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence. Sinkholes have resulted in city streets collapsing. Flooded streets have resulted in backup of water into homes and businesses. The pumps at the lift station are outdated and can lose functionality during high precipitation events. The city does not have building permits.

Installation of generators for backup power, installation of a dispatch/radio-activated emergency siren, engineering to retrofit/upgrade the storm water system, installation of new pumps at the lift station, development of building permits, and education and outreach are a priority for the city.

City of Grace City

The city of Grace City lacks sources of backup power at critical facilities and infrastructure. The city also does not have an outdoor emergency siren. The city does not have building permits.

Installation of generators for backup power, installation of a dispatch/radio-activated emergency siren, development of building permits, and education and outreach are a priority for the city.

City of McHenry

The city of McHenry lacks sources of backup power at critical facilities and infrastructure. The city also does not have an outdoor emergency siren. The city's sanitary sewer system is inundated by Alkali Lake during high precipitation events causing outages in the system and the potential for release of hazardous materials into the natural environment. The city does not have building permits.

Installation of generators for backup power, installation of a dispatch/radio-activated emergency siren, a full engineering study for Alkali Lake, development of building permits, and education and outreach are a priority for the city.

Background

The Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan (MHMP) was developed and received approval from the Federal Management Agency (FEMA) in 2021. This plan update is the second update to the mitigation plan for Foster County.

The MHMP Steering Committee understands that the plan must be dynamic and detailed to include the specific risks of threats and hazards to the county and its jurisdictions. Improvements, updates, and revisions will be made constantly to assure this plan continues to mitigate the potential losses and damages that can impact people and property in Foster County.

Purpose

As defined by the Disaster Mitigation Act of 2000, hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. The Act of 2000 was an amendment to the Robert T. Stafford Disaster Relief and Emergency Assistance 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.

According to a study by the National Institute for Building Standards, pre-disaster mitigation saves an average of \$6.00 for every \$1.00 spent. Additionally, the Pew Research Center recently identified that North Dakota saves an average of \$6.55 for every \$1.00 spent on mitigation projects. Mitigation can range from infrastructure projects such as raising of roads, burying of power lines, or installation of generators for critical facilities and infrastructure, to public education and outreach programs.

The purpose of this plan is to fulfill federal, state, and local hazard mitigation planning responsibilities; to promote pre- and post-disaster mitigation measures, short and/or long range strategies that minimize suffering, loss of life, and damage to property resulting from hazardous or potentially hazardous conditions to which citizens and institutions within the county are exposed; to improve quality of life; and to eliminate or minimize conditions which would have an undesirable impact on our citizens, the economy, environment, and well-being of the county.

Objective

The objective of this plan is to establish a methodical process to assist in hazard and threat identification, impact evaluation, and action plan development to decrease the impacts from hazards where possible and to protect lives and property.

Scope

The scope of the Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan is countywide. The plan is not necessarily limited to federal, state, or locally declared disasters or emergencies. Any time situations or incidents occur that produce a requirement for mitigation actions, activities, and strategies, etc.; they will be developed and incorporated into the Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan.

2. Planning Process

This update to the Foster County Multi-Hazard Mitigation Plan was approved by the Federal Emergency Management Agency on **insert date once approval letter is received.**

2.1 Background

The process to update the mitigation plan began when grant funding was awarded to Foster County on October 3, 2019. The five jurisdictions in the 2021 plan update are shown in Table 2.1. All incorporated cities signed a letter of commitment to be and were an active participant in the 2021 update of the Foster County Multi-Hazard Mitigation Plan. The letters of commitment can be found in Appendix 1.

Table 2.1 – Jurisdictional Continued Participation in Mitigation Planning

Jurisdictions Represented in Plan	Participation
Foster County	Continued Participation (2015-2020)
City of Carrington	Continued Participation (2015-2020)
City of Glenfield	Continued Participation (2015-2020)
City of Grace City	Continued Participation (2015-2020)
City of McHenry	Continued Participation (2015-2020)

Whereas, the jurisdictions have limited capability to undertake extensive participation in the preparation of a hazard mitigation plan, the county commission contracted with Nexus Planning & Consulting, LLC to facilitate the planning process for the analysis and development of the updated hazard mitigation plan.

Building the Steering Committee: Meetings to begin the planning process to update the 2015 Foster County Multi-Hazard Mitigation Plan began in February 2021 after the grant award was received by Foster County Office of Emergency Management. Foster County Emergency Management met with the plan consultant to discuss the initial steps needed to begin updating the plan and the participation needed to start the process. Foster County Emergency Management and the plan consultant identified a list of representatives from the county and each city jurisdiction, the LEPC, stakeholders and businesses to formulate the official Steering Committee and invite list for the planning process. The Foster County Multi-Hazard Mitigation Plan Update Steering Committee was created to assist in directing the planning process and updating the plan. A doodle poll was sent to stakeholders on March 17, 2021, to select the date and time for the monthly recurring meeting schedule. The Steering Committee had the authority in Foster County to review, update, and create mitigation strategies, objectives and projects for the plan to be reviewed and approved by the Foster County Commission. The invite list is shown in Appendix 3 and the attendance record is shown in Appendix 2.

Meeting participation and individual discussions were also held with emergency services, school leaders, law enforcement, job development authority, major employers, and federal and state agencies. (See Appendices 2, 3, 4 and 5) Members of the Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan Steering Committee are shown in Table 2.2. See Appendix 2 for attendance records for jurisdiction meetings, Steering Committee meetings, data gathering and special meetings. Invitations via mail and email were sent to individuals prior to each Steering Committee and incorporated jurisdiction meeting. (See Appendix 3) News releases were sent to the media prior to the last two Steering Committee meetings. (See Appendix 4)

Table 2.2 – 2021 Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update – Steering Committee

Last Name	First Name	Title	Representing
Balak	Frank	Vice Chairman, Regional Emergency Response Coord., Member	Central Valley Health District, Foster County LEPC
Brown (Griffin)	Karlee	Director	Carrington Economic Development
Devereaux	Aaron	Emergency Manager/9-1-1 Coord., EMT	Foster County, Carrington Ambulance Services
Edland	Jeff	Fire Chief, Member	Glenfield Fire Department, Foster County LEPC
Eli	Curt	Safety Officer	Dakota Growers Pasta Plant
Erdmann	Tom	Mayor	City of Carrington
Eversvik	Sharon	Director, Member	McHenry Ambulance, Foster County LEPC
Gale	Jeff	Extension Agent	NDSU Extension/Foster County
Govick	Eric	Reporter, Member	Foster County Independent, Foster County LEPC
Hagel	Becky	Commissioner	Foster County
Konschak	Kristy	RN	CHI-St. Alexius Carrington Medical Center
Hovdenes	Jodi	VP of Patient Care Services, Member, Director	CHI-St. Alexius Carrington Medical Center, Foster County LEPC, Carrington Ambulance Services
Hoyt	Bobby	Fire Chief, Member	McHenry Fire Department, Foster County LEPC
Hoyt	Paulette	Auditor	City of Glenfield
Hoyt	Paulette	Auditor	City of Glenfield
Johnson	Justin	Sheriff, Member	Foster County, Foster County LEPC
Kirking	Andrew	Emergency Manager	Stutsman County
Koepplin	Danielle	PIO/FC Clerk of Courts, Member	Foster County, Foster County LEPC
Kruse	Amber	RN, Member	Foster County Public Health, Foster County LEPC
Kruse	Nathan	Deputy Sheriff, Member	Foster County, Foster County LEPC
Kuehn	Kris	Superintendent	Carrington Public Schools
Monson	Nate	Superintendent, Member	Foster County Highway Department, Foster County LEPC
Roehrich	Tammy	Emergency Manager, Secretary	Wells County, Wells County Water Resource District
Short	Jerome	Treasurer, Member	McHenry Ambulance, Foster County LEPC
Solberg	Brad	Auditor, Board Member, Member, President	Foster County, Carrington Cemetery Board, Foster County LEPC, Carrington Public Schools School Board
Tufte	Jerry	Firefighter, Member	Carrington Fire Department, Foster County LEPC
Utke	David	Commissioner, Representative, Member	Foster County, NE Regional CRIB Board, Foster County LEPC
Wangen	Ken	Fire Chief, Member	Carrington Fire Department, Foster County LEPC
Wolsky	Jason	Director, Asst. Fire Chief, Manager, Member	Carrington Public Works, Carrington Fire Department, Carrington Municipal Airport, Foster County LEPC

Planning Process Summary

The planning process included six Steering Committee meetings, one jurisdiction meeting with each incorporated city, and a public hearing. All meetings were open to the public and news releases encouraged the public to attend. In addition, face-to-face, phone and e-mail interviews were methods used to gather data and input from public and private sector individuals, public entities, and local, state and federal agencies. (See Appendix 2) A mitigation survey was also conducted. The link to the mitigation survey was distributed on the agenda for every meeting during the planning process, and emailed to the Steering Committee, major employers, and contacts at each school in the county. The link to the survey was also made available on social media and local news media. *A total of 63 responses were received. This will be updated once the survey has been closed.*

After reviewing the hazards and man-made threats in the state plan and the 2015 Foster County Mitigation Plan, the Steering Committee discussed and identified the following natural hazards and man-made threats to be included in the updated plan for Foster County:

- Civil Disturbance
- Criminal, Terrorist or National/State Attack
- Cyberattack
- Dam Failure
- Drought
- Fire – Urban/Structure & Wildland
- Flood – Riverine and Overland
- Geologic Hazard
- Hazardous Material Release
- Infectious Disease
- Severe Summer Weather
- Severe Winter Weather
- Space Weather
- Transportation Incident

Existing Planning Mechanisms Utilized

This mitigation plan will also be incorporated into city, county, regional, and state plans. The information is being incorporated into the Foster County Local Emergency Operations Plan, the comprehensive and land use plans for Foster County and the city of Carrington, and other emergency preparedness and response plans. Information will also be incorporated into regional plans through the regional council, and state plans through the N.D. Dept. of Emergency Services, among other state agencies where applicable.

All jurisdictions will use the plan's data as they review county and city ordinances and zoning regulations, adopt and/or revise building codes, expand administrative and technical or financial capabilities. The data in this plan will be used in the existing and potential comprehensive plan and zoning ordinances for Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry.

The data in this plan is also being used in the capital improvement and development plans in Foster County and the city of Carrington, the South Central Dakota Regional Council's Comprehensive Economic Development Strategies and Disaster Resiliency Plan for the U.S. Dept. of Commerce, Economic Development Administration and the mitigation plan for the state of North Dakota.

Plan Goals

The Steering Committee revised the goals from the 2015 plan to seven goals for the 2021 update to clarify and strengthen the county's mitigation strategy and eliminate redundancy. The focus of the new goals reflect the changes in mitigation priorities through promotion of strengthening of existing capabilities, reduction and/or elimination of impacts from natural hazards and man-made threats, improvement of resiliency of critical facilities and infrastructure, and improve and expand sheltering capacity.

Goal 1: Improve and expand education and outreach programs to improve public awareness of hazards.

Goal 2: Improve and expand administrative and technical capability to mitigate hazards.

Goal 3: Improve and expand financial capability to mitigate hazards.

Goal 4: Improve and expand planning and regulatory capability to mitigate hazards.

Goal 5: Reduce impacts of hazards.

Goal 6: Improve resiliency of critical facilities and infrastructure.

Goal 7: Provide places of refuge and early warnings for the public and vulnerable populations to take protective action during hazard events.

The Foster County Multi-Jurisdictional Multi-Hazard Plan Update develops a mitigation strategy consisting of mitigation projects based on an assessment of risks. A total of 33 projects were identified as county projects. Additional mitigation projects specific to incorporated jurisdictions were developed and include the city of list all projects here.

2015 Foster County Mitigation Plan – Mitigation Project Status

The status of the mitigation projects from the 2015 Foster County Multi-Hazard Mitigation Plan are shown in Table 2.3 on the following pages. The location, project name/goal and hazards mitigation of each project from the 2015 plan were copied “as-is” into the updated plan and the status in the 2015 plan is shown in the far-right column. The 2021 status identified the projects as one of the following:

- **Cancel:** The project is not mitigation and classified as either preparedness, prevention, response or recovery by FEMA standards, and should be pursued through an alternative funding source or grant program.
- **Complete:** The requirements of the project's scope of work were satisfied and mitigation project is deemed complete.
- **Ongoing and Continue:** The project is a continuous effort by the county or city and is in the 2021 plan update.
- **Complete. Ongoing and Continue.** The requirements of the project's scope of work were satisfied and the project remains a continuous effort by the county or city and is included in the 2010 plan update.

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County, City of Carrington	Install exterior and interior Security Cameras at CHI Carrington Health Center.	Homeland Security Incident	Complete. Response, not mitigation.
Foster County, City of Carrington	Install electronic door locks with proximity readers at CHI Carrington Health Center.	Homeland Security Incident	Complete. Response, not mitigation.
Foster County, City of Carrington	Purchase and install a generator at CHI Carrington Health Center.	Severe Summer and Winter Weather	Complete.
Foster County and incorporated jurisdictions	Purchase and install a generator at Ambulance Building.	Severe Summer and Winter Weather	Ongoing and Continue. Foster County Project AT-5.
Foster County and incorporated jurisdictions	Set up a Mercury Drop-Off Point.	Hazardous Materials	Ongoing and Continue. Revise project to include all hazardous materials. Check with NDDEQ. Work with Jamestown Landfill to include procedures for disposal in the local hazardous materials response plan. Foster County Project AT-8.
Foster County and incorporated jurisdictions	Establish a Concession Stand Food Safety Program.	Disease	Complete. Ongoing and Continue. Information on food safety provided by Central Valley Health District.

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Conduct Septic System Installer Training.	Disease, Hazardous Materials	<p>Complete. Ongoing and Continue.</p> <p>Information on septic system installation and training provided by Central Valley Health District.</p>
Foster County and incorporated jurisdictions	Conduct Water Well Testing.	Disease	<p>Complete. Ongoing and Continue.</p> <p>Kits provided by either Central Valley Health District or N.D. Dept. of Environmental Quality and are available at Foster County Public health office.</p>
Foster County and incorporated jurisdictions	Develop a “Burn Variance”	Wildland Fire	<p>Complete.</p> <p>Achieved through Burn Bans which are implemented at the county level.</p>
Foster County and incorporated jurisdictions	Develop a Rodent Control Program.	Disease	<p>Complete. Ongoing and Continue.</p> <p>City of Carrington has an ordinance in place for dilapidated buildings, abandoned buildings, etc.</p> <p>Needs to be developed for the cities of Glenfield, Grace City, and McHenry.</p> <p>Information on rodent control is provided by Central Valley Health District.</p> <p>Foster County Project PR-2.</p>

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Develop a permanent “Safe Send” site (Surplus Hazardous Materials Drop Off).	Hazardous Materials	<p>Complete. Ongoing and Continue.</p> <p>Available through the N.D. Dept. of Agriculture for fungicides, herbicides, pesticides</p> <p>Combined with “Mercury” project.</p> <p>Foster County Project AT-8.</p>
Foster County and incorporated jurisdictions	Spill Reporting Training for Gas Station Employees.	Hazardous Materials	Complete.
Foster County, City of Carrington	Conduct a Swimming Pool Chemical Safety Class.	Disease, Hazardous Materials	<p>Complete. Ongoing and Continue.</p> <p>Management assistance provided by Central Valley Health District.</p>
Foster County and incorporated jurisdictions	Install Public Health Building Security Cameras.	Homeland Security Incident	<p>Ongoing and Continue.</p> <p>Project is response, not mitigation. Pursue grant funding through homeland security.</p> <p>Foster County Project AT-9.</p>
Foster County and incorporated jurisdictions	Install Public Health Building Electronic Locks.	Homeland Security Incident	<p>Ongoing and Continue.</p> <p>Project is response, not mitigation. Pursue grant funding through homeland security.</p> <p>Foster County Project AT-9.</p>

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Conduct a Public Awareness Vaccination Campaign.	Disease	<p>Complete. Ongoing and Continue.</p> <p>Accomplished through Foster County Public Health.</p> <p>Foster County Project EO-8.</p>
Foster County and incorporated jurisdictions	Purchase cots for Public Shelters.	All	<p>Complete. Ongoing and Continue.</p> <p>Cots were purchased and stored in the basement of the Armory.</p> <p>Still needed for remaining shelters (Carrington High School, Midkota Public School, Grace City Café, McHenry Fire Hall.)</p> <p>Foster County Project I-3.</p>
Foster County and incorporated jurisdictions	Dover Dam Maintenance/ Repair Work.	Flood	<p>Ongoing and Continue.</p> <p>Foster County Project I-1.</p>
Foster County, Townships of Birtsell, Wyard, and Longview	Evaluate drainage system through a hydrology study and culvert sizing in Birtsell, Wyard, and Longview Townships.	Flood	<p>Ongoing and Continue.</p> <p>Foster County Project AT-5.</p>

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Purchase Law Enforcement Protective Equipment.	Homeland Security, Hazardous Materials	<p>Ongoing and Continue.</p> <p>Project is response, not mitigation. Pursue grant funding through homeland security.</p> <p>Foster County Project AT-4.</p>
Foster County and incorporated jurisdictions	Purchase 1,500 gpm, 1,000 gallon with foam capability fire truck.	All, especially wildland fire, urban fire building collapse	<p>Ongoing and Continue.</p> <p>Project is response, not mitigation.</p> <p>Foster County Project At-4.</p>
Foster County and incorporated jurisdictions	Purchase Rescue Vehicle.	All	<p>Ongoing and Continue.</p> <p>Project is response, not mitigation.</p> <p>Foster County Project At-4.</p>
Foster County and incorporated jurisdictions	Purchase full turnout gear for 70 responders.	All, especially wildland fire, urban fire building collapse	<p>City of Carrington is complete.</p> <p>Ongoing and Continue for the cities of Glenfield and McHenry.</p> <p>Foster County Project AT-4</p>
Foster County and incorporated jurisdictions	Purchase 16 Air Packs W/ Spare bottles.	All, especially wildland fire, urban fire building collapse	<p>City of Carrington is complete.</p> <p>Glenfield did receive some.</p> <p>Ongoing and Continue for the cities of Glenfield and McHenry.</p> <p>Foster County Project AT-4.</p>

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Purchase 6 Level B Hazardous Material Suits.	Hazardous Materials	<p>Ongoing and Continue.</p> <p>Project is response, not mitigation.</p> <p>Foster County Project AT-4.</p>
Foster County and incorporated jurisdictions	Purchase High Pressure Extrication Tools.	All especially transportation	<p>City of Carrington is complete.</p> <p>Glenfield has battery extrication tools</p> <p>McHenry has high pressure.</p> <p>Ongoing and Continue for the City of McHenry.</p> <p>Foster County Project AT-4.</p>
Foster County and incorporated jurisdictions	Purchase 1,000 gpm/3,000-gallon self-fill Tanker.	All, especially wildland fire, urban fire building collapse	<p>Ongoing and Continue.</p> <p>Project is response, not mitigation.</p> <p>Foster County Project AT-4.</p>
Foster County and incorporated jurisdictions	Install Security Cameras at Armory.	Homeland Security	<p>Complete.</p>

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
City of Carrington	Purchase and install a generator at Carrington City Hall and Fire Department.	Severe Summer and Winter Weather, shortage or outage of critical materials	Ongoing and Continue. Fire hall is already wired for generator while city hall is not. A portable can be used for the fire hall. Foster County Project AT-5. City of Carrington Project 2.
City of Carrington	Purchase 4 Water Pumps.	Flood	Complete.
City of Carrington	Purchase a Pay Loader.	Severe Winter Weather, Flood	Complete.
City of Grace City	Plant living Snow Fence.	Severe Winter Weather	Cancel. Project is not effective at mitigation severe winter weather.
McHenry, Eastern Foster County	Purchase Jaws of Life.	All especially transportation	Complete. Ongoing and Continue. Combine with extrication project.
McHenry	Purchase 40 Weather Radios.	All	Ongoing and Continue. Foster County Project AT-2.

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
McHenry	Install share connection and generator for lift station.	Flood	Complete.
Glenfield	Purchase a portable generator for Glenfield.	All	Ongoing and Continue. Needed for the community center, lift station, and school. Foster County Project AT-5. City of Glenfield Project 1.
Foster County and incorporated jurisdictions	Review Mutual Aid Agreements for Fire and Ambulance Services.	All	Complete. Foster County Project AT-1.
Glenfield	Upgrade Siren.	All	Ongoing and Continue. Foster County Project AT-2. City of Glenfield Project 2.
Grace City	Upgrade Siren.	All	Ongoing and Continue. Foster County Project AT-2. City of Grace City Project 2.
Glenfield	Evaluate Street issues and take appropriate action to improve city drainage.	Flood, Severe Summer Weather	Ongoing and Continue. Foster County Project AT-5.
Foster County and incorporated jurisdictions	Evaluate the status of existing building codes and building code enforcement.	Windstorm, Geologic Hazards, Urban Fire Structure Collapse	Complete. Ongoing and Continue. Building have been adopted by all incorporated cities. Enforcement is needed.

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Conduct a water conservation public awareness campaign.	Drought	Ongoing and Continue. Foster County Project EO-5.
Foster County and incorporated jurisdictions	Conduct background checks on government employees.	Homeland Security	Complete. Project is not mitigation.
Foster County and incorporated jurisdictions	Issue RFID cards for government /critical facilities.	Homeland Security	Ongoing and Continue. Project is response, not mitigation. Pursue funding through homeland security.
Foster County and incorporated jurisdictions	Install concrete barriers or other type of buffer zone for critical facilities.	Homeland Security	Ongoing and Continue. Project is response, not mitigation. Pursue funding through homeland security.
Foster County and incorporated jurisdictions	Develop and implement a County-Wide Computer Security System /Policy.	Homeland Security	Ongoing and Continue. Foster County Project AT-1.
Foster County and incorporated jurisdictions Telephone, Electric, and Cable Television / Internet Service Providers	Bury power / utility lines.	Severe Summer / Winter Weather, Windstorm	Ongoing and Continue. Accomplished through utility companies. Review local zoning regulations to support the project.

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Review, develop as necessary, and enforce Building Codes for severe weather protection.	Severe Summer / Winter Weather, Windstorm	<p>Ongoing and Continue.</p> <p>Combined with “Evaluate the status of existing building codes and building code enforcement.”</p> <p>City of Glenfield Project 4. City of Grace City Project City of McHenry Project 4.</p>
The cities of Carrington, Glenfield, Grace City, and McHenry	Develop hazardous materials transportation routes through the cities.	Hazardous Materials	<p>Ongoing and Continue.</p> <p>Foster County Project AT-1.</p>
The cities of Carrington and Glenfield	Develop Shelter-In- Place and Evacuation Plans for vulnerable facilities (hospital, nursing homes, schools, day care centers).	Hazardous Materials	<p>Complete. Ongoing and Continue.</p> <p>Project accomplished through Foster County Public Health.</p> <p>Foster County Projects EO-1 and EO-7.</p>
Foster County and incorporated jurisdictions	Update Tier II Facility Maps to determine evacuation / shelter-in place zones based on weather conditions.	Hazardous Materials	<p>Complete.</p> <p>Project accomplished through NDDes HAZConnect.</p>
Foster County and incorporated jurisdictions	Conduct a public health / disease prevention campaign, implement public health protection measures.	Communicable Disease	<p>Complete. Ongoing and Continue.</p> <p>Project accomplished through Foster County Public Health.</p> <p>Foster County Projects EO-2, EO-3, EO-8.</p>

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Conduct a Wildland / Urban Fire Prevention Campaign.	Wildland Fire, Urban Fire	<p>Complete. Ongoing and Continue.</p> <p>Accomplished through Burn Bans and communication with local fire depts.</p> <p>Foster County Project EO-10.</p>
Foster County and incorporated jurisdictions	Procure shelter supplies.	All	<p>Complete. Ongoing and Continue.</p> <p>Cots were purchased and stored in the basement of the Armory.</p> <p>Still needed for remaining shelters (Carrington High School, Midkota Public School, Grace City Café, McHenry Fire Hall.)</p> <p>Foster County Project I-3.</p>
Foster County and the City of Carrington	Conduct Law Enforcement training and exercising for law enforcement.	Hazardous Materials	<p>Complete. Ongoing and Continue.</p> <p>Project is response, not mitigation.</p> <p>Included in the Foster County 3-Year Training and Exercise Plan (TEP).</p>

Table 2.3 – 2015 Foster County Multi-Hazard Mitigation Plan Mitigation Project Status – Continued

Location	Project/Goal	Hazard/Threat Mitigated	2021 Status
Foster County and incorporated jurisdictions	Evaluate siren capability county-wide, evaluate Warning methods for rural residents.	All	<p>Complete. Ongoing and Continue.</p> <p>Grace City and McHenry do not have any sirens.</p> <p>Upgrades are needed in Carrington and Glenfield.</p> <p>Foster County Project AT-2. City of Carrington Project 2. City of Glenfield Project 2. City of Grace City Project 2. City of McHenry Project 2.</p>
Foster County and incorporated jurisdictions	Study the feasibility for planting living snow fences near highways, develop a plan and Implement the living snow fence plan.	Severe Winter Weather	<p>Cancel.</p> <p>Project is not effective at mitigating severe winter weather.</p>
Foster County and incorporated jurisdictions	Evaluate the status of NFIP.	Flood	<p>Complete. Ongoing and Continue.</p> <p>Foster County Project PR-3.</p>
Begin with the City of Carrington; then proceed to the Cities of Glenfield, Grace City, and McHenry	Evaluate Flood Plain Ordinances.	Flood	<p>Complete. Ongoing and Continue.</p> <p>Foster County Project PR-4.</p>
Foster County	Evaluate Road Culverts for proper size and location.	Flood	<p>Complete. Ongoing and Continue.</p> <p>Foster County Project I-2.</p>

Planning Process Details

Included on the following page is a summary of the planning process to update the 2015 Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan. The agendas of meetings held are in Appendix 5, Meeting Summaries. The Foster County Emergency Manager and the plan consultant identified initial Steering Committee. Approximately two weeks prior to Steering Committee meetings invitation postcards were sent via the postal service to committee members and news releases were sent to the local media. A calendar invitation and reminder emails were sent to committee members the week prior or the week Steering Committee meetings. (See Appendix 3 for invite materials and documentation, and Appendix 4 for media coverage documentation.) For a record of attendees at each meeting, see Appendix 2, Attendance.

LEPC and Steering Committee Meetings. The following information summarizes the planning process and steps taken at each committee meeting. It should be noted that the start of the planning process was delayed approximately nine months due to the COVID-19 Pandemic. Therefore, the planning process was accelerated to receive approval of the updated plan to allow for Foster County and incorporated jurisdictions the opportunity to apply for funding through FEMA grant programs.

1. Local Emergency Planning Committee (LEPC): 4:30 to 5:30 p.m., Thursday, February 11, 2021, Foster County Courthouse, Carrington, North Dakota

Outreach: Foster County Emergency Management sent an invitation via email to the Foster County Local Emergency Planning Committee (LEPC) on February 10, 2021. A post was made on the Foster County Emergency Management Facebook page the week prior to the meeting.

The agenda included call to order, review and approval of last LEPC minutes, financial report, old business (off-site meeting), new business (new members, new Tier II reporting, new haz-chem website, and Nexus with the mitigation plan).

The agenda from Nexus included sign-in, welcome and introductions, overview of mitigation, review of hazards and threats, and review of 2015 mitigation projects. The overview of mitigation involved a presentation that introduced mitigation, its purpose and mitigation planning; timeline and goals of the planning process; who needs to be involved in the planning process; status of the current plan; how to get public involvement and formulation of the Steering Committee and scheduling of meetings. Meeting participants also reviewed hazard and threats, and reviewed mitigation projects from the 2015 mitigation plan.

2. First Steering Committee Meeting (virtual): 6:30 to 8:30 p.m., Wednesday, April 21, 2021, Microsoft Teams

Outreach: Nexus Planning & Consulting sent a calendar invitation on April 7, 2021, to the initial invitation list.

The agenda included sign-in, welcome and introductions, overview of mitigation, review of hazards and threats, review of plan table of contents, an update on hazard profile progress, review of hazard history, and discussion on current mitigation projects. The overview of mitigation involved a presentation that introduced mitigation, its purpose and mitigation planning; timeline and goals of the

planning process; who needs to be involved in the planning process; status of the current plan; how to get public involvement and formulation of the Steering Committee and scheduling of meetings.

Meeting participants agreed that the LEPC plus one representative from each incorporated jurisdiction should be on the Steering Committee.

Meeting participants agreed to meet from 6 to 9 p.m. in the meeting room at the Carrington City Library on the following dates: May 26, June 9, and June 30. Simple majority would be used for decision-making.

Meeting participants updated the prioritization of the hazards and threats from the 2015 plan. The following discussion between meeting participants assisted in prioritization of the hazards and threats.

1. Severe Winter Weather. Meeting participants said this hazard can result in the shutting down of roads, which can limit the ability to bring in food, fuel, and medical supplies, and can cause prolonged loss of power.
2. Flood. Meeting participants said every year infrastructure issues arise in the incorporated cities and county from flooding. The history of flooding is significant due to prairie pot-holes and the geology of Foster County.
3. Severe Summer Weather. Meeting participants said this hazard contributes to flooding events.
4. Drought. Meeting participants said that due to the agriculture economy and value-added sector that a significant drought would have widespread economic and social impacts.
5. Cyberattack. Meeting participants said this threat should be number one because it can/will bring private and public sectors to a grinding halt if a major incident occurred.
6. Infectious Disease. Meeting participants said this hazard has resulted in the closure of numerous businesses and economic losses in the billions of dollars across the country, and millions locally, due to COVID-19.
7. Fire. Meeting participants said CRP is coming out of service which has reduced the occurrences of wildland fire, and that flooding causes natural firebreaks. As a result, wildland fire has become less and less of an issue.
8. Hazardous Material Release. Meeting participants said that due to pipelines, railroad infrastructure, and roads traversing the county that carry hazardous materials, this threat will always be of concern.
9. Transportation Incident. Meeting participants said that incidents involving automobiles, planes, trains, and other forms of transportation occur annually. Due to the robust infrastructure traversing Foster County, this threat has the potential to produce a substantial incident that could have regional and intrastate impacts.
10. Space Weather. Meeting participants said that due to digital and technological infrastructure, this hazard could have widespread impacts.

11. Dam Failure. Meeting participants said there is always possibility of this threat and if it occurred, the impact would be catastrophic. However, due to the size of dam infrastructure in and outside of the county, the risk is low.
12. Geologic Hazards. Meeting participants said that due to local geology, this hazard does not have a high risk in Foster County.
13. Civil Disturbance. Meeting participants said that due to DAPL and other recent events across the United States, the risk of this threat has been increasing in recent years.
14. Criminal, Terrorist, or Nation-State Attack. Meeting participants said there is always a possibility of this threat.

Meeting participants reviewed the draft survey and finalized questions.

3. Second Steering Committee Meeting: 6 to 9 p.m., Wednesday, May 26, 2021, Carrington City Library, Carrington, North Dakota

Outreach: Nexus Planning & Consulting sent an invitation letter on May 5, 2021, to the initial invitation list. A calendar invitation was sent on May 19, 2021, and a reminder calendar invitation was sent on May 25, 2021. A press release was posted on the Foster County Emergency Management Facebook page on May 26, 2021.

- The agenda included sign in, welcome and introductions, what is mitigation, overview of hazards and threats, review of the survey, review of the mitigation strategy, planning process overview (review of vulnerable populations, outreach strategy, hazard/threat meetings schedule, and hazard history).
- Schwartz presented meeting participants a brief overview of mitigation planning.
- Schwartz presented meeting participants the list of hazards and threats identified at the virtual kickoff meeting.
- Schwartz presented meeting participants the mitigation survey. The link was included on the agenda.
- Schwartz presented meeting participants a list of the mitigation projects from the 2015 plan. The status of each project needed to be identified (cancel, complete, ongoing and continue, or complete and ongoing and continue). Upon completion of review of the mitigation projects in the 2015 plan. meeting participants had an open discussion on mitigation needs.
- Meeting participants identified vulnerable populations to conduct outreach to for the plan and the survey and identified who needed to participate in hazard/threat profile meetings.

4. Third Steering Committee Meeting: 6 to 9 p.m., Wednesday, June 9, 2021, Carrington City Library, Carrington, North Dakota

Outreach: A calendar invitation was sent to the Steering Committee on June 2, 2021. A postcard reminder was sent to the Steering Committee on June 2, 2021. A reminder calendar invitation was sent to the Steering Committee on June 8, 2021. A press release was included on the Facebook pages for Carrington Economic Development, Foster County Emergency Management, and Foster County Public Health.

- The agenda included sign in, welcome and introductions, update on the mitigation survey, capability risk assessment, risk assessment workshop, mitigation projects, and next steps.
- Meeting participants were given an update on the mitigation survey. Schwartz said the link to the mitigation survey is provided on the agenda.
- Meeting participants were presented the capabilities chapter for the plan. Schwartz reviewed the chapter and completed the information for Foster County and incorporated jurisdictions. Mitigation projects were created based off the gaps identified in local capabilities.
- Meeting participants started the risk assessment workshop using aerial maps and a risk assessment packet that lists each natural hazard and man-made threat and provided space to write down corresponding information on the impact, frequency, likelihood, vulnerability, and capability.

5. Fourth Steering Committee Meeting: 6 to 9 p.m., Wednesday, June 30, 2021, Carrington City Library, Carrington, North Dakota

Outreach: Nexus Planning & Consulting mailed a postcard reminder to the invite list on June 23, 2021. A calendar invitation was sent on June 28, 2021. A press release was posted on the Facebook pages for Carrington Economic Development, Foster County Public Health, and Carrington Area Chamber of Commerce on June 29, 2021. The same press release was posted on the Facebook pages for Foster County Emergency Management and Foster County Public Health on June 30, 2021.

- The agenda included sign-in, welcome and introductions, update of in-kind/local cost share, update of mitigation survey, continuation of the risk assessment, review and scoring and ranking of mitigation projects using the STAPLEE Method, identification of acronyms, problems statement, and next steps.
- Meeting participants were given an update on the in-kind/local cost share.
- Meeting participants were given an update on the mitigation survey. Schwartz said the link to the mitigation survey is provided on the agenda.
- Meeting participants continued the risk assessment workshop using aerial maps and the risk assessment packet that lists each natural hazard and man-made threat and provided space to write down corresponding information on the impact, frequency, likelihood, vulnerability, and capability.

- Meeting participants reviewed the mitigation strategy to score and rank the mitigation projects using the STAPLEE Method. Meeting participants scored and ranked projects, revised where necessary, and created new projects based on group discussion.

6. Fifth Steering Committee Meeting: 6 to 9 p.m., Wednesday, October 12, 2021, Carrington City Library, Carrington, North Dakota

Outreach: Nexus Planning & Consulting sent a calendar invitation on September 15, 2021. A postcard was sent on September 21, 2021. A reminder calendar invitation was sent on October 11, 2021. A press release was posted on the Carrington Economic Development Facebook page.

The agenda included: sign-in, welcome and introductions, update on in-kind/local cost share, update of mitigation survey, draft plan review, finalizing the risk assessment, finalizing the mitigation strategy, and next steps.

- Meeting participants were given an update on in-kind/local cost share. As of the meeting, the total in-kind calculated was \$5,347.75 and \$8,566.67 was needed to meet the local match. Schwartz said the in-kind calculation did not include attendance at the meeting, or the remaining meetings, which includes profile meetings for infectious disease, flood, severe weather, and the final public hearing and committee meeting.
- Meeting participants were given an update on the mitigation survey. As of the meeting, a total of 60 responses were received. Schwartz said the link to the mitigation survey is provided on the agenda.
- Printed hard copies of the plan were made available to meeting participants for peer review. Meeting participants wrote their names at the top of each section they reviewed and highlighted areas where revisions were necessary, additional data would improve the plan, and discussed additional mitigation projects.
- Meeting participants reviewed their risk assessment packets and finalized information. Additional risk assessment information from natural hazard and man-made threat profile meetings was presented. Meeting participants updated their respective risk assessment packets and used the additional information to update the printed draft versions of the draft plan to enhance plan chapters.
- Meeting participants finalized the review of the mitigation strategy to score and rank the mitigation projects using the STAPLEE Method. Meeting participants scored and ranked projects, revised where necessary, and created new projects based on group discussion.

7. Public Hearing and Steering Committee – 7 to 8 p.m., Thursday, November 4, 2021, Carrington City Library, Carrington, North Dakota

Outreach: Nexus Planning & Consulting sent the draft plan to Foster County and the city of Carrington for placement on its websites on October 22, 2021, and posted the same day. A press release for the draft plan was posted on NewsDakota.com on October 22, 2021, and included on the

Facebook pages for Foster County Public Health, Carrington Economic Development, Carrington Area Chamber of Commerce, and Foster County Emergency Management the same day.

- The agenda for the public hearing included welcome and introductions, review of public comments received, review of jurisdictional participation, and review of mitigation survey results.
- The agenda for the steering committee included motion to approve incorporation of public comments received, decision on participation, motion to submit the plan to NDDES for review, and next steps.

Natural Hazard/Man-Made Threat Profile Meetings

A meeting with subject matter experts was held to create the hazard profile for each natural hazard and man-made threat profiled in this plan. A template to update current information and gather new information was developed and used at each profile meeting during the planning process. The agenda at each meeting included: welcome and introductions, an overview of mitigation, an overview of the natural hazard or man-made threat, review and discussion of history and past incidents, discussion on probability and magnitude/extent, risk assessment discussion and scoring and ranking, discussion on vulnerabilities to publicly-owned buildings and property, discussion on vulnerabilities of critical facilities and infrastructure, discussion on vulnerabilities to new and future development, review of existing mitigation projects from the 2015 plan and creation of new mitigation projects based on meeting discussion, identification of data limitations and other key documents, review of the mitigation survey, and next steps.

Jurisdictional Meetings/Workshops

A joint jurisdictional workshop was held in the city of Glenfield for all incorporated jurisdictions in Foster County (Carrington, Glenfield, Grace City, and McHenry). The workshop was a supplement to the jurisdictional work completed at Steering Committee meetings to review risk assessment information and finalize mitigation projects. A template to update current and gather new information was developed and used at each jurisdictional meeting during the planning process.

The agenda at each meeting included: welcome and introductions; review of the profile and inventory of buildings and structures, utilities and services provided, and critical facilities and infrastructure; identification of new and future development; risk assessment discussion and scoring and ranking; update of mitigation projects from the 2015 plan and development of new projects, review of mitigation capabilities, in-kind discussion, plan progress update, overview of community inventory and mitigation capabilities, the Foster County Mitigation Survey, and next steps.

Public Participation and Comment Integration

All planning meetings were open to the public. In addition, one public hearing was held. Comments were received during the planning process, at the public hearing, and through U.S. mail and email prior to the hearing. The agenda included welcome and introductions, review of public comments and incorporation of comments into the plan. (See Appendix 5) Representatives from various business/industry, federal, local, regional, and state agencies were invited to participate in committee meetings. See Appendix 2, Attendance for a complete listing of attendance at committee and

jurisdictional meetings, Appendix 3, Invitation Documentation for a complete listing of the invite list for participation, and Appendix 5, Meeting Summaries for details on all meetings. Invitations via postcard and email were sent to these representatives to ensure the public was involved in the planning process during the drafting stage of the plan update. (See Appendix 3)

Public Comments received at and prior to the Public Hearing are as follows:

Source and Comment Immediately After
<p>Carrington resident William Dillingham</p> <p><i>Received Monday, November 11, 2021, via email</i></p> <p>Daniel,</p> <p>Many thanks for the document. Per request, please find below my comments.</p> <p>As a preface, note that I do not doubt that there are many pages of context and scoping documents not included in the draft plan that would already address (though not necessarily satisfactorily) my comments, questions and concerns; I do apologize in advance for such instances. My comments may seem, at times, more editorial than substantive – but that is by design. We cannot assume that oversights and errors – even grammatical ones – are without unintended consequences. I do not, however, provide an end-to-end proof of the document; I do not have the luxury of time.</p> <p>Comments in two categories: general and specific.</p> <p>General</p> <p>1. These sorts of reports are much like home inspection reports: There is a template that provides the scope, and the inspector adds details into the sections – always quick to add that observations may or may not be true and in case of any questions, an expert should be sought out. This feels and reads very much the same. “Foster County can be impacted by...” A <i>de novo</i> approach to Foster County certainly would not include ‘civil disturbance’ or ‘terrorism’ – but those are part of the template, so they are included. There’s also something unsettling about including these sorts of things: The ‘solution’ is (see next point) to tax and spend more, while concentrating more power in the hands of the government. ((To be clear, as your evaluation makes clear, the only or dominant sorts of threats to Foster county’s residents are weather-related. Moreover, these are insurable risks, which moves (or ought to move) them outside of the market-failure justification of government interference.)) The point is this: There is an un-discussed, fully assumed view of the proper role government here that drives analysis – and it’s not the one that most folks in Foster County accept.</p> <p>2. While no one could reasonably disagree with the goal to “improve” preparedness, I am not convinced that this would require “expanding” any program. The unstated belief here is that governments must always be expanding programs – never cutting – in order to improve services. This is fallacious and dangerous. We must come to terms with this: If X is more likely to cause hardship through externalities (third-party effects) than Y, then address X and let the community address Y. There is no rational basis, no philosophically robust view, no historically grounded argument that, always and everywhere, the government must provide defenses against every X and Y that comes along – and Z next year, etc. For example, <i>why</i> does every government office require a generator? Your answer assumes a view of government.</p> <p>3. “The risk assessment provides factual basis...” is an assertion not a fact, given in order to provide a patina of legitimacy to a nearly wholly subjective exercise. Risk assessments are, by definition, not facts” (though they can be based on them upstream); rather, these are ‘scenarios’ that provide opportunity for discussions about the proper role of government. By this, I mean that we address</p>

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given scenario based on its probability (assuming a stochastic profile) through the lenses of affected-party (community) robustness and resiliency – that is, the community’s ability withstand risk actualization or recover within acceptable parameters, given current statuses of organization, communication, and market mechanisms.

4. Table 4.2 (Impacts): This is part of the template, but not necessarily helpful or correct. For example, how might Civil Disturbance cause flooding and mass casualties in such a way that would make CD distinct from Criminal or Terrorism actions? In addition, many ‘impacts’ are not concomitants to the hazards; rather these impacts result from government actions in the face of the event. Also, many of these hazards are just as likely (arguably *more* likely) to ‘cause’ social bonding and community building than “discord” and “distress.” In other words, many of the intersections of hazard and impact are the result of the structure of the questionnaire and not the ineluctable conclusion.

5. Table 4.3: The definitions of the categories are understandably vague (for economy of space and ease of communication), but this has serious impact on the report. For example: You’ve noted that a score of 4 is “catastrophic,” and by that you mean that more than half of the population is “affected.” What does affected mean? How is *affected* related to the general usage of “catastrophic”? Generally understood usage of this term is ‘major loss of life’ or ‘significant loss of resources’ without some offsetting good. (World War II was a significant loss of life, but not necessarily catastrophic for the free world.) The absurdity of this usage means that both the inconvenience of a traffic accident at the traffic circle Hwy 52/200 in Carrington and the (say) resultant chemical release of sulfuric acid train derailment are equivalent.

6. Related to methodology is the Impact and Likelihood summary. Again, these are not facts – unless the question is ‘What do folks think?’ And, what we think or conclude about a given topic is subject to a great deal of bias – which is both a ‘fact’ and a reason to doubt these findings. But, what does one have in mind when one thinks of “impacts”?

7. The Risk Assessment Scoring is somewhat misleading as a direct result of the methodology. Recall that ‘methodology’ is loosely defined as ‘methods’ plus ‘*assumptions*’. In the present case, one very heavy assumption is that all categories (column headings) are equally important. This is a heavy thumb on the scale. This is nowhere more important than with regards to Capabilities. If Capabilities are ‘fully adequate to mitigate’ impacts, then is there risk? No – by definition. (Risks are losses associated with realized hazards; if capabilities offset hazards, then there’s nothing to see here. This should drive the overall score to zero (or close to it, depending on the weighting scheme); but it doesn’t. Thus, you have a situation where ‘impacts’ are scored at 4 when just to the right capabilities are shown as adequate to mitigate the impact, thereby making it nearly impossible to be catastrophic! Or compare two rows, with the same score, but one of which has capabilities to fully mitigate: What does that mean in terms of prioritizing public policy and expenditure?

8. Determination of Likelihood: While determining the average occurrence over some arbitrary time frame can loosely be said to be the ‘likelihood’ of an occurrence, it is not very robust. Indicating that the likelihood is “100%” because meeting participants thought so is even less robust. In the first instance, the analyst must assume that the underlying data generating process is stochastic or that the world has not changed in 40-50 years; in the second, it must be assumed that the meeting participants possess some knowledge that renders their views superior to not only the former method but to a random walk process. It’s not clear how this would be determined from the report. The nub if this criticism is this: Such ‘results’ should not be overly relied upon to determine policy or expenditure. Again, these opinions are not “facts,” but rather, well, opinions.

9. Determination of ‘values’ in impact assessments: Perhaps I’ve missed it, but I do not see where these values are noted as constant- or current-dollars -- \$10 dollars in 2010 may not be the same as \$10 in 2020. This is particularly relevant for agricultural losses where the market volatility can be high. Moreover, it’s not clear that insurance payouts actually capture losses – and the risks to using such values should be noted (although I may have missed this)

Source and Comment Immediately After**Carrington resident William Dillingham**

10. Timeframes: It is not readily clear why there is no standard for the time windows of each listed hazard/threat. In some cases, the author goes back just a few years, while in others many decades. It's not clear that this non-standard approach adds value or takes it away. It surely should be explained.

11. Overly broad categories make is very difficult to know what to do with much of the information. For example, 'Transportation Incidents' are a hodge-podge of many things, all of which are hazards to some extent, but cannot possibly be considered by the local government in such an exercise. Thus, tables showing frequencies and capabilities cannot inform policy if they combine, say, schoolgirl bicycle accidents and sulfuric acid train derailments.

Specific

1. Civil disturbance is so vaguely defined as to render this a useless category for policy makers (and the public they serve), except when such policy makers wish to exploit a situation.
 - a. To use a current example: "distraught" parents are seen as domestic terrorists because they cause "disturbances" at school board meetings. This would fit within the definition deployed in this report – and it would allow government officials to get into all sorts of mischief as a direct result. Let's not be quick to forget that Tiananmen Square and Boston Tea Party are examples of disturbances that were morally justified. In the context of the US, many such disturbances are constitutionally protected and even encouraged.
 - b. I agree that nothing in the Assessment seeks to criminalize such protected gatherings; but the overall impression is that civil activity is a risk – quite the contrary!
 - c. Which leads to the biggest point of all: Residents of Foster County gathering to 'disturb' the government that wants to enforce or even encourage unconstitutional vaccine or mask mandates or church closings are not a risk; indeed, this inverts the risk. The government, in these extreme cases, is the "man-made threat" that needs to be mitigated. So, where in this document is government over-reach addressed?
2. Criminal hazards: In the context of 'biological, chemical, and explosive attacks', the 'data' show that Foster Country suffered vandalism – broken windows and spray-painting. This is the result of poor parenting, not a gap in our governance to be addressed by more government surveillance. This is included because it's in the template, not because its salient to us. Most importantly, the idea that more surveilling of the populace is needed skips the argument altogether. We first need to defend the theses that government surveillance is justified, and if so, that it is cost-effective, and if so, that appropriate data privacy mechanisms are in place.
3. Cyberattacks: There is nothing substantive going on here or any defined hazards – just phishing and doxing. Moreover, there is nothing provided that substantiates the claim that such events are more frequent during things like "COVID." Phishing is not a cyberattack; doxing is often an inside job or personal information mis-management. Moreover, the software virus attack across ND proved that Capabilities were high and impacts negligible. The data, in other words, stand in opposition to the subjective values.
4. Drought:
 - a. "Based on data available, the probability of crop loss from drought is calculated to be 100 percent." This is a statistically and economically meaningless statement. "The probability of drought is 71 percent in any given year" is not a statistically valid statement either – at least not one that doesn't need explaining relative to the other options available.
 - b. [If "drought" is that common – then it IS the regional climate, not the aberrant risk scenario to be mitigated through policy. Indeed, in that case, one would be modeling the probabilities and impacts of *wet* weather in any given year.]

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<p>statement either – at least not one that doesn't need explaining relative to the other options available.</p> <p>c. Statements about increasing periods of low precipitation do not lend themselves to policy or preparedness. As noted in the report, weather variability is such that some years are wetter than others. More importantly, there are very robust and liquid markets for hedging these risks. I appreciate that the author notes such risks exist, but they have always and will always exist.</p> <p>d. To note “With the probability of climate change,” is also without meaning; climate <i>is</i> change; this probability is 100 percent. This statement isn't insight. But to extend this to “more frequency and increased severity” is just hyperbole; there is not an iota of scientific or statistical evidence to support that assertion. Even if it were true, it is still simply too broad and ambiguously defined to have economic or policy consequences.</p> <p>5. Infectious disease:</p> <p>a. It's not quite clear why ‘remoteness’ would be positively correlated with ‘catastrophic impacts’ of outbreak – might be true, but not always and everywhere or even generally. If the idea is that infected individuals would be less likely to get to medical resources, then that is just as likely for folks living alone, regardless of local population density.</p> <p>b. As for healthcare professionals servicing an area, the mitigating effect of this is more nuanced than the report makes out. If healthcare professionals refuse to see patients (because of, say, vaccine status) or refuse to prescribe appropriate medicines (because of, say, professional association or federal government threats), then disease outbreaks could indeed be catastrophic – again, regardless of population density or ‘remoteness’.</p> <p>c. Impacts – it is asserted that certain strains flu “could be” catastrophic, “like Covid.” Two things:</p> <p>i. The first part of the statement is true, but unhelpful. A particularly nasty strain <i>could</i> appear, but one can't plan for that or protect against it. (For an easy example: Every year, flu vaccines are prepared based on a guess of the strain(s) that may appear that year; being prepared, in that sense, is just being lucky.) Moreover, it's not clear that mortality is related as much to the strain as it is to other factors – much like wildfires are more or less catastrophic because of the availability of fuel, not the cause of the fire. (The ‘fuel’, in this sense, is the elderly population.)</p> <p>ii. By the report's own definitions, the so-called Covid deaths were not “catastrophic.” Obviously, for friends and family of those who passed on, it was; but this disease didn't adversely impact more than 50% of the population and or resources. (That's not to say that government policy didn't impact more than 50% and prove economically catastrophic for many.)</p> <p>iii. Let's be very careful not to let what is most recent in our minds determine what is most important for the residents of Foster County for the next 5-10 years. Recency is not a good proxy for significance. “Unknown vectors moving north because of climate change” is a catch-all that has limited informational signal. Long-wave climate fluctuations may or may not cause pathogens or susceptibilities to move north or south; to the extent that warming and cooling patters in the climate do cause changes to hazards, it is merely trivially true. But to make such a statement in the context of a report – with no substantiating data – is not very helpful.</p>

Source and Comment Immediately After
Carrington resident William Dillingham
<p>iv. “Unvaccinated individuals are 5 times more likely to contract COVID compared to vaccinated individuals and 29 times more likely to be hospitalized” is such a strong statement that one must provide a reference, a source. In fact, this statement is one of ideology, not science. It’s not clear, in other words, that this belongs in a tax-payer funded report.</p> <p>v. In the same way, the throw-away comment about mask wearing: Note that there is not a single study that supports the assertion that wearing a mask is efficacious – and more than a dozen peer reviewed studies showing that it is not.</p> <p>vi. The lack of “mass testing” facilities being positively correlated with ‘vulnerability’ is another ideological statement, not one of science. To be true, this statement would require that tests be accurate and false positives near zero <i>and</i> that results change behaviors relative to the alternative hypothesis that folks who don’t feel well would stay home.</p> <p>6. Space Weather:</p> <p>a. Probability of 100 percent because “the hazard is a natural phenomenon”? This may or may not be true, but it is surely another example of a dead-end statement – what is the reader or policy maker to do with this ‘information’? And this will lead to labor shortages, explosions, and HAZMAT releases? Is there a physical and systemic mechanism by which these will be effected by solar flares? I ask, not to be otherwise, but because, for example, HAZMAT releases require multiple failures of emplaced safety measures, so the solar flare would have to by-pass or make nugatory each. In still other words, while I understand the ‘well, it <i>could</i> happen’ approach, it is just not helpful in the context of this report, at least not without a little research.</p> <p>7. ‘Climate Change’</p> <p>a. It is as true as the change of seasons that the climate is changing. That in no ways should lead one to conclude that climate change is “largely human caused” (or even a hazard). There is not a single empirically based, peer reviewed scientific paper that makes that defends that silly statement. It is profoundly uninformed and unhelpful – and ideological in nature. As such, if one feels compelled to echo the climate lobby in this local government report, one should at least preface the statement with “Some experts agree that...” I do not, for a moment, believe that this one paragraph dissent is going to deprogram any true believer, much less change this report. I do, however, know that this comment will have to be part of the official record. When the temperatures turn much colder <i>on average</i> in the next few years (the author himself refers to solar cycles – which no one reasonably claims are not the largest driver of continual climate change), this paragraph will be seen as prescient.</p> <p>I want to close with this: I am sure that the author(s) of this report are competent and kind – folks with whom I would enjoy a good cup of coffee and intense discussions. Nothing here is meant, or should be taken as, ad hominem. The comments are meant to balance and call out the ideology that pervades this report. Let’s not adopt a report to be fashionable; let’s adopt a report and it’s prescriptions to be prudent.</p> <p>Kind regards,</p> <p>William</p>

Source and Comment Immediately After
Carrington resident Aaron Fauss
<i>Received at the Public Hearing on November 4, 2021</i>
We went through the process with the Governor over mask mandates, and some of the stuff in the plan is not of a concern to me. It seems like FEMA is using money to get other concerns tucked into the plan. They want 100 percent influenza vaccinations at the schools. They tie this into money and it's a backdoor way for FEMA and the federal government to limit the Governor. We are tying things in that shouldn't be interrelated. We want 100 percent vaccinations for kids in schools. We are removing parent's rights over their children's bodies. We are completely removing people's rights
Foster County Public Health Amber Kruse
<i>Received at the Public Hearing on November 4, 2021</i>
Influenza is not a required vaccine for school children. We can include the school required vaccines from the N.D. Dept. of Health and the Carrington Public Schools policy into the plan in the mitigation strategy after project EO-8 as figures for exemption clarification.
Carrington resident Stephanie Dillingham
<i>Received at the Public Hearing on November 4, 2021</i>
I agree with Aaron's comments. Project EO-8 conveys that this is the county's objective. People have the freedom of medical choice. I think it is important to include in that statement that they may have that goal but it does not supersede the rights of families and individuals to make that choice independently.

2021 Foster County Mitigation Survey

A mitigation survey was created by the plan consultant and county emergency management, with review by the Steering Committee, before being officially opened and distributed. The survey was distributed electronically to the invitation list, social media, city and county websites, and the Foster County Independent. See Appendices 3, 4, and 7 for documentation. The survey results were used to gauge public interest in the need for generators at critical facilities and infrastructure, the capacity of storm shelters, knowledge of fire safety, shelter-in-place knowledge and needs of the public, and the public's interest in strategies to mitigate. *A total of 63 completed surveys were received.*

Mitigation Partners – Federal, State, Local, Non-Governmental Organizations and Private Industry/Sector

The involvement and participation of mitigation partners engaged in the planning process was critical to a successful plan update. Each mitigation partner either attended meetings and provided comments and information. It is assumed that some of the mitigation partners reviewed the draft plan and participated in the mitigation survey for the plan update. A complete record of attendance at all Steering Committee, jurisdictional and county meetings during the planning process can be found in Appendix 2, Attendance.

Federal Partners

American Red Cross
National Climatic Data Center (NCDC)
National Oceanic and Atmospheric Administration (NOAA)
National Guard
National Weather Service (NWS)
U.S. Army Corps. of Engineers (SACE)
U.S. Bureau of Reclamation
U.S. Decennial Census
U.S. Dept. of Agriculture, Census of Agriculture
U.S. Dept. of Agriculture, Farm Services Agency
U.S. Dept. of Agriculture, Natural Resources Conservation Service
U.S. Dept. of Agriculture, Wildlife Services
U.S. Dept. of Interior
U.S. Geological Survey
U.S. Postal Service

State Partners

Garrison Diversion Conservancy District
Job Service North Dakota
NDSU Extension/Foster County
N.D. Association of Counties
N.D. Dept. of Agriculture
N.D. Dept of Commerce
N.D. Dept. of Emergency Services
N.D. Dept. of Environmental Quality
N.D. Dept. of Health & Human Services
N.D. Dept. of Transportation
N.D. Game & Fish
N.D. Geological Survey
N.D. Information Technology
N.D. League of Cities
N.D. State Fire and Tornado Fund
N.D. State Water Commission
Public Service Commission
State Historical Society of North Dakota

Local Partners

Carrington Municipal Airport
Fire Departments (Carrington, Glenfield, and McHenry)
Foster County Auditor's Office

Local Partners - Continued

Foster County Commission
Foster County Office of Emergency Management
Foster County Highway Dept.
Foster County Planning & Zoning
Foster County Public Health
Foster County Sheriff's Office
Foster Water Resource Board
NDSU Extension/Foster County
Public Schools (Carrington and Midkota)

Non-Government Organizations and Private Industry/Sector

Burlington Northern Santa-Fe Railway (BNSF)
Canadian-Pacific (CP) Railway
CHI-St. Alexius Carrington Medical Center
Dakota Pasta Growers
High Plains Regional Climate Center, University of Nebraska-Lincoln
Maxfield Research and Consulting, LLC
Medical Services Providers
Red River Valley & Western (RRV&W)

Mitigation Partners – Neighboring Counties

As part of the planning process and the gathering of information for the updating of the risk assessment, emergency managers from the neighboring counties were invited to all Steering Committee Meetings. The emergency manager from each county was sent the draft plan in electronic format for review. Table 2.4 shows the emergency managers from neighboring counties invited to participate in the review process.

Table 2.4 – Participation of Neighboring Emergency Services

County	Name and Title	Invited Form of Participation	Status of Plan Participation
Eddy County	Lisa Thompson, Emergency Manager	Attendance, Review	2021
Stutsman County	Andrew Kirking, Emergency Manager	Attendance, Review	2021
Wells County	Tammy Roehrich, Emergency Manager	Attendance, Review	2021

Review and Incorporation of Existing Plans and Information

This update to the Foster County Multi-Jurisdictional Mitigation Plan was developed with the consultation of local, state and federal agencies, local businesses, educational institutions and the public. The committee reviewed information from their plans and programs and used this information for the plan update. The existing plans and information, and entities consulted, are identified in Table 2.5. The information gathered from these sources was used in the profile of the county and each community to identify capacity, vulnerabilities, hazards, and threats to complete the risk assessment. The information was also used to identify mitigation strategies and who would be responsible to implement the action, partners, and sources of funding for the projects.

Table 2.5 – Existing Plans and Information Incorporated into Plan

Organization	Existing Plans and Information
2015 Foster County Multi-Hazard Mitigation Plan	<ul style="list-style-type: none"> • Reviewed and updated • Hazard history moved forward • Mitigation projects/strategy updates
2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)	<ul style="list-style-type: none"> • All natural hazards and man-made threats history and statistics • Mapping • Risk assessment information • Vulnerability information
Farm Services Agency	<ul style="list-style-type: none"> • Livestock Indemnity Program (LIP) statistics • Risk assessment information
Federal Emergency Management Agency (FEMA)	<ul style="list-style-type: none"> • Community Status Book Report, North Dakota • Digital Flood Rate Maps (DFIRMs) • NFIP statistics • Presidential Disaster Declaration History • Resiliency statistics • Recovery statistics

Table 2.5 – Existing Plans and Information Incorporated into Plan Update - Continued

Organization	Existing Plans and Information
Fire Departments	<ul style="list-style-type: none"> • Annual Report • Risk assessment information • Mitigation Capabilities Information • Mitigation project updates • Urban fire incident statistics • Wildland fire incident statistics
Foster County Auditor’s Office	<ul style="list-style-type: none"> • Publicly-Owned Buildings and Property • DAPL Statistics
Foster County Sheriff’s Office (FCSO)	<ul style="list-style-type: none"> • Capability and planning information • DAPL statistics • Mitigation projects • Risk assessment information
Foster County Water Resource Board	<ul style="list-style-type: none"> • Drought conservation plan • Water conservation plan
Garrison Diversion Conservancy District	<ul style="list-style-type: none"> • Central Dakota Water Supply Project status
High Plains Regional Climate Center	<ul style="list-style-type: none"> • Monthly climate summaries
Incorporated Jurisdictions (Foster County and the cities of Carrington, Glenfield, Grace City, McHenry)	<ul style="list-style-type: none"> • Hazard history and related impacts • Profile and inventory information • New and future development • Risk assessment and hazard scoring updates • Mitigation project updates • Mitigation capabilities
Job Service North Dakota	<ul style="list-style-type: none"> • Major employers • Labor market information
National Climatic Data Center (NCDC)	<ul style="list-style-type: none"> • Severe weather event history data
National Inventory of Dams	<ul style="list-style-type: none"> • Dam statistics
National Fire and Incident Reporting System (NFIRS)	<ul style="list-style-type: none"> • Fire incident, rescue call and losses Statistics
National Register of Historic Places	<ul style="list-style-type: none"> • Historic Sites
National Oceanic and Atmospheric Administration (NOAA) Satellite and Information Service	<ul style="list-style-type: none"> • Precipitation data • Incident occurrence mapping • Severe weather event history data • Snowfall history • Storm prediction center • Climatological data
National Performance of Dams Program, Stanford University	<ul style="list-style-type: none"> • Dam incidents history and statistics
National Pipeline Mapping System	<ul style="list-style-type: none"> • Pipeline mapping • Pipeline statistics
National Weather Service (NWS)	<ul style="list-style-type: none"> • Climatological data • Precipitation data • Severe weather event history data • Snowfall history

Table 2.5 – Existing Plans and Information Incorporated into Plan Update - Continued

Organization	Existing Plans and Information
Nexus Planning and Consulting, LLC	<ul style="list-style-type: none"> • Demographic information • Education and outreach • Mitigation project information and research • Recovery statistics research
N.D. Association of Counties (NDACo)	<ul style="list-style-type: none"> • County geographic and population statistics
N.D. Aeronautics Commission & AirNAV	<ul style="list-style-type: none"> • Airport statistics
N.D. Association of Counties	<ul style="list-style-type: none"> • County statistics • Population trends and projections
N.D. Comprehensive Plan for Preservation: Archeological Component	<ul style="list-style-type: none"> • Historic sites • Archaeological sites
N.D. Dept. of Health	<ul style="list-style-type: none"> • Disease history • Disease prevention/statistics • Hazardous materials release history • Influenza history • Public health plans and information • Rabies history
N.D. Dept. of Emergency Services	<ul style="list-style-type: none"> • 2018 N.D. Enhanced Mitigation MAOP • Continuity of Operations Plan • Emergency Operations Plan • Disaster Recovery Plan • Hazard history and statistics • Mapping and graphic visualizations • N.D Threat and Hazard Identification Risk Assessment (THIRA) • Pipeline information • Population trends and projections
N.D. Dept. of Emergency Services	<ul style="list-style-type: none"> • Preparedness Report • Storm shelter information • Vulnerable populations • WebEOC
N.D. Dept. of Human Services	<ul style="list-style-type: none"> • Senior housing development information
N.D. Dept. of Transportation	<ul style="list-style-type: none"> • 2018 North Dakota Highway Safety Plan • 2020 N.D. Dept. of Transportation Urban High Crash Locations Report • 2040 State Rail Plan • Mapping and graphic visualizations • Traffic accident history • TransAction III, North Dakota’s Statewide Strategic Transportation Plan
N.D. Geological Survey	<ul style="list-style-type: none"> • Earthquake history • Landslide information • Landslide Area Map Series • Mitigation projects • Risk assessment information

Table 2.5 – Existing Plans and Information Incorporated into Plan Update - Continued

Organization	Existing Plans and Information
NDIT	<ul style="list-style-type: none"> • Mitigation projects • Security Incident Response Plan • Threat history
N.D. League of Cities (NDLC)	<ul style="list-style-type: none"> • Building code information • County official contact information • Planning and zoning handbook
N.D. State Water Commission	<ul style="list-style-type: none"> • Dam statistics • Watershed information • Flood information • NFIP statistics
Palmer Drought Severity Index (PDSI)	<ul style="list-style-type: none"> • Drought timeline and statistics
Spatial and Hazard Events and Losses Database for the United States (SHELDUS)	<ul style="list-style-type: none"> • Drought statistics • Flood statistics • Severe summer weather statistics • Severe winter weather statistics
U.S. Army Corps. of Engineers (USACE)	<ul style="list-style-type: none"> • Dam modification project information • Flood history • Pipestem Dam Emergency Action Plan • Pipestem Dam inundation area information • Risk assessment analysis • Vulnerabilities to publicly-owned buildings and property, critical facilities and infrastructure, and new and future development
U.S. Centers for Disease Control and Prevention (CDC)	<ul style="list-style-type: none"> • Disease control • Disease transmission
U.S. Census 2010 and 2020/American Community Survey	<ul style="list-style-type: none"> • Demographic data • Population estimates • Population by age estimates • Housing units • Household size • Poverty statistics
U.S. Dept. of Agriculture-Farm Services Agency	<ul style="list-style-type: none"> • Drought data and statistics • Livestock Indemnity Program (LIP) statistics • Mitigation projects • Risk assessment information
U.S. Dept. of Agriculture-Natural Resources Conservation Service	<ul style="list-style-type: none"> • Drought data and statistics • Mitigation projects • Risk assessment information
U.S. Dept. of Agriculture-Risk Management Agency	<ul style="list-style-type: none"> • 2007, 2012 and 2017 Census of Agriculture • Crop loss data and statistics

Table 2.5 – Existing Plans and Information Incorporated into Plan Update - Continued

Organization	Existing Plans and Information
U.S. Dept. of Interior	<ul style="list-style-type: none"> • Dam modification project information • Hazard history • Risk assessment analysis • Vulnerabilities to publicly-owned buildings and property, critical facilities and infrastructure, and new and future development
U.S. Drought Monitor	<ul style="list-style-type: none"> • Drought timeline and statistics
U.S. Geological Survey	<ul style="list-style-type: none"> • Watershed statistics
University of Wisconsin, Silvis Lab – Spatial Analysis for Conservation and Sustainability	<ul style="list-style-type: none"> • Wildland-Urban Interface mapping and statistics
West Wide Wildfire Risk Assessment (WWA)	<ul style="list-style-type: none"> • Risk assessment information • Wildland-Urban Interface mapping and statistics

Information in this mitigation plan will be incorporated into the county’s local emergency operations plan, transportation plan and comprehensive plan; Foster County Public Health’s pandemic influenza response plan, evacuation and response plan, and point of dispensing plan; the N.D. Dept. of Emergency Services state mitigation and recovery plans; and planning and zoning for Foster County, townships, incorporated jurisdictions (the cities of Carrington, Glenfield, Grace City, and McHenry), and unincorporated jurisdictions.

Hazard Identification

Table 2.6 shows the hazards included in the plan, how identified and why identified for inclusion. All natural hazards and man-made threats were discussed with the Foster County Office of Emergency Management with the plan consultant while reviewing the 2015 plan and strategizing the planning process for the 2021 update.

Table 2.6 – Foster County Major Hazards

Hazard Profile	How Identified	Why Identified
Civil Disturbance	<ul style="list-style-type: none"> City of Carrington Police Dept. Sheriff's Office Local and National Media Outlets Foster County THIRA N.D. State & Local Intelligence Center (NDSLIC) 	<ul style="list-style-type: none"> Dakota Access Pipeline Protest Presence of public schools Critical facilities and infrastructure Presence of state and national highways Presence of major industry
Criminal, Terrorist, or Nation-State Attack	<ul style="list-style-type: none"> City of Carrington Police Dept. Sheriff's Office Local and National Media Outlets Foster County THIRA N.D. State & Local Intelligence Center (NDSLIC) 	<ul style="list-style-type: none"> Dakota Access Pipeline Protest Presence of public schools Critical facilities and infrastructure Presence of state and national highways Presence of major industry History of crime and terrorism in the county
Cyberattack	<ul style="list-style-type: none"> 2018 N.D Enhanced Mitigation MAOP Foster County THIRA N.D. State & Local Intelligence Center (NDSLIC) 	<ul style="list-style-type: none"> Presence of public schools Major industry Carrington Public Schools Midkota Public Schools
Dam Failure	<ul style="list-style-type: none"> National Inventory of Dams Foster County Emergency Management N.D. Dept. of Emergency Services Foster County THIRA 	<ul style="list-style-type: none"> Presence of dam infrastructure
Drought	<ul style="list-style-type: none"> National Climatic Data Center U.S. Dept. of Agriculture-RMA U.S. Drought Monitor Foster County THIRA 	<ul style="list-style-type: none"> Agricultural communities Drought history/crop loss Presidential Disaster Declarations
Fire - Urban	<ul style="list-style-type: none"> County Fire Districts and Departments Foster County THIRA 	<ul style="list-style-type: none"> National Fire Reporting Incident Report (NFIRS) County fire history
Fire - Wildland	<ul style="list-style-type: none"> County Fire District and Departments NDSU/N.D. Forest Service Foster County THIRA 	<ul style="list-style-type: none"> Wildland fire history Wildland-Urban Interface (WUI)

Table 2.6 – Foster County Major Natural Hazards and Man-Made Threats - Continued

Hazard Profile	How Identified	Why Identified
Hazardous Material Release (HAZMAT)	<ul style="list-style-type: none"> • N.D. Dept. of Transportation • Proximity to state and national highways • Presence of highways and pipelines, railroad • Foster County THIRA 	<ul style="list-style-type: none"> • HAZMAT routes through county • History of HAZMAT incidents • Pipelines located in county • Agricultural community and high fertilizer/chemical use
Infectious Disease	<ul style="list-style-type: none"> • Foster County Public Health • N.D. Dept. of Health • U.S. Dept. of Agriculture-RMA • Foster County THIRA 	<ul style="list-style-type: none"> • Agricultural communities • Disease statistics available • Highly vulnerable populations
Severe Summer Weather	<ul style="list-style-type: none"> • National Climatic Data Center • National Oceanic and Atmospheric Administration • National Weather Service • U.S. Dept. of Agriculture-RMA • Foster County THIRA 	<ul style="list-style-type: none"> • Presidential Disaster Declarations • History of extensive damage from summer storms • Crop loss • Property damage
Severe Winter Weather	<ul style="list-style-type: none"> • National Climatic Data Center • National Oceanic and Atmospheric Administration • National Weather Service • U.S. Dept. of Agriculture-RMA • Foster County THIRA 	<ul style="list-style-type: none"> • Presidential Disaster Declarations • History of extensive damage from winter storms • Crop loss
Space Weather	<ul style="list-style-type: none"> • 2018 N.D Enhanced Mitigation MAOP • NOAA’s Space Weather National Prediction Center • Foster County THIRA 	<ul style="list-style-type: none"> • Solar activity will impact the entirety of plant Earth
Transportation Accident	<ul style="list-style-type: none"> • City of Carrington Police Dept. • Public School Districts • N.D. Dept. of Transportation • Sheriff’s Office • Foster County THIRA 	<ul style="list-style-type: none"> • History of incidents • National and state highways • Presence of pipelines • Presence of railroad

Hazards eliminated from the plan update are shown in Table 2.7 and the reason for its exclusion in the planning process.

Table 2.7 – Hazards Excluded from Plan

Hazard	Why Excluded
Avalanche	<ul style="list-style-type: none"> • Foster County does not have a history of avalanche disaster • No areas at a severe enough grade to produce an avalanche • No past incident reports
Coastal Erosion	<ul style="list-style-type: none"> • Foster County does not have an ocean coastline
Coastal Storm	<ul style="list-style-type: none"> • Foster County does not have an ocean coastline
Hurricane	<ul style="list-style-type: none"> • Foster County does not have an ocean coastline
Shortage or Outage of Critical Materials or Infrastructure	<ul style="list-style-type: none"> • Secondary impact from hazard and threats identified in Table 2.5 • No past emergency declarations • Cities maintain utility infrastructure with little outages or problems
Tsunami	<ul style="list-style-type: none"> • Foster County does not have an ocean coastline
Volcano	<ul style="list-style-type: none"> • Foster County does not have any volcanos • No historical data • No past incident reports • No past disaster declarations

3. County and Jurisdictions Profile and Inventory

Foster County and Incorporated Jurisdictions Overview

Foster County is in northeast North Dakota and encompasses 646.84 square miles, of which approximately 643.13 square miles of it is land areas (98.0 percent) and 12.71 square miles (2.0 percent) is water surface areas.

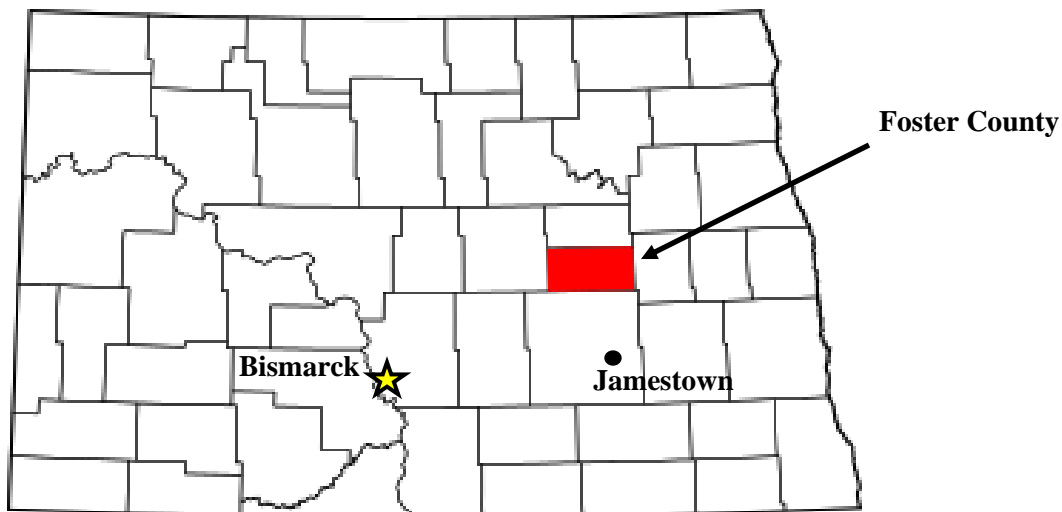
The 2020 population of the county is 3,397 people and a population density is 5.25 people per square mile. A general map of the county showing jurisdiction locations, transportation routes, airports, infrastructure, watersheds, and bodies of water can be found in Chapter 9, Maps.

The county is bordered on the north by Eddy County, on the east by Griggs County, on the south by Stutsman County, and on the west by Wells County. U.S. Highways 52/281 and N.D. Highways 9, 20, and 200 traverse the county.

Foster County has 18 townships: Birstell, Bordulac, Bucephalia, Carrington, Eastman, Estabrook, Florance, Glenfield, Haven, Larrabee, Longview, McHenry, McKinnon, Melville, Nordmore, Rolling Prairie, Rose Hill, and Wyard.

Figure 3.1 – Location of Foster County in the State of North Dakota

Foster County, highlighted in red is in northeast North Dakota directly north of the city of Jamestown.



The incorporated jurisdictions in the county included in this plan are Carrington, Glenfield, Grace City, and McHenry. Unincorporated communities include Barlow, Bordulac, Guptill, Juanita, and Melville.

Climate

The monthly average temperature, monthly average maximum temperature, monthly average minimum temperature, and average total precipitation are shown for Foster County in Table 3.1. The monthly averages are based on information collected between 1991 and 2020 by the High Plains Regional

Climate Center. The data was gridded using AM stations and was interpolated using a Natural Neighbor method to the 5km DEM grid.

- The average temperature ranges from 8.42 degrees in January to 69.25 degrees in July.
- The average maximum temperature ranges from 17.64 in January to 80.81 in July.
- The average minimum temperature ranges from -0.83 degrees in January to 57.59 degrees in July.
- Average total precipitation ranges from approximately 0.52 inches in January to 3.57 inches in July.

Table 3.1 – 1991 to 2020 Foster County Average Monthly Climate Summaries

Foster Co.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Temp (F)	8.42	12.73	25.54	40.77	54.41	64.60	69.25	67.60	58.43	43.70	27.66	14.51
Average Max. Temp (F)	17.64	22.39	35.16	52.21	66.58	75.78	80.81	80.07	70.94	54.66	36.80	22.82
Average Min. Temp (F)	-0.83	3.02	15.84	29.24	42.15	53.33	57.59	55.04	45.83	32.64	18.43	6.15
Average Total Precip. (in.)	0.52	0.48	0.80	1.23	2.72	3.46	3.57	2.53	2.07	1.73	0.68	0.71

Source(s): High Plains Regional Climate Center, University of Nebraska-Lincoln

Demographics

Information on population trends and projections, and vulnerable populations, for Foster County is provided in the following section.

Population

Table 3.2 summarizes the population statistics for Foster County. Population statistics for Foster County for the years 1990, 2000, 2010, and 2020 were obtained through the U.S. Census Bureau-Decennial Census and the American Community Survey. Population projections for 2030 were calculated by applying previous decade population growth/decline statistics to 2020 population statistic and analyzing information in the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP). Statistics on population trends and projections are needed to understand the distribution of people across the county. These statistics also highlight where potential future needs will be for emergency services based on population distribution growth and density. The following are key points:

- The population of Foster County has been decreasing for the past several decades due increased mechanization of the agriculture industry and declining household sizes. However, the population increased between 2010 and 2020 and has remained stable in and around the city of Carrington while decreasing in smaller jurisdictions and rural areas.
- Between 1990 and 2000, the county lost 5.6 percent in population (224 people), decreasing to 3,759, and lost another 11.1 percent in population (416 people) between 2000 and 2010,

decreasing to 3,343 people. The county’s population increased by 1.6 percent (54 people) to 3,397 people by 2020. The county’s population is expected to increase by an estimated 3.5 percent (118 people) by 2030 reaching a population of around 3,515.

- The city of Carrington comprises approximately 61.2 percent of Foster County’s population as of the 2020 U.S. Census, with its share anticipated to remain stable or increase slightly through 2030.
- With a potential resurgence in energy development in the western portion of North Dakota in the 2020s, jobs and support services for this industry will disperse geographically. The local economy also added jobs in government, healthcare, education, manufacturing, professional services, retail, and wind and solar energy development. Thus, population growth and an increase in job opportunities is expected to accelerate in Foster County over the next 10 years.

Table 3.2 – 1990 to 2030 Foster County Population Statistics

Jurisdiction	1990	2000	2010	2020	Percent Change 2000 to 2010	Percent Change 2010 to 2020	Projection
							2030
Foster County	3,983	3,759	3,343	3,397	-11.1 percent	+1.6 percent	3,515
City of Carrington	2,267	2,268	2,065	2,080	-9.0 percent	+0.72 percent	2,150
City of Glenfield	118	134	91	73	-32.1 percent	-19.8 percent	65
City of Grace City	108	71	63	53	-11.3 percent	-15.9 percent	45
City of McHenry	85	71	56	64	-21.1 percent	+14.2 percent	75

Source(s): U.S. Decennial Census; 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP); Nexus Planning & Consulting, LLC

Vulnerable Populations

According to the 2019 American Community Survey 5-Year Estimates), the population under the age of 5 in Foster County consists of 184 people and age 65 years and over is 734 people, comprising 5.6 percent and 22.5 percent of the county’s total population.

Poverty

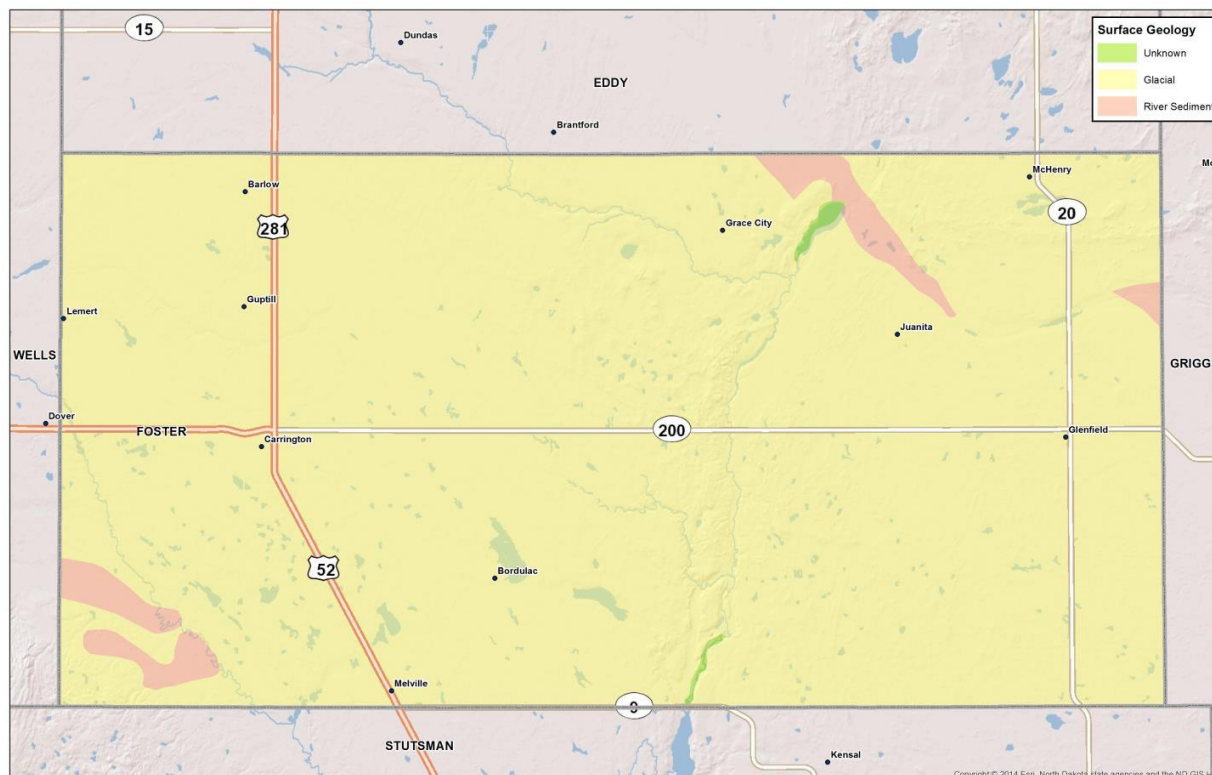
Statistics on poverty in Foster County and incorporated jurisdictions are provided by the 2015-2019 American Community Survey, 5-Year Estimate from the U.S. Census Bureau. Information shown includes number and percent of the Foster County population with incomes below and above the poverty level. Poverty statistics are important to understand where populations in poverty are living, which tend to be more vulnerable to natural hazards and man-made threats. The following are key points.

- There are 111 households that live below the poverty level consisting of approximately 7.8 percent of all households in the county.
- Of the 111 households, approximately 42 are family households, 28 are other family, and 69 are nonfamily households.

Geology

Foster County is in the heart of North Dakota's Drift Prairie Region. The Drift Prairie is located between the Red River Valley to the East and the Missouri Plateau to the West. It is called the Drift Prairie because it carries a surface layer or mantle of glacial drift with occasional hills rising 150 to 200 feet above the general surface. Foster County has almost every glacial feature that is found on North Dakota's Drift Prairie. The maximum glacial drift depth is 420 feet with an average of 125 feet. The types of glacial drift in Foster County are till, outwash, ice contact deposits, lake deposits, and alluvium. The ice contact deposits are evident in the hilly region of central Foster County running north to south.

Figure 3.2 – Foster County Geological Formations



Source(s): 2015 Foster County Mitigation Plan; ND GIS Hub, 2014

The Continental Divide runs through Foster County. To the southwest, the drainage is to the Gulf of Mexico by way of the James, Missouri, and Mississippi Rivers. The principal tributaries of the James River in Foster County are Pipestem Creek, Rocky Run, and Kelly Creek. The northern tip of Arrowwood Reservoir on the James River extends into southern Foster County. Bald Hill Creek in northeastern Foster County flows into the Sheyenne River in northern Barnes County. Much of the area, although located within the drainage basins of the James and Sheyenne Rivers is internally drained. There are numerous lakes, sloughs, and small ponds, most of them intermittent; Juanita Lake, North and South Washington Lakes, and Johnson Lake are generally considered permanent. However, it is reported North Washington Lake was dry or nearly dry during the drought of the 1930's.

The quality of water varies considerably from one lake to another, and in each lake with wet and dry seasons, but most of the lakes contain moderately saline water. Juanita Lake and Lake George contain

fresh water. Glacial drainage ways which carried away glacial melt water are found throughout Foster County. The James River which was one of these glacial drainage ways; other drainage ways can be seen dotting the landscape. Glacial lakes formed when glacial melt water had no drainage leaving behind sand and gravel deposits on their shorelines and flat, rich and fertile farmland on the lake bottom, like the land of the Red River Valley.

Major Employers

The list of major employers in Foster County was provided by Carrington Economic Development. The following are major employers in Foster County as of October 2021.

- Dakota Growers Pasta Company
- CHI-St. Alexius Carrington Medical Center
- Dakota Central
- Northern Plains Cooperative
- Leading Edge Equipment
- High Plains Equipment
- Ottetail Power Company

Watersheds

Watersheds are basin-like landforms defined by highpoints and ridgelines that descend into lower elevations. The form of the land dictates the flow of water from all streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel. The hydrography of Foster County includes three watersheds summarized in Table 3.3. Square miles shown is for the entirety of the watershed and does not represent the extent of the watershed in Foster County. Figure 3.3 illustrates the Hydrological Unit Code 8 watersheds in Foster County. The following are key points describing each watershed in Foster County.

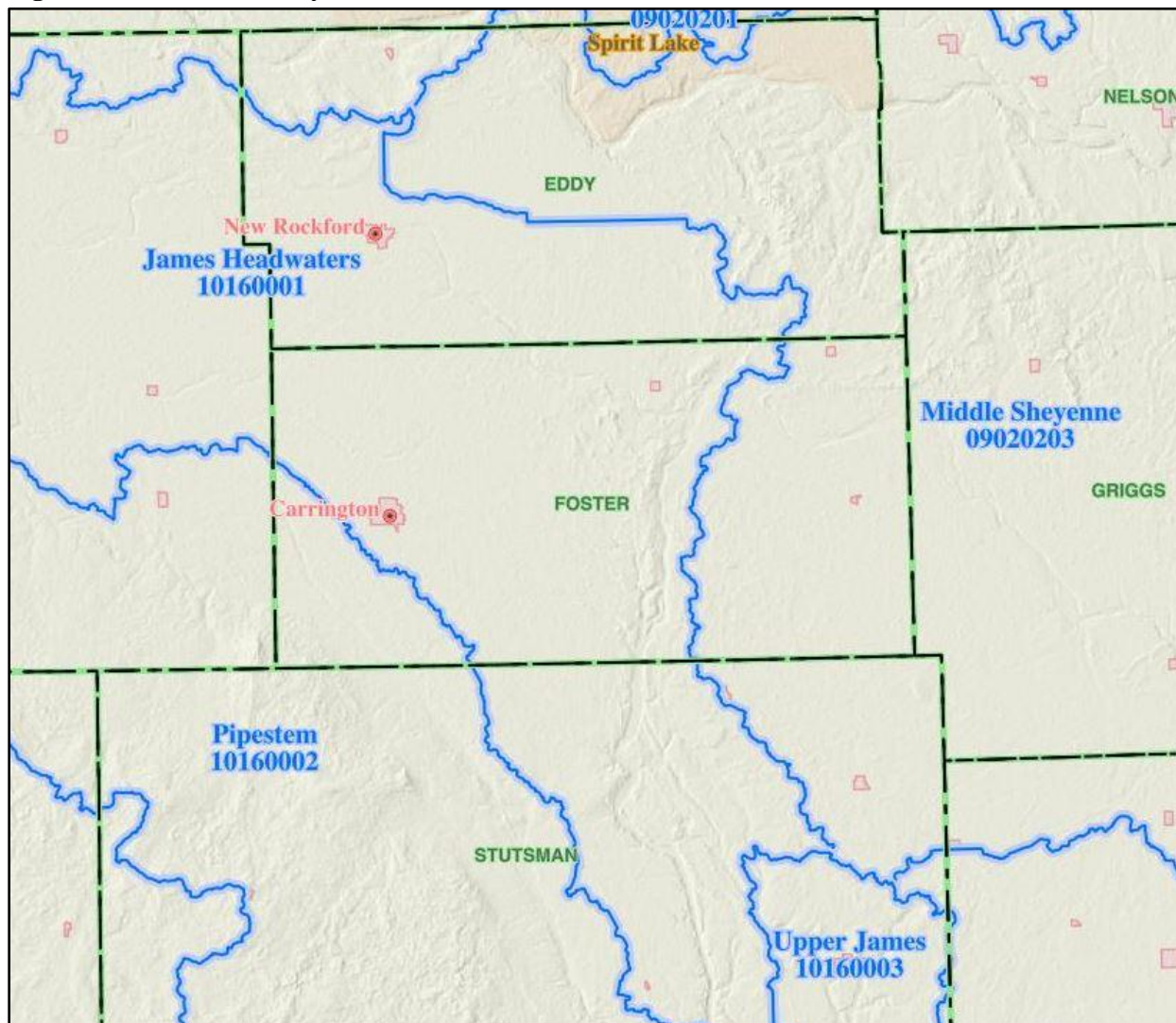
Table 3.3 – Foster County, North Dakota Watersheds (HUC8)

Watershed	Hydrologic Unit Code (HUC8)	Square Miles
James Headwaters	10160001	1,697
Middle Sheyenne	09020203	2,019
Pipestem	10160002	1,070

Source(s): N.D. Dept. of Water Resources, U.S. Geological Survey

- The James Headwaters Watershed covers an estimated 50 percent of the central geographic extent of Foster County, including the city of Carrington. The watershed covers 1,697 square miles of drainage area.
- The Middle Sheyenne Watershed covers the western third of Foster County. The watershed covers 2,019 square miles of drainage area.
- The Pipestem Watershed covers the extreme southeast corner of Foster County. The watershed covers 1,070 square miles of drainage area.

Figure 3.3 – Foster County HUC8 Watersheds



Source(s): N.D. Dept. of Water Resources, USGS Hydrological Unit 8 Watershed

Buildings and Infrastructure Overview

Information on publicly owned and privately-owned buildings and property, critical facilities and infrastructure, and public services in Foster County is provided in the following section. This information is important to understand the value of buildings and property at risk, and resources available for each jurisdiction to use when mitigating natural hazards and man-made threats.

Publicly-Owned Buildings and Property

Table 3.4 summarizes information on the insurance coverage type and insurance limit valuation for publicly-owned buildings in Foster County, North Dakota as of October 2021. Information on publicly-owned buildings is important in mitigation to understand the potential losses and what public assets are at risk to natural hazards and man-made threats. The insurance limit valuation and the combined total includes the building property, personal-property and outdoor property. The types of facilities and

infrastructure covered by this list include the following: the Foster County Courthouse, city halls, community centers, pump houses, communications facilities including, buildings, county communication system towers and equipment, police stations, ambulance buildings, road shops, lift stations, fairgrounds, jails, park facilities, water and wastewater treatment plants, fire stations, museums, warning sirens, municipal airport facilities, and storage buildings. More detailed information can be obtained by contacting the Foster County Auditor’s Office. The following are key points:

- There are 34 publicly-owned buildings and property in Foster County of which 18 are in the city of Carrington, four in unincorporated Lake Juanita, two in the city of Grace City, and one in the city of Glenfield, with the remainder in greater Foster County. The incorporated city of McHenry does not have any publicly owned buildings or property.

Table 3.4 – October 2021 Foster County Publicly-Owned Buildings and Property

Foster County, North Dakota	
Insurance Coverage Type	Insurance Limit Valuation (total, all properties)
Building Property	\$8,359,644.00
Personal Property	\$556,367.00
Outdoor Property	\$20,452.00
TOTAL	\$8,936,463.00

Source(s): Foster County Auditor’s Office; N.D. State Fire and Tornado Fund

Storm Shelters

Storm shelters provide area of refuges for people during incidents of natural hazards or man-made threats. Information on storm shelters is necessary in mitigation planning to help reduce or eliminate loss of life. Table 3.5 shows information on storm shelters in Foster County. See Chapter 6, Mitigation Strategy for sheltering mitigation projects in Foster County.

- Designated storm shelters in Foster County can provide an area of refuge for approximately 24.4 percent of the county’s population. Additional buildings can be identified and retrofitted to increase the sheltering capacity of Foster County.

Table 3.5 – 2021 Foster County Storm Shelters

Facility Name	Managed By	Capacity	ADA Compliant	Back-Up Generator
Carrington Armory	Red Cross Supported	323	No	Yes
Carrington High School	Red Cross Supported	252	Yes	Yes
Schoolhouse Cafe	Red Cross Supported	255	No	No
TOTAL		830		

Source(s): N.D. Dept. of Emergency Services, WebEOC

Jurisdiction Buildings and Services Provided

The following section profiles the housing units, services, jurisdictional buildings, emergency response services, and utilities of Foster County and incorporated jurisdictions. An “X” indicates if the jurisdiction offers the utility or service (either through contract or employees) or possesses the building or resource. Narratives detailing information for incorporated jurisdictions can be found in Chapter 8, Jurisdictions.

Structures

In addition to critical facilities and state-owned buildings, other structures such as residences and businesses in Foster County are also threatened by natural hazards and man-made threats. Housing units show where populations are located. Table 3.6 shows the number of single-family, mobile home/boat/RV/van, and multifamily structures in Foster County and incorporated jurisdictions. The 2015-2019 five-year estimate from the American Community Survey was used.

The following are key points:

- Single-family housing units comprise 82.8 percent of all housing units in Foster County.
- Mobile homes comprise 4.8 percent of all housing units in Foster County.
- Multifamily housing units comprise 12.4 percent of all housing units in Foster County.

Table 3.6 – 2015 to 2019 Housing Units in Foster County

Housing Units	County – outside cities	City of Carrington	City of Glenfield	City of Grace City	City of McHenry	TOTAL
Single-Family Homes	520	892	32	29	35	1,508
Mobile Homes/Boat/RV/Van	55	16	13	0	4	88
Multifamily Units	0	206	9	10	0	225
TOTAL	575	1,114	54	39	39	1,821

Source(s): 2015-2019 American Community Survey 5-Year Estimates

FEMA’s HAZUS-MH Building Values

The 2018 North Dakota Enhanced Mitigation MAOP includes data on building exposure by county based on FEMA’s Hazards US Multi-Hazard Earthquakes, Hurricanes, and Floods (HAZUS-MH) software. The software extracted building values for the entire state for residential, commercial, agricultural and religious buildings and facilities. The following are building values for Foster County.

- Residential Building Exposure: \$470,021,000.00
- Commercial Building Exposure: \$165,343,000.00
- Agricultural Building Exposure: \$40,120,000.00
- Religious Building Exposure: \$24,230,000.00

Critical Facilities

The following facilities were identified as critical in Foster County and incorporated jurisdictions.

- Carrington Ambulance Services Ambulance Hall
- Carrington Armory
- Carrington City Hall/Community Center

- Carrington Fire Hall
- Carrington Police Station
- Carrington Public School
- CHI-St. Alexius Health Carrington Medical Center
- Foster County Courthouse/Law Enforcement Center
- Foster County Highway Department shops
- Foster County Public Health Headquarters
- Foster County Shops
- Foster County Sheriff's Office Garage
- Glenfield City Hall/Community Center
- Glenfield Fire Hall
- Grace City Hall/Community Center
- Midkota Public School
- McHenry City Hall/Community Center
- McHenry Fire Hall
- USDA, Farm Service Agency (Carrington)
- U.S. Post Office (Carrington, Glenfield, Grace City, McHenry)

Infrastructure

The following infrastructure was identified as critical in Foster County and incorporated jurisdictions.

- U.S. Highways 52/281 and N.D. Highways 9, 20, and 200.
- Burlington Northern Santa Fe (BNSF), Canadian Pacific (CP) and Red River Valley & Western (RRVW) Railroads.
- Drinking/potable water, sanitary sewer, and storm water systems for the cities of Carrington, Glenfield, Grace City, and McHenry.

Emergency Response Services

The following emergency response services were identified in Foster County and incorporated jurisdictions.

- The Carrington Ambulance Services provides ambulance services to the city of Carrington and greater Foster County.
- Griggs County Ambulance provides ambulance services to the city of Glenfield and greater Foster County.
- The McHenry EMS provides ambulance services to the city of McHenry and greater Foster County.
- The Carrington Fire Department/Rural Fire Department, Glenfield Fire Department, and McHenry Fire Department provide fire protection services to greater Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry.
- The Carrington Police Department provides law enforcement services to the city of Carrington. The Carrington Police Department will provide law enforcement services to the Foster County Sheriff's Office through mutual aid.

- The Foster County Sheriff's Office provides law enforcement services to Foster County and the cities of Glenfield, Grace City, and McHenry. The Sheriff's Office will provide law enforcement services to the city of Carrington through mutual aid.
- CHI-St. Alexius Health Carrington Medical Center in the city of Carrington and provides medical services to Foster County and all incorporated jurisdictions.
- Foster County Public Health is in the city of Carrington and provides public health services to Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry.

Services and Utilities

The following services are provided in Foster County and incorporated jurisdictions.

- The city of Carrington provides garbage collection services to its residents.
- Brager Disposal of Cooperstown provides garbage collection services to the cities of Glenfield, Grace City, and McHenry.
- The cities of Carrington, Grace City, and McHenry maintain inert landfills.
- The city of Carrington has its own sanitary sewer system consisting of six lift stations and four lagoon cells. There are no active septic systems in the city limits.
- The city of Glenfield has its own sanitary sewer system consisting of one lift station and two lagoon cells. There are no active septic systems in the city limits.
- The city of Grace City does not have a sanitary sewer system. Residents utilize septic systems.
- The city of McHenry has its own sanitary sewer system consisting of one lift station and two lagoon cells. There are no active septic systems in the city limits.
- The Foster County Independent is the official newspaper of Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry.
- The city of Carrington provides drinking/potable water to the city of Carrington.
- Greater Ramsey Water District provides drinking/potable water to the cities of Glenfield, Grace City, and McHenry.
- Otter Tail Power and Northern Plains Electric Cooperative provide electricity of the city of Carrington.
- Otter Tail Power Company provides electricity to the cities of Glenfield, Grace City, and McHenry.
- Natural gas is provided by Montana-Dakota Utilities in the city of Carrington. Natural gas is not available in the cities of Glenfield, Grace City, and McHenry.
- Daktel provides internet, phone, and TV to the cities of Carrington and Grace City.
- Moore Liberty Griggs County Telephone Company (MLGC) provides internet, phone, and TV to the cities of Glenfield and McHenry.
- Fuel oil and propane are used as an alternative heating source and is provided by companies chosen by the individual consumer.

Transportation

Transportation systems are critical to continued economic operation of any jurisdiction. The mitigation strategy for Foster County identifies mitigation measures specific to the county's transportation system in Foster County. Foster County has an extensive county and township transportation system linking farms to the city markets and sources of consumer goods. Foster County's road system consists of 17 miles of gravel surface and 91 miles of paved surface. The main county roads and their surface are listed below. These roads are maintained by Foster County. This section provides information to assist in accomplishing these mitigation measures.

Table 3.7 – Foster County, North Dakota Road System

Road Name	General Location	Surface
Highway 1602	Runs from one end of the county to the other on the North side	Paved - 4 miles in middle are gravel
Highway 1613	Runs North-South into Stutsman & Eddy just west of the halfway point in Foster County	Paved
Highway 1614	Runs from Hwy 52/281 from half mile North of Bordulac to Hwy 1613	Paved
Highway 9	Runs East-West from 281 at Melville for about 11 miles	Paved
Highway 1621	Runs North-South through Grace City, goes East- West approx. 2 miles south of Grace City, intersects with 200 - follows 200 East for four miles, then turns back into a North-South road	Paved
Highway 1620	Runs East-West from 1621 to Hwy 20	Paved

Source(s): 2015 Foster County Mitigation Plan; Foster County Highway Department

Railroad (Freight)

The following information on freight railroad in Foster County was provided by the 2040 North Dakota The Burlington Northern Santa Fe (BNSF) Railroad, Canadian Pacific (CP) Railway, and the Red River Valley & Western (RRV&W) railroads traverse Foster County.

New and Future Development

New and future developments for incorporated jurisdictions in Foster County are discussed below. Development occurring over the last five years is listed for the small cities in Foster County. Analyzing development trends is important for mitigation to understand where projects are needed, and funding is best allocated. Additional information for new and future development occurring over the last five years for incorporated jurisdictions can be found in Chapter 8, Jurisdictions.

Foster County

New development in Foster County since 2015 is shown on the following pages in Figures 3.4 to 3.13 and is current as of September 10, 2021. Information on future development can be obtained by contacting the Foster County Tax Equalization Office.

Figure 3.4 – March 3, 2016, to April 18, 2016, Foster County Building Permits

<u>Date</u>	<u>Owner/Mailing Address</u>	<u>Building permit address</u>	<u>Township</u>	<u>Legal description</u>	<u>Parcel number</u>	<u>Other Information</u>
11/10/2021	Building permits in Foster County (not including the City of Carrington)					
3/4/2016	Duane & Jan DeKrey c/o Garrison Diversion PO Box 140 Carrington, ND 58421 701-674-3508 701-368-2817 dak2@yahoo.com	260 77 th Ave NE Carrington, ND 58421	Rose Hill	Auditor's Lot 225 in NW1/4NW1/4 24-146-65	01489005	
3/28/2016	Jason & Erin Dreher 290 Viola St Juanita, ND 58443 701-650-0143 218-779-7303 dreher1trucking@gmail.com	Unknown	Florence	Auditor's Lot 208 NE1/4 7-147-63	01996010	
3/29/2016	Louis & Kristi Halvorson 1157 103 rd Ave NE Binford, ND 58416 701-789-0697 701-789-1132 kristi_halvorson@hotmail.com	Unknown	Florence	Lots 9A and 9B Juanita Lake Rentals 17-147-63	02115817	Juanita Lake
4/18/2016	Jay & Laura Kulsrud 8080 12 th St NE Grace City, ND 58445 701-652-5715	Unknown	Florence	Lot 13 Juanita Lake Rentals 17-147-63	02115827	Juanita Lake

Source(s): Foster County Tax Equalization

Figure 3.5 – April 18, 2016, to May 17, 2016, Foster County Building Permits

<u>Date</u>	<u>Owner/Mailing Address</u>	<u>Building permit address</u>	<u>Township</u>	<u>Legal description</u>	<u>Parcel number</u>	<u>Other Information</u>
4/18/2016	Christopher Gussiaas 7110 11 th St ND New Rockford, ND 58356 701-307-0715 gussiaaselectric@gmail.com	1035 72 nd Ave NE New Rockford, ND 58356	Estabrook	Auditor's Lot 5A in SE1/4 12-147-66	02451001	
4/25/2016	Barbara Vernarchick 1536 E Melrose Drive Casa Grande, AZ 81522	Unknown	Florence	Lots 20 and 21 Wallbridge North Shore ?-147-63	02115645	Juanita Lake
4/27/2016	Van Bedaf Dairy LLP 6959 2 nd St NE Carrington, ND 58421 701-652-1170 701-652-0218 vanbedaf@daktel.com	Wilfred Schroeder farm 7321 1 st St NE Carrington, ND 58421 JW Schroeder 3607 Par Street N Fargo, ND 58102 701-799-4684 701-235-4174 jwschroeder@cableone.net	Rose Hill	SW1/4 in 29-146-65	01522000	Dairy cow/heifer barn (600 cows or 1000 heifers)
5/13/2016	T-T Ranch/Janet Topp 1255 82 nd Ave NE Grace City, ND 28445	8500 N Shore Road Grace City, ND 58445	Florence	Lots 11-13 Wallbridge North Shore 8-147-63	02115615 02115620 02115625	Juanita Lake
5/17/2016	Tyler Carr 582 Highway 281 NE Carrington, ND 58421	Same	Carrington	Lot 8 in Auditor's Plat 31 in SW1/4 16-146-66	01602008	

Source(s): Foster County Tax Equalization

Figure 3.6 – September 26, 2016, to April 11, 2017, Foster County Building Permits

<u>Date</u>	<u>Owner/Mailing Address</u>	<u>Building permit address</u>	<u>Township</u>	<u>Legal description</u>	<u>Parcel number</u>	<u>Other Information</u>
9/26/2016	Joshua/Emily Hoffman 441 Highway 281 NE Carrington, ND 58421 701-652-3055 701-871-9824 hoffman914@yahoo.com	Same	Carrington	Auditor's Lot 66 7-146-66	01567009	Addition
10/26/2016	Chase Biel 315 63 rd Ave NE Carrington, ND 28421 701-307-0123 Biel.Chase@gmail.com	Unknown	<u>Wyard</u>	Auditor's Lot 14 in NW1/4 16-146-67	01745001	<u>Wyard</u>
11/1/2016	Cash Biel 1329 Main St Carrington, ND 58421 701-650-8455 cashbiel.2101@yahoo.com	315 61 st Ave NE Carrington, ND 58421	<u>Wyard</u>	SW1/4 17-146-67	01750000	Property owned by Thad Rosenau; no deed showing transfer of ownership; no auditor's lot broken out
3/17/2017	Chad Van Dyke 8550 Highway 200 Glenfield, ND 58443 701-320-9463 701-320-9463 (c) c.hadvandyke@yahoo.com	8550 Highway 200 Glenfield, ND 58443	Rolling Prairie	NW1/4 20-146-63	01185000	Property owned by Frankie Vlach; no auditor's lot broken out
4/11/2017	Steve Wede 471 Highway 281 NE Carrington, ND 58421 701-652-3530 701-652-5660 (c) swede@daktel.com	471 Highway 281 NE Carrington, ND 58421	Carrington	Auditor's Lot 1 in NE1/4 in 7-146-66	01564001	Cold-storage addition to existing building

Source(s): Foster County Tax Equalization

Figure 3.7 – April 19, 2017, to August 14, 2017, Foster County Building Permits

<u>Date</u>	<u>Owner/Mailing Address</u>	<u>Building permit address</u>	<u>Township</u>	<u>Legal description</u>	<u>Parcel number</u>	<u>Other Information</u>
4/19/2017	Allen <u>Westerhausen</u> 9535 2 nd St NE Glenfield, ND 58446-9381 701-785-2441 701-650-1935 (c) alwesterhausen@mlgc.com	9535 2 nd St NE Glenfield, ND 58446-9381	Glenfield	S1/2S1/2SW1/4 in 24-146-62	01058001	Addition; existing septic system
6/1/2017	Marty Schenk 2031 230 th Street N Hawley, MN 56549 701-371-4226 (c) msd@arvig.net Josh and Kristin Cabler	850 78 th Avenue NE Grace City, ND 58446	Larrabee	Auditor's Lot 216 in Gov Lot 4 in SW1/4NW1/4 in 19-147-64	02189005	MSD Carpentry temporary owner
6/23/2017	Lee <u>Topp</u> 8070 12 th Street NE Grace City, ND 58445 701-307-0142 (c) lee.topp@cpsagu.com	1010 Lot 2 10 th Street NE Glenfield, ND 58443	<u>Florance</u>	Lot 2 of Auditor's Plat 2 in Gov Lot 4 in SE1/4 of 8-147-63 and Auditor's Lot 207 of Gov Lot 4 in SE1/4 of 8-147-63	02003002 02003010	In Juanita Lake flood plain
6/28/2017	Bryce Carr 6831 2 nd Street NE Carrington, ND 58421 701-653-5013 (c) brycecarr88@hotmail.com	6831 2 nd Street NE Carrington, ND 58421	Carrington	Lots 2, 3, 4, and 6	01623002	Land owned by Connie Carr, 730 4 th Ave S, Carrington, ND 58421
8/14/2017	Michael Schmid 6265 11 th St NE Carrington, ND 58421 701-307-0034 mdsch@daktel.com	Unknown	Florence	Lot G-4 of <u>Outlot G</u> in 18-147-63	02115555	Juanita Lake

Source(s): Foster County Tax Equalization

Figure 3.8 – September 19, 2017, to February 20, 2018, Foster County Building Permits

9/19/2017	Cody/Callie Krause 905 74 th Avenue NE Carrington, ND 58421 701-650-7281 ckrause19@gmail.com	905 74 th Avenue NE	<u>Nordmore</u>	Auditor's Lot 6A & Auditor's Lot 206 in SE1/4SE1/4 17-147-65	02327002	Cold storage; no plumbing
10/18/2017	Tim Carr 285 Highway 281 Carrington, ND 58421 701-650-1147	Unknown N Lake Juanita Park	Florence	Lots 5, 6, & 9	02115730	32'x56' pole barn
10/30/2017	Mike/Stacey Gussiaas 7110 11 th Street NE New Rockford, ND 58356 701-674-3269 701-653-5791 (c) smgussi@daktel.com	Unknown; requested from Jess	Florence	Auditor's Lots 219 & Auditor's Lot 220 in 7-147-63	01999008 01999007	Juanita Lake
2/12/2018	Cash Biel 315 61 st Avenue NE Carrington, ND 58421 701-650-8455 cashbiel.2010@yahoo.com	Same	<u>Wyard</u>	Auditor's Lot 221 in SW1/4 in 17-146-67	01750001	Attached garage/loft
2/20/2018	Ron/Joanie <u>Somsen</u> 8190 Highway 9 SE Kensal, ND 58455 701-435-2324 (h) 701-269-3322 (c) 701-269-3343 (c) 701-652-6100 (w) jsomsen@dakotacentral.com	8503 10 th Street NE City unknown, ND	<u>Florance</u>	Lot 5 Juanita Lake Rentals	02115888	Mobile home

Source(s): Foster County Tax Equalization

Figure 3.9 – April 25, 2018, to May 25, 2018, Foster County Building Permits

4/25/2018	John Fiebiger 11558 County Road 22 Cooperstown, ND 58425 701-261-8645 (h)	Unknown	Florence	W33' Lot 23 and all Lot 24 Juanita Lake Rentals	02115850	Garage
5/15/2018	Brian Oster 1515 2 nd Street N Carrington, ND 58421 701-652-2177 (h)	Unknown	Florence	Lot 1 and N13' Lot 2 S124.52' Lot 2 Juanita Lake Rentals	02115800 02115802	Siding mobile home
5/17/201	Wayne Lesmeister 325 3 rd Ave S New Rockford, ND 701-947-2317 (h) 701-302-0487 (c)	Unknown	Florence	Lot 9 Lake Juanita Park in 19-147-63	02115465	Garage
5/17/2018	Matt/Jacee Davis 7667 5 th Street NE Carrington, ND 58421 701-307-0564 (h) 701-789-1487 © jacedavis84@gmail.com	Same	Rose Hill	Auditor's Lot 226 in SE1/4 2-146-65 (see Software Innovations for Auditor's Lot changes)		House
5/22/2018	Dennis Swanson 6617 4 th Street NE Carrington, ND 58421	Unknown Juanita Lake	Florence	S1/2 Lot 16 and all Lot 17, Lake Juanita Park in 19-147-63	02115495	Tiny house
5/25/2018	Kent/Sharie Mattson 6855 Highway 200 Carrington, ND 58421 701-652-9340 (h) 701-653-5104 (c)	Same	Carrington	Lots 2 and 3 in in Auditor's plat 31 in SW1/4 16-146-66	01602002	30'x40' post frame addition to existing shed

Source(s): Foster County Tax Equalization

Figure 3.10 – June 29, 2018, to January 22, 2019, Foster County Building Permits

6/29/2018	<u>Piet/Taryn van Bedaf</u> 7321 1 st Street NE Carrington, ND 58421 701-650-0162 <u>pietvanbedaf@hotmail.com</u>	7020 2 nd Street NE Carrington, ND 58421	Carrington	Auditor's Lots 51 and 94 in 26-146-66	01641001	House
8/7/2018	Terry Otto 140 2 nd Street N Carrington, ND 58421 701-652-2476 (h) 701-307-0455 (c) <u>Terryotto@daktel.com</u>	Unknown	Larrabee	NE1/4 8-147-64	02144000	House
8/22/2018	Richard Zink Wholesale Ag 7045 Highway 200 Carrington, ND 58421 701-652-5265 (c)	Same	Carrington	Auditor's Lot 220 SW1/4SE1/4 in 14-146-66	01595001	Cold storage warehouse
10/27/2018	Noreen Bartlett 9262 3 rd Street NE Glenfield, ND 58443 701-527-7541 (c) <u>quwahnini@yahoo.com</u>	Same	Glenfield	Auditor's Lot 205 in S1/2NE1/4 and SE1/4NW1/4 in 21-146-62	01044002	House
1/22/2019	Ryan Streff (Powder River Development) for T- Mobile 8000 W 78 th Street Suite 400 Edina, MN 55439 507-227-0129 (c) <u>Ryan.streff@powderriverdev.com</u>	Unknown	Glenfield	NW1/4 17-146-62	01029000	Communications equipment/housing

Source(s): Foster County Tax Equalization

Figure 3.11 – April 26, 2019, to September 9, 2019, Foster County Building Permits

4/26/2019	Shawn Marcotte 1170 1 st Street S Carrington, ND 58421 701-652-5722	8506 North Shore Road Grace City, ND 58445	Florence	Lots 3 and 4 North Shore 8-147-63	02115595	Bunkhouse No new plumbing
5/20/2019	Gilbertson, Zach 604 Paulson Street Binford, ND 58416 701-797-7267	326 Ward Avenue McHenry, ND 58464	McHenry (city)	Lots 7-9 Block 22 3 rd Addition	04090000	Affixed modular home
6/17/2019	Louis & Kristi Halvorson 1157 103 rd Ave NE Binford, ND 58416 701-789-0697 701-789-1132 kristi_halvorson@hotmail.com	8539 10 th Street N Grace City, ND 58445	Florence	Lots 9A and 9B Juanita Lake Rentals 17-147-63	02115817	Garage addition
9/6/2019	Miller, Tim 3579 Sheyenne Circle Valley City, ND 58072 701-490-1650 (?)	7079 Highway 200 Carrington, ND 58421 (Miller, Wes)	Carrington	SE1/4 including Auditor's Lot 12 less right of way and less Auditor's Lot 220 In 14-146-66	01595000	Steel building 50'x100'
9/12/2019	Carr, Tim 582 Highway 281 NE Carrington, ND 58421 701-652-5733 (h) 701-650-1147 (c)	6907 Highway 200 Carrington, ND 58421	Carrington	Lots 9 and 10 of Auditor's plat 31 in SW1/4 16-146-66	01602010	House
9/9/2019	Stangeland, Cory 8285 1 st Street SE Kensal, ND 58455 701-435-2675 (?)	8505 10 th Street NE Grace City, ND 58445	Florence	Lot 26 Juanita Lake 17-147-63	02115854	Mobile home

Source(s): Foster County Tax Equalization

Figure 3.12 – March 23, 2020, to June 1, 2020, Foster County Building Permits

<u>Date</u>	<u>Owner/Mailing Address</u>	<u>Building permit address</u>	<u>Township</u>	<u>Legal description</u>	<u>Parcel number</u>	<u>Other Information</u>
3/23/2020	ABC Seamless for Becker, Dan/Kim 815 69 th Avenue NE Carrington, ND 58421 701-652-5745 (h) 701-307-0760 (Kim cell) eric@abcseamless.com	Same	Estabrook	Plat 467'x467' SE1/4NE1/4 21-147-66	02484001	Windows/siding
6/1/2020	Barton, Jeff 6715 5 th Street NE Carrington, ND 58421 701-307-0121 (c)	Same	Carrington	Auditor's Lot 5 SW1/4 5-146-66	01558001	Garage
6/2/2020	Johnson, Jon 9015 1 st Street NE PO Box 97 Glenfield, ND 58443	8551 10 th Street NE Grace City, ND 58445	Florence	Lot 3 Juanita Lake Rentals 17-147-63	02115804	Deck
6/25/2020	Gussiaas, Brandon 515 Highway 281 NE Carrington, ND 58421	Unknown	Estabrook	Auditor's Lot 230 NW1/4 12-147-66	02450001	House
7/7/2020	Cows & Co. Creamery 7321 1 st Street NE Carrington, ND 58421 pietvanbedaf@hotmail.com	7319 1 st Street NE Carrington, ND 58421	Rose Hill	Auditor's Lot 231 SW1/4 29-146-65	01510001	Creamery
Only payment received 6/1/2020	Allied Agronomy, LLC 109 Industrial Park Edgeley, ND 58433 701-493-2682	6220 11 th Street NE Carrington, ND 58421 701-650-7371	Estabrook	Auditor's Lot 16 NW1/4 7-147-66	02429002	Frame building

Source(s): Foster County Tax Equalization

Figure 3.13 – June 25, 2020, to September 10, 2021, Foster County Building Permits

<u>Date</u>	<u>Owner/Mailing Address</u>	<u>Building permit address</u>	<u>Township</u>	<u>Legal description</u>	<u>Parcel number</u>	<u>Other Information</u>
6/25/2020	Dreher, Jason 8499 North Shore Road Grace City, ND 58445 701-650-0143 Dreher1trucking@gmail.com	Same	Florence	Auditor's Lot 208 NE1/4 7-147-63	01996010	Tank/containment area and steel building
Requested	Johnson, Eric 147 Louise Street PO Box 47 Glenfield, ND 58443 Eric.johnson@centralplainsag.net	8535 10 th Street NE Grace City, ND 58445	Florence	Lot 11A of Lot 11 Juanita Lake Rentals 17-147-63	02115822	House
9/15/2020	Beckley, Tyler/Brook 7870 4 th Street SE Carrington, ND 58421	8507 10 th Street NE Grace City, ND 58445	Florence	Lot 25 Juanita Lake Rentals 17-147-63	02115852	Moved in house; mobile home to Randy Stedman
10/9/2020	Stangeland, Lucas/Amy 8670 7 th Street SE Glenfield, ND 58443 701-649-0264	1033 86 th Avenue NE Grace City, ND 58445	Florence	Auditor's Lot 201 part of Government Lots 3 and 4 in SE1/4 8-147-63	02003004	Moved in house; mobile home given to Randy Stedman; not hooked up to utilities
10/9/2020	Sisson, Jason 550 Highway 281 SE Carrington, ND 58421	Same	Melville	Lots 10-12 Block 11	00819440	Garage
9/8/2021	Hoppe, Chuck/Leann 6865 Highway 200 Carrington, ND 58421	Same	Carrington	Lot 4 Auditor's Plat 31 in SW1/4 16-146-66	01602003	Garage
9/10/2021	Wede, Steve/Sharon 471 Highway 281 NE Carrington, ND 58421	Same	Carrington	Auditor's Lot 1	01564001	Addition

Source(s): Foster County Tax Equalization

4. Threat and Hazard Identification and Risk Assessment (THIRA)

Foster County has a history of damages to crops, livestock, people and property from natural hazards and man-made threats. In the updating of this plan, the Steering Committee, subject-matter experts (SMEs), jurisdictions, and county and city officials identified 14 natural hazards and man-made threats to be included and analyzed in this plan because risk analysis showed that mitigation, planning, response, and preparedness would assist in limiting injury, loss of life, and loss of property.

The following sections of this chapter detail the risk assessment for Foster County, North Dakota for each of the 14 natural hazards and man-made threats.

The 14 natural hazards and man-made threats are:

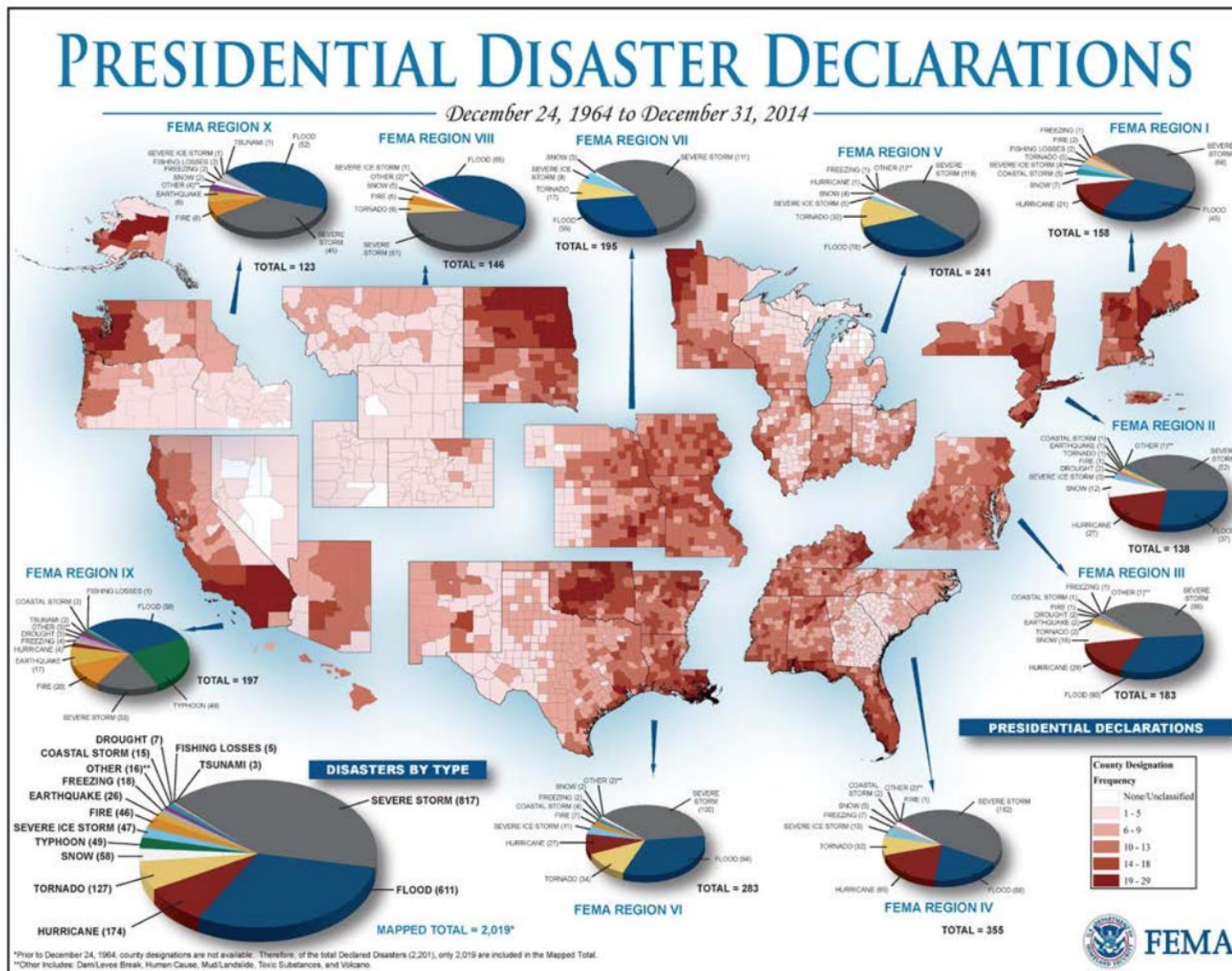
- Civil Disturbance
- Criminal, Terrorist or Nation-State Attack
- Cyberattack
- Dam Failure
- Drought
- Fire (Urban/Structure and Wildland)
- Flood (Overland and Riverine)
- Geologic Hazards
- Hazardous Material Release
- Infectious Disease – Animal, Human & Plant
- Severe Summer Weather
- Severe Winter Weather
- Space Weather
- Transportation Incident

Foster County history illustrates a considerable risk of damage from disasters. The FEMA Presidential Disaster Declaration map in Figure 4.1 shows that North Dakota, particularly counties in eastern and central portions of the state, are among areas in the nation with the most presidential disaster declarations in the past 50+ years. The frequency of declarations for severe summer and winter storms, and flooding, highlight the need for continued mitigation in Foster County pertaining to these disasters.

Since 1953, Foster County has had 21 Presidential Disaster Declarations. Table 4.1 shows that the declarations for Foster County include flooding, snow melt, severe storms, and ground saturation. These declarations highlight the hazards that will result in losses in Foster County, and the value of mitigation to reduce and/or eliminate losses to people and property. The following are key points:

- Foster County has been impacted by 12 flood disasters, six severe storm(s) disasters, two biological disasters, and one coastal storm (Hurricane Katrina Evacuation) since 1953 for a total of 21 declared disasters. Flooding accounts for or is a factor in 76 percent of disasters declared (16) in Foster County.
- Of the 21 disaster declarations involving Foster County, 71 percent (15 disasters) have occurred between the months of April and July of any given year.
- No disasters declarations in the months of February, August, October, November, and December in Foster County.
- The COVID-19 Pandemic and Flooding were the most recent presidential disaster declarations for Foster County occurring in 2020.

Figure 4.1 – December 24, 1964, to December 31, 2014, Presidential Disaster Declaration Frequency by FEMA Region



Source: Federal Emergency Management Agency

Table 4.1 – 1953 to 2020 Foster County, North Dakota Presidential Disaster Declarations

Year	Disaster Description/Title	Disaster Number
1969	Flooding	256
1974	Heavy Rains, Snowmelt & Flooding	434
1979	Severe Storms, Snowmelt, & Flooding	581
1994	Severe Storms, Flooding	1032
1995	Severe Storms, Flooding, and Ground Saturation	1050
1996	Severe Storms, Flooding, and Ice Jams	1118
1997	Severe Flooding, Severe Winter Storms, Snowmelt, Spring Rains	1174
1997	Severe Winter Storms and Blizzard Conditions	1157
1999	Severe Storms, Flooding, Snow, Ice, Ground Saturation, Landslides, Mudslides, and Tornadoes	1279
2000	Severe Storms, Flooding, and Ground Saturation	1334
2001	Severe Storms, Flooding, and Ground Saturation	1376
2005	Hurricane Katrina Evacuation	3247
2009	Severe Storms and Flooding	1829
2010	Flooding	1907
2010	Flooding	3309
2011	Flooding	1981
2013	Flooding	4118
2020	COVID-19	3477
2020	COVID-19 Pandemic	4509
2020	Flooding	4475
2020	Flooding	4553

Source: FEMA

Threat and Hazard Identification Risk Assessment (THIRA) Methodology

A risk assessment is process that collects information on the risk of natural hazards and man-made threats to incorporated jurisdictions, and assigns values to those risks to assist with:

1. Identifying and/or comparing courses of action
2. Developing priorities for future mitigation
3. Inform decision-making on creating a local mitigation strategy
 - Foundation for mitigation strategy development

The risk assessment provides factual basis for the proposed mitigation actions found in Chapter 6, Mitigation Strategy. An effective risk assessment helps create proposed mitigation actions by focusing resources on greatest potential risk. Table 4.2 on the following pages identifies the general impacts associated with each natural hazard and man-made threat. Impacts specific to incorporated jurisdiction is found in each hazard and threat profile in Chapter 4, Threat and Hazard Identification Risk Assessment and Chapter 8, Jurisdictions.

The risk assessment was conducted using the scoring and ranking process found following Table 4.2. **The resulting risk assessment score for each natural hazard and man-made threat is prioritized as follows: 1 to 5 is low, 6 to 10 is medium, and 11 to 15 is high.**

Table 4.2 – Impacts of Natural Hazards and Man-made Threats

Impact	Civil Disturbance	Criminal, Terrorist or Nation-State Attack	Cyberattack	Dam Failure	Drought	Fire – Urban	Fire – Wildland	Flood	Geologic Hazard	Hazardous Material Release	Infectious Disease	Severe Summer Weather	Severe Winter Weather	Space Weather	Transportation Incident
Blocked Roads	X	X		X		X	X	X	X	X		X	X		X
Building Collapse	X	X		X		X	X	X	X			X	X		
Business Interruptions	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Crop Loss	X	X		X	X		X	X		X	X	X	X		
Delayed Emergency Response	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Disease Outbreak/Mass Infections	X	X		X	X			X			X	X	X		X
Downed Power Lines	X	X		X		X	X	X	X	X		X	X		X
Downed Trees	X			X	X	X	X	X	X			X	X		
Environmental Degradation/Reduced Quality of Resources	X	X		X	X		X	X	X	X	X	X	X		X
Evacuation (Full)	X	X	X	X		X	X	X		X	X	X	X		X
Evacuation (Localized)	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Explosion	X	X	X	X		X	X	X		X		X	X	X	X
Financial Hardship (Private)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Financial Hardship (Public)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Flooding (Street)	X			X				X				X	X		
Flooding (Structure)	X			X				X				X	X		
Fuel Outage/Shortage	X	X	X	X	X	X	X	X	X	X		X	X		X
Government Interruptions	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
HAZMAT Release	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Human Injury/Death	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Increased Fire Potential	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Increased Public Safety Runs	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Infrastructure Degradation	X	X	X	X	X	X	X	X	X	X		X	X	X	X

Table 4.2 – Impacts of Natural Hazards and Man-made Threats – Continued

Impact	Civil Disturbance	Criminal, Terrorist or Nation-State Attack	Cyberattack	Dam Failure	Drought	Fire – Urban	Fire – Wildland	Flood	Geologic Hazard	Hazardous Material Release	Infectious Disease	Severe Summer Weather	Severe Winter Weather	Space Weather	Transportation Incident
Labor Shortages	X	X	X	X		X	X	X		X	X	X	X	X	X
Livestock Injury/Death	X	X		X	X		X	X	X	X	X	X	X		X
Loss of Communication Systems	X	X	X	X		X	X	X		X		X	X	X	X
Loss of Critical Facilities and/or Infrastructure	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Loss of Digital/Technological Systems	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Loss of Economy	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Loss/Overcrowded Medical Facilities	X	X	X	X	X	X	X	X		X	X	X	X	X	X
Loss/Overcrowded Veterinarian Facilities	X	X	X	X	X	X	X	X		X	X	X	X	X	
Loss of Potable Water	X	X	X	X	X			X	X	X	X	X	X	X	X
Loss of Power/Electricity Outage	X	X	X	X		X	X	X	X	X		X	X	X	
Loss of Transportation Systems/Accessibility	X	X	X	X			X	X	X	X		X	X	X	X
Loss of Wildlife Habitat	X			X	X		X	X	X	X	X	X	X		
Mass Casualties	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Mass Fatalities	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Property Damage (Equipment and Vehicle)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Property Damage (Structure)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Public Distress/Social Discord	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
School Closure	X	X	X	X		X	X	X		X	X	X	X	X	X
Sewer Backup	X	X	X	X				X	X			X	X	X	
Sheltering of Displaced Populations	X	X		X		X	X	X	X	X	X	X	X	X	X
Soil Degradation/Erosion	X	X		X	X		X	X	X	X	X	X	X		X
Utility Outage/Shortage	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Wildlife Injury/Death	X			X	X		X	X	X	X	X	X	X		X

Impact is what damage or losses the hazard causes in a community.

Scored 1	Negligible – less than 10% of the jurisdiction/people affected
Scored 2	Limited – 10% to 25% of jurisdiction/people affected
Scored 3	Critical – 25% to 50% of the jurisdiction/people affected
Scored 4	Catastrophic – More than 50% of the jurisdiction/people affected

Impact per hazard: Ranked _____. Why:

Frequency is how often the hazard occurs.

Scored 1	Unlikely – history of events shows less than 1% annual occurrence
Scored 2	Possible – history of events shows between 1% to 10% annual occurrence
Scored 3	Likely – history of events shows between 10% to 100% annual occurrence
Scored 4	Highly likely – history of events shows 100% annual occurrence

Frequency per hazard: Ranked _____. Why:

Likelihood is how probable it is that the hazard will happen.

Scored 1	Unlikely – less than 1% chance hazard will occur annually
Scored 2	Possible – 1% to 10% chance hazard will occur annually
Scored 3	Likely – 10% to 100% chance hazard will occur annually
Scored 4	Highly likely – Nearly 100% chance hazard will occur annually

Likelihood per hazard: Ranked _____. Why:

Vulnerability is the amount of:

1. Vulnerable areas: trailer courts, building construction, and blocked roads, etc.
2. Vulnerable population(s): individuals with special needs, elderly, day cares, and schools, etc.
3. Resources: equipment, services, or lack thereof that increases or decreases vulnerability

Who and what is affected? When and why? Identify specific areas of vulnerability. What you have or lack: equipment, vehicles, services available, shelters, buildings, and infrastructure.

Scored 1	Low vulnerability: Adequate resources in the jurisdiction to address any hazard
Scored 2	Moderate vulnerability: Various resources in the jurisdiction
Scored 3	High vulnerability: Few resources in the jurisdiction
Scored 4	Very high vulnerability: Little to no resources in the jurisdiction

Capability is the ability to protect itself against the hazard with resources (i.e. buildings, infrastructure, equipment, personnel, plans, technical, financial/tax base)

Scored 1	Low capability: Little to no ability of the jurisdiction for mitigation
Scored 2	Moderate capability: Few abilities of the jurisdiction for mitigation
Scored 3	High capability: Various abilities of the jurisdiction for mitigation
Scored 4	Very high capability: Adequate abilities of the jurisdiction for mitigation

Capability per hazard: Ranked _____. Why:

The formula to determine the total is: Impact plus Frequency plus Likelihood plus Vulnerabilities minus Capabilities equals Total. Higher total scores indicate more vulnerability and lower scores indicate less vulnerability.

Table 4.3 summarizes the risk assessment scoring of the natural hazards and man-made threats for Foster County and incorporated city jurisdictions, and is also shown in Chapter 8, Jurisdictions.

Table 4.3 – Foster County Jurisdiction Risk Assessment Scoring Summary

Risk Assessment							Jurisdiction: Foster County, North Dakota						
<u>Hazard/Threat</u>	<u>Impact</u>	<u>Frequency</u>	<u>Likelihood</u>	<u>Vulnerability</u>	<u>Capabilities</u>	<u>Total</u>							
Civil Disturbance	4	1	2	2	2	7							
Criminal, Terrorist or Nation-State Attack	4	1	2	2	2	7							
Cyberattack	4	2	4	2	2	10							
Dam Failure	2	1	2	2	1	6							
Drought	4	2	4	4	3	11							
Fire – Urban/Structure Collapse	4	2	2	3	2	9							
Fire – Wildland (including Rural)	4	3	4	2	2	11							
Flood	4	2	4	3	3	10							
Geologic Hazard	1	2	2	2	2	5							
Hazardous Material Release	4	2	4	4	2	12							
Infectious Disease – Human	4	4	4	3	4	11							
Infectious Disease – Animal & Plant	4	4	4	4	4	12							
Severe Summer Weather	4	4	4	2	3	11							
Severe Winter Weather	4	4	4	2	3	11							
Space Weather	4	1	2	4	2	9							
Transportation Accident	4	2	3	2	2	9							

Risk Assessment							Jurisdiction: City of Carrington, North Dakota						
<u>Hazard/Threat</u>	<u>Impact</u>	<u>Frequency</u>	<u>Likelihood</u>	<u>Vulnerability</u>	<u>Capabilities</u>	<u>Total</u>							
Civil Disturbance	3	1	2	3	2	7							
Criminal, Terrorist or Nation-State Attack	4	2	2	2	2	8							
Cyberattack	4	3	4	2	2	11							
Dam Failure	2	1	2	2	1	6							
Drought	4	2	4	3	3	10							
Fire – Urban/Structure Collapse	4	2	2	2	3	7							
Fire – Wildland (including Rural)	4	3	4	2	2	11							
Flood	4	2	4	3	3	10							
Geologic Hazard	1	2	2	2	2	5							
Hazardous Material Release	4	2	4	4	2	12							
Infectious Disease	4	4	4	4	3	13							
Severe Summer Weather	4	4	4	2	3	11							
Severe Winter Weather	4	4	4	2	3	11							
Space Weather	4	1	2	4	2	9							
Transportation Accident	4	3	3	4	2	12							

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.3 – Foster County Jurisdiction Risk Assessment Scoring Summary - Continued

Risk Assessment							Jurisdiction: City of Glenfield, North Dakota						
<u>Hazard/Threat</u>	<u>Impact</u>	<u>Frequency</u>	<u>Likelihood</u>	<u>Vulnerability</u>	<u>Capabilities</u>	<u>Total</u>							
Civil Disturbance	4	1	2	2	1	8							
Criminal, Terrorist or Nation-State Attack	4	2	2	2	1	11							
Cyberattack	4	2	4	3	1	12							
Dam Failure	1	1	1	1	1	3							
Drought	4	2	4	3	2	11							
Fire – Urban/Structure Collapse	4	2	2	2	2	8							
Fire – Wildland (including Rural)	4	3	4	2	2	11							
Flood	4	2	4	3	2	11							
Geologic Hazard	1	2	2	2	2	5							
Hazardous Material Release	4	2	2	4	1	13							
Infectious Disease	4	4	4	4	2	14							
Severe Summer Weather	4	4	4	3	1	13							
Severe Winter Weather	4	4	4	3	1	13							
Space Weather	4	1	2	4	2	9							
Transportation Accident	4	2	3	3	1	11							

Risk Assessment							Jurisdiction: City of Grace City, North Dakota						
<u>Hazard/Threat</u>	<u>Impact</u>	<u>Frequency</u>	<u>Likelihood</u>	<u>Vulnerability</u>	<u>Capabilities</u>	<u>Total</u>							
Civil Disturbance	4	1	2	2	1	8							
Criminal, Terrorist or Nation-State Attack	4	2	2	2	1	11							
Cyberattack	2	1	3	2	1	7							
Dam Failure	1	1	1	1	1	3							
Drought	4	2	4	2	1	11							
Fire – Urban/Structure Collapse	4	2	2	4	1	11							
Fire – Wildland (including Rural)	4	2	3	4	1	12							
Flood	4	2	2	3	3	8							
Geologic Hazard	1	2	2	2	2	5							
Hazardous Material Release	4	2	2	3	1	11							
Infectious Disease	4	4	4	3	1	14							
Severe Summer Weather	4	4	4	3	1	13							
Severe Winter Weather	4	4	4	3	1	13							
Space Weather	4	1	2	4	2	9							
Transportation Accident	4	2	3	3	1	11							

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.3 – Foster County Jurisdiction Risk Assessment Scoring Summary - Continued

Risk Assessment							Jurisdiction: City of McHenry, North Dakota	
<u>Hazard/Threat</u>	<u>Impact</u>	<u>Frequency</u>	<u>Likelihood</u>	<u>Vulnerability</u>	<u>Capabilities</u>	<u>Total</u>		
Civil Disturbance	4	1	2	1	1	7		
Criminal, Terrorist or Nation-State Attack	4	2	2	2	1	11		
Cyberattack	3	1	3	2	1	8		
Dam Failure	1	1	1	1	1	3		
Drought	4	2	4	2	1	11		
Fire – Urban/Structure Collapse	4	1	2	2	2	9		
Fire – Wildland (including Rural)	4	1	3	2	1	9		
Flood	4	3	4	4	1	14		
Geologic Hazard	1	2	2	2	2	5		
Hazardous Material Release	4	1	2	2	1	8		
Infectious Disease	4	4	4	3	1	14		
Severe Summer Weather	4	4	4	3	1	13		
Severe Winter Weather	4	4	4	3	1	13		
Space Weather	4	1	2	4	2	9		
Transportation Accident	4	2	3	2	1	10		

4.1 Civil Disturbance

Including events arising due to political grievances, economic disputes or social discord, terrorism, or foreign agitators.

Characteristics

A civil disturbance is activity from large groups, organizations, or distraught individuals with potentially disastrous or disruptive results.

Seasonal Pattern	None. Extreme winter weather can limit or eliminate activity altogether.
Duration	Minutes/hours/days/weeks/months/potentially a year or more.
Speed of Onset	Little to no warning or several days/weeks.
Location	Total geographic extent of Foster County – most likely targeting critical facilities such as the Carrington Public School, Foster County Courthouse, CHI-St. Alexius Health Carrington Medical Center, or Midkota Public School, or infrastructure such chemical, energy, or oil and gas. Culturally and environmentally sensitive areas can also be a target.

For more information regarding civil disturbance please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The plan can be accessed by following the link:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

History

According to the Foster County Sheriff’s Office and the Carrington Police Department, no incidents of civil disturbance have occurred in Foster County.

One significant civil disturbance event occurred in North Dakota that garnered national and international attention and activated mutual aid with Foster County law enforcement agencies.

- Dakota Access Pipeline (DAPL). The protest began when a 1,134-mile-long crude oil pipeline was proposed for installation across North Dakota and several other states, traversing under the Missouri River near the Standing Rock-Sioux Tribe Indian Reservation. The protest began as a peaceful and environmental-focused event but transitioned into a seven-month long unlawful protest on August 10, 2016, when individuals attempted to block access to construction activities associated with the pipeline. The protest resulted in acts of trespassing, vandalism, riots, fires set to hay bales and tires, intimidation tactics directed at local landowners as well as law enforcement and their families, poaching, theft, and killing of local livestock and other animals. Approximately 709 protesters were arrested during the event. It is estimated that up to 10,000 people attended the protest at its peak.

There have been no declared disasters or emergencies pertaining to a civil disturbance in Foster County.

Probability

The probability of a hazard or threat is how likely it is it will happen. Civil disturbances are hard to predict but are most probable at or near large venues and locations of significance such as stadiums, public school, or government facilities like the Foster County Courthouse/Foster County Law Enforcement Center.

Profile meeting participants ranked the probability of civil disturbance as likely meaning that there is between a 10 and 100 percent probability in the next year of an incident. It is likely a civil disturbance will occur at some point in the future in Foster County and/or in North Dakota.

Extent/Magnitude

The extent/magnitude of a hazard or threat is the expressed in the amount of damage or losses either caused or could occur in a community. Magnitude of a civil disturbance can vary from a small protest at a government facility or health care clinic to large-scale at industrial sites, state capitols, or culturally sensitive areas and sites.

Profile meeting participants ranked the extent/magnitude of a civil disturbance as catastrophic meaning more than 50 percent of the jurisdiction and its people can be affected.

Risk Assessment

Table 4.1.1 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for civil disturbance. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.1.1 represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

Table 4.1.1 – Foster County Civil Disturbance Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	1	2	2	2	7
City of Carrington	3	1	2	3	2	7
City of Glenfield	4	1	2	2	1	8
City of Grace City	4	1	2	2	1	8
City of McHenry	4	1	2	1	1	7

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.1.2 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of civil disturbance in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Table 4.1.2 – Foster County Civil Disturbance Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Blocked Roads • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public and private) • HAZMAT Release – oil trains and natural gas pipeline • Human Injury/Death • Increased Public Safety Runs 	<ul style="list-style-type: none"> • Loss/Overcrowded Medical Facilities • Loss of Potable Water • Property Damage (Structure) • Property Damage (Vehicle) • Mass Casualties/Fatalities
<p>Frequency</p>	<ul style="list-style-type: none"> • Never an occurrence in Foster County 	
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Presence of pipelines transporting hazardous materials • Increasing hostility and turmoil directed at the energy industry and major corporations • Increasing political turmoil at the federal level • Increase in development of oil and gas infrastructure and the potential for future pipelines in the state • Social discord resulting from the COVID-19 pandemic • Presence of three separate railroads 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or significant tourist attraction • Lack of major television station in Foster County
<p>Vulnerability</p>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Presence of pipelines transporting hazardous materials • Increasing hostility and turmoil directed at the energy industry and major corporations • Increasing political turmoil at the federal level • Increase in development of oil and gas infrastructure and the potential for future pipelines in the state • Social discord resulting from the COVID-19 pandemic • Presence of BNSF, CP Railway, and RRVW railroads Funding of extreme groups by “Dark Money” from billionaires/crowd-funding websites 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or a significant tourist attraction • Lack of major television station in Foster County • Foster County Sheriff’s Office • Carrington Police Department
<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address civil disturbance. 	

Vulnerabilities to Publicly-Owned Buildings and Property

Publicly-owned buildings and property are vulnerable to civil disturbances as any government building can be targeted. Facilities supporting functions key to daily operations of the county and incorporated jurisdictions, such as the Foster County Courthouse/Foster County Law Enforcement Center, Carrington City Hall, public schools, or buildings supporting emergency services such as fire and ambulance halls, would be the most vulnerable to a civil disturbance. **The level of vulnerability depends on the activities performed at a specific facility or level of security at the facility.**

A summary of city and publicly-owned buildings is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Like publicly-owned buildings and property, the vulnerability of critical facilities and infrastructure to civil disturbance is imminent. Critical facilities like CHI-St. Alexius Health Carrington Medical Center is and infrastructure such as electric power, water/wastewater facilities, railroads, and pipelines are vulnerable to the threat.

Vulnerabilities to New and Future Development

Civil disturbances are nearly impossible to predict and, therefore, vulnerabilities to new and future development cannot be determined. However, large influxes of people in a short period of time into sparsely populated areas can be a source of civil disturbance and impact new development. In addition, new and future development that is located at or adjacent to politically or culturally sensitive areas, or constructed near environmentally sensitive areas, may be targeted by a civil disturbance.

Data Limitations and Other Key Documents

Due to the confidentiality of information pertaining to civil disturbances, law enforcement agencies were limited in the ability to share detailed information about incidents.

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Foster County Evacuation and Shelter Plan
- Foster County Local Emergency Operations Plan
- Foster County Shelter and Mass Care Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Civil Disturbance Annex
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.2 Criminal, Terrorist, or Nation/State Attack

Including armed assault, biological, chemical, explosive, food/food production, nuclear, radiological, and vehicular attacks.

Characteristics

Any intentional adversarial human-caused incident, domestic or international, that causes mass casualties, large economic losses, or widespread panic. Universities, industry, government officials and buildings, power grids, telecommunication systems, dams, water supplies, and pipelines are potential terrorism targets. Another potential terrorist activity that must be considered is violence in the workplace.

Seasonal Pattern	None. More likely during political unrest or social discord.
Duration	Minutes/hours/days/weeks/months/potentially a year or more.
Speed of Onset	Little to no warning or several days/weeks.
Location	Total geographic extent of Foster County – most likely targeting critical facilities such as the Foster County Courthouse, CHI-St. Alexius Health Carrington Medical Center, and public schools, or infrastructure such chemical, energy, or oil and gas. Culturally and environmentally sensitive areas can also be a target.

For more information regarding criminal, terrorist, or nation/state attack please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The plan can be accessed by following the link:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

History

The following information on incidents of criminal, terrorist, or nation/state attack in Foster County was provided by the Carrington Police Department, Foster County Emergency Management, and the Foster County Sheriff's Office.

- In response to the terrorist attacks on September 11, 2001, public schools in Foster County implemented controlled access by only allowing all students, staff, and visitors to enter and exit through one entrance.
- In 2008/2009, a family living in rural northern Stutsman County had a family member that drowned. The dive team from the Jamestown Fire Department responded to the incident to search for the individual. The family suspects the incident was not an accident. The response to this incident forced Foster County to expend funds from its emergency fund.
- The Foster County Courthouse implemented controlled access measures through the building in 2016/2017. All staff and visitors are required to enter through the main entrance.
- In the spring of 2021, the Carrington Police Department was contacted by the Federal Bureau of Investigation (FBI) of a city resident making terroristic threats toward the President of the United States of America.

2018 N.D. Enhanced Mitigation MAOP

According to the 2018 N.D. Enhanced Mitigation MAOP, the following criminal, terrorist, or nation/state attack events occurred either in Foster County or nearby. Table 4.2.1 shows vandalism and theft claims paid on critical facilities insured by the state in Foster County between 1989 and 2018.

Table 4.2.1 – 1989 to 2018 Vandalism and Theft Claims Paid on Critical Facilities Insured by State

Jurisdiction	State Agencies	Adjutant General	State Universities	Local Governments	School Districts	Total
Foster Co.	\$0	\$0	\$0	\$1,127	\$12,824	\$13,951

Source(s): 2018 N.D. Enhanced Mitigation MAOP; N.D. Department of Emergency Services

- Vandalism and theft claims paid on state facilities and other critical facilities insured by the state since 1989 resulted in zero paid to state agencies, zero paid to the adjutant general, zero paid to state universities, \$1,127 paid to local governments, and \$12,824 paid to school districts in Foster County for a total of \$13,951.

There have been no declared disasters or emergencies pertaining to a criminal, terrorist, or nation/state attack in Foster County.

Probability

The probability of a hazard or threat is how likely it is it will happen. Criminal, terrorist, or nation/state attacks are hard to predict but are most probable at or near jurisdictions with large, dense populations. According to the 2018 N.D. Enhanced Mitigation MAOP, Foster County was 18th densest county in North Dakota with 5.3 persons per square mile.

During jurisdictional meetings, meeting participants said there is always a chance for an incident to occur at any time and no community is immune to the threat. However, the probability is much lower in jurisdictions without schools since schools in the United States have had numerous incidents involving active shooters over the past three decades.

Profile meeting participants ranked the probability of criminal, terrorist, or nation/state attack as possible meaning that there is between a one and 10 percent probability in the next year of an incident. It is likely a criminal, terrorist or nation-state attack will occur at some point in the future in Foster County and in North Dakota.

Extent/Magnitude

The extent/magnitude of a hazard or threat is the expressed in the amount of damage or losses either caused or could occur in a community. Extent/Magnitude of a criminal, terrorist or nation/state attack can vary from an extreme event such as one that affects the national or agricultural economy or requires deployment of military personnel and drafting of soldiers, or smaller magnitude events such as specialized attacks on schools or businesses involving active-shooters, homemade bombs and/or hostages. An incident at a school could have a large magnitude.

Food. An adversarial threat to food is the potential for interruption within the production and distribution of food, and the potential for adulteration, obstruction of operation, or intentional damage to a facility or

product. If successful, the extent/magnitude of this type of attack could be widespread and result in mass fatalities. With the economy of Foster County largely based on agriculture and manufacturing, an incident involving the agriculture sector or at a manufacturing facility such as Dakota Pasta Growers has the potential to be disastrous and large in magnitude if targeting food or hazardous chemicals. However, the likelihood is low, and the impact would be limited based on food inspection practices and other regulations.

Transportation systems. The most likely scenario would be impacts from an interruption of the transportation system. Transportation systems have far less oversight and regulations than food production and supply chains, and water treatment and infrastructure. This type of attack could impact a substantial area and result in the shutting down of regional commerce.

Infrastructure. The most likely scenario would be targeting the drinking/potable water systems in incorporated jurisdictions. An attack of this nature could result in widespread illness or even mass fatalities.

A terrorist attack on existing pipelines, energy-related or agriculture-related infrastructure would likely cause a hazardous material release and/or fire and an explosion. The attack may result in significant environmental damage, depending on where the attack occurred and the overall impact to the existing infrastructure. This type of attack may also cause the shutting down of regional commerce that would have a spill-over effect into intrastate and national economic systems.

Risk Assessment

Table 4.2.2 shows the risk assessment as determined by individual jurisdictions and the Steering Committee for criminal, terrorist, or nation-state attack. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.2.2 represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

Table 4.2.2 – Foster County Criminal, Terrorist or Nation-State/Attack Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	1	2	2	2	7
City of Carrington	4	2	2	2	2	8
City of Glenfield	4	2	2	2	1	11
City of Grace City	4	2	2	2	1	11
City of McHenry	4	2	2	2	1	11

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.2.3 provides information on the specific impact, frequency, likelihood, vulnerability and capability of criminal, terrorist, or nation-state attack in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Table 4.2.3 – Foster County Criminal, Terrorist or Nation-State Attack Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Blocked Roads • Delayed Emergency Response • HAZMAT Release • Human Injury/Death & Mass Casualties/Fatalities • Increased Public Safety Runs • Loss of Economy • Loss/Overcrowded Medical Facilities • Loss of Potable Water 	<ul style="list-style-type: none"> • Disruption of services to maintain economic activity and daily life • Harm to reputation of the county as a safe place to reside causing damage to economic growth and decline in school enrollments • Potential exodus of people resulting in permanent population loss • Shutting down of regional commerce indefinitely if an attack targets transportation – specifically bridges and railroads • Potential for mass casualties or widespread sickness if water or wastewater infrastructure was targeted
<p>Frequency</p>	<ul style="list-style-type: none"> • Never an occurrence in Foster County 	
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Increasing political turmoil at the federal level • Increasing hostility and turmoil directed at oil and gas industry and major corporations • Social media • County produces commodities for use locally, nationally, and internationally • Presence of BNSF, CP Railway, and RRVW railroads 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums or tourist attractions • N.D. State and Local Intelligence Center (SLIC)
<p>Vulnerability</p>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Increasing political turmoil at the federal level • Increasing hostility and turmoil directed at oil and gas industry and major corporations • Social media • County produces commodities for use locally, nationally, and internationally • Limited law enforcement in rural areas of county • Inadequate mental health services in the county and state • Presence of BNSF, CP, and RRVW railroads • Presence of U.S. Highway 52/281 and N.D. Highways 20 and 200 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums or tourist attractions • N.D. State and Local Intelligence Center (SLIC) • Better security has been implemented at public schools and the Foster County Courthouse • Foster County Sheriff’s Office • Carrington Police Department
<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address criminal, terrorist, or nation/state attack. 	

Vulnerabilities to Publicly-Owned Buildings and Property

Publicly-owned buildings and property are vulnerable to criminal, terrorist or nation/state attacks as any government building can be targeted. Facilities supporting functions key to daily operations of the county, such as the Foster County Courthouse, Carrington City Hall, public schools, or buildings supporting emergency services such as fire and ambulance halls, would be the most vulnerable to a criminal, terrorist or nation-state attack. **The level of vulnerability depends on the activities performed at a specific facility or level of security at the facility.**

A summary of city and publicly-owned buildings is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Like publicly-owned buildings and property, the vulnerability of critical facilities and infrastructure to criminal, terrorist, or nation/state attack is imminent. Critical facilities like CHI-St. Alexius Health Carrington Medical Center is and infrastructure such as electric power, water/wastewater facilities, railroads, and pipelines are vulnerable to the threat.

Vulnerabilities to New and Future Development

Criminal, terrorist, or nation/state attacks are nearly impossible to predict and, therefore, vulnerabilities to new and future development cannot be determined. However, large influxes of people in a short period of time into sparsely populated areas can be a source of criminal, terrorist, or nation/state attack. In addition, new and future development that is located at or adjacent to politically or culturally sensitive areas, or constructed near environmentally sensitive areas, may cause controversy and be targeted by a criminal, terrorist, or nation-state attack.

Agriculture. The agricultural industry, with its increasing mechanization and industrialization, is not always located in urban areas, but are at risk to a criminal, terrorist, or nation/state attack.

Energy Development. The anticipated continuation of development of the oil and gas industry in the western portion of the state will result in transportation of energy products/materials, whether by pipeline, rail, or road, will also contribute to an increased risk of a criminal, terrorist, or nation/state attack due to past events and an increasing focus on political intervention and climate change.

Immigration. Illegal immigration to the United States by-way of Canada has increased and there is evidence of ISIS cells infiltrating and influencing people using this method of immigration. Due to the county's proximity to the Canadian border, this method of immigration may contribute to a criminal, terrorist, or nation/state attacks.

Population. The population density of North Dakota's major cities continues to increase as people leave rural areas in favor of urban lifestyles. This trend increases the vulnerability of cities to a criminal, terrorist or nation/state attack as higher density living situations are the primary target for this threat.

Data Limitations and Other Key Documents

The probability and vulnerabilities of a criminal, terrorist or nation/state attack is hard to quantify given its isolated nature and the little recorded history of its impact to North Dakota, until recent large-scale events such as the Dakota Access Pipeline protest in the western portion of the state.

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Foster County Local Emergency Operations Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Terrorism Annex
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.3 Cyberattack

An attack or hijack of information technology infrastructure critical to the functions controlled by computer networks such as: operating, financial, communications, and trade systems.

Characteristics

Any cyberattack that creates unrest, instability, or negatively impacts confidence of citizens/consumers can be considered cyber terrorism. According to N.D. Information Technology (NDIT), the seven common types are Advanced Persistent Threats, Distributed Denial of Service, Doxing, Malware, Media Threats, Password Phishing Attacks, and Socially Engineered Malware. The following information details the extent of cyberattack in Foster County.

Seasonal Pattern	None. More frequent during Christmas/holidays and after final testing at schools. Increased activity is experienced during other hazardous events such as a pandemic (COVID-19).
Duration	Varies based on the type of attack method used. Seconds/minutes/hours/days/weeks/months/potentially a year or more.
Speed of Onset	Little to no warning or up to several days/weeks.
Location	Total geographic extent of Foster County – most likely targeting information databases at critical facilities and infrastructure such as the Foster County Courthouse, public school districts, chemical or oil and gas infrastructure, major employers, etc.

For more information regarding cyberattack please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The plan can be accessed by following the link:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

History

According to information technology support for Foster County and the Foster County Sheriff's Office, the following cyberattacks have occurred.

- In June 2021, an email was sent to all employees at the Foster County Courthouse from a commissioner asking for assistance to retrieve money and gift cards. The email came from an email address not belonging to that commissioner.

2018 N.D. Enhanced Mitigation MAOP

According to the 2018 N.D. Enhanced Mitigation MAOP, the following Cyberattack events occurred either in Foster County or the state.

- In December 2017, several North Dakota Counties experienced a Cryptominer Virus that was eating CPU. The virus infected 81 computers. The spread of the virus was stopped at the firewall level and the antivirus vendor performed cleanup and extended monitoring. NDIT assisted with eradication and remediation of the virus. The incident lasted for approximately one day.

- **Dakota Access Pipeline (DAPL).** During the protest, personal information of law enforcement officers across the state who assisted in response to the protest was released with the intent to harass and/or intimidate them and their families. Doxing was the type of cyberattack used. There was also a significant increase in network traffic with intent to access state systems. This increased traffic required the state to increase its capacity with a larger firewall.

United States

- On May 7, 2021, Colonial Pipeline (an American oil pipeline company) was the target of a ransomware cyberattack that impacted computerized equipment responsible for managing the pipeline. The company shut down the pipeline to contain the attack. The company was ordered to pay a requested ransom of \$4.4 million to regain control of its pipeline and did so within hours of the attack. DarkSide was the criminal hacking group responsible for the attack.

The Federal Motor Carrier Safety Administration issued a regional emergency declaration for 17 states and Washington D.C. to keep fuel supply lines open on May 9, 2021. It was the largest cyberattack on oil infrastructure in United States History.

According to EMSISoft, a New Zealand-based blog focusing on malware protection, the following information on ransomware attacks occurred in the United States:

- In 2019, the U.S. was hit by an unprecedented and unrelenting barrage of ransomware attacks that impacted at least 966 government agencies, educational establishments and healthcare providers at a potential cost more than \$7.5 billion. The impacted organizations included 113 state and municipal governments and agencies, 764 healthcare providers, and 89 universities, colleges and school districts, with operations at up to 1,233 individual schools potentially affected.

The incidents were not simply expensive inconveniences; the disruption they caused put people's health, safety and lives at risk.

- Emergency patients had to be redirected to other hospitals;
- Medical records were inaccessible and, in some cases, permanently lost;
- Surgical procedures were canceled, tests were postponed and admissions halted;
- services were interrupted;
- Dispatch centers had to rely on printed maps and paper logs to keep track of emergency responders in the field;
- Police were locked out of background check systems and unable to access details about criminal histories or active warrants;
- Surveillance systems went offline;
- Badge scanners and building access systems ceased to work;
- Jail doors could not be remotely opened, and
- Schools could not access data about students' medications or allergies.

Other effects of the incidents included:

- Property transactions were halted;

- Utility bills could not be issued;
- Grants to nonprofits were delayed by months;
- Websites went offline;
- Online payment portals were inaccessible;
- Email and phone systems ceased to work;
- Driver's licenses could not be issued or renewed;
- Payments to vendors were delayed;
- Schools closed;
- Students' grades were lost, and
- Tax payment deadlines had to be extended.

There have been no declared disasters or emergencies pertaining to cyberattack in Foster County.

Probability

The probability of a hazard or threat is how likely it is it will happen. Cyberattacks are hard to predict but most probable at all levels of government (federal, local, and state), private businesses employing large numbers of people, and organizations/institutions. According to the 2018 N.D. Enhanced Mitigation MAOP, due to widespread and growing use of technology and the prevalence of ever-changing cyberattack methods, the probability of cyberattacks are very high.

Profile meeting participants ranked the probability of cyberattack as highly likely meaning that there is a 100 percent probability in the next year of an attack, which does not always result in an incident.

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount and/or number of damages or losses either actualized in a community or estimated based on known assets and levels of risk. The magnitude of a cyberattack can vary from a loss of personal information such as an individual's pictures and music to high magnitude events such as one that affects the national or agricultural economy, or information systems of critical facilities and infrastructure.

According to the 2018 N.D. Enhanced Mitigation MAOP, loss estimates for cyberattack incidents in North Dakota are not available. However, the following national cyberattacks provide insight into the potential impacts of the threat.

- The 2017 WannaCry ransomware attack caused \$4 billion in financial losses.
- The 2017 NotPetya attack caused an estimated \$300 million in economic losses for FedEx subsidiary TNT Express and another \$300 million in losses for shipping. The attack originated in Ukraine.
- Lloyd's of London, an insurance underwriter, developed a scenario for an attack on the Eastern Interconnection, which is one of two major electrical grids in the United States serving half the country. The economic loss of an attack was estimated at \$243 billion. The 2003 Northwest Blackout resulted in economic losses of between \$4 billion and \$10 billion.

Risk Assessment

Table 4.3.1 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and participants at the profile meeting for cyberattack. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.3.1 represents the sum of each jurisdiction's impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction's capabilities to respond to the hazard/threat.

Table 4.3.1 – Foster County Cyberattack Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	2	4	2	2	10
City of Carrington	4	3	4	2	2	11
City of Glenfield	4	2	4	3	1	12
City of Grace City	2	1	3	2	1	7
City of McHenry	3	1	3	2	1	8

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.3.2 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of cyberattack in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Vulnerabilities to Publicly-Owned Buildings and Property

Publicly-owned buildings and property are vulnerable to cyberattack as all state and local governments, businesses, and organizations/institutions use digital/technological systems. As day-to-day and extended operations become more reliant on digital infrastructure to operate, the vulnerability to publicly-owned building and property will increase. Facilities supporting functions key to daily operations of the county, such as the Foster County Courthouse, Carrington City Hall, CHI-St. Alexius Health Carrington Medical Center, state agencies located in Foster County, and public school districts would be the most vulnerable to a cyberattack.

A summary of publicly-owned buildings and property in Foster County is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Like publicly-owned buildings and property, the vulnerability of critical facilities and infrastructure to cyberattacks is imminent as all state and local governments, businesses, and organizations/institutions use digital/technological systems. Technological systems used by emergency services and branches of government such as GIS mapping or financial software, and utilities such as electric and natural gas are types of critical facilities and infrastructure most at risk to a cyberattack. In addition, public works infrastructure for the city of Carrington such as drinking/potable water and wastewater treatment systems are also vulnerable to the threat due to the use of SCADA systems.

Table 4.3.2 – Foster County Cyberattack Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Delayed Emergency Response • HAZMAT Release • Increased Public Safety Runs • Government Interruptions • Loss of Communication Systems – Loss of 9-1-1 • Loss of Economy • Loss of Potable Water • Loss of Power • Mass Casualties/Fatalities • Loss/Overcrowded Medical Facilities 	<ul style="list-style-type: none"> • Increased and unforeseen public and private costs due to response and recovery requirements • Loss of websites and information for critical facilities • Shutting down of infrastructure systems resulting in loss of economy activity as technological systems are used in nearly all industries, both public and private • Targeting of emergency services personnel • Loss of public confidence in city and county government • Loss of archived data and records
<p>Frequency</p>	<ul style="list-style-type: none"> • Significant increase in network traffic with intent to access state systems This increased traffic required the state to increase its capacity with a larger firewall. 	<ul style="list-style-type: none"> • NDIT indicated an average of 5.7 million cyberattack attempts every month on the state level, but all do not result in an event/incident • Starting Winter 2020 and into Spring and Summer 2021, a spam attack has been occurring on the email accounts of county commissioners and employees
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Digital economy with nation-wide banks and other institutions electronically linked to the state and county • Growing automation of daily tasks • Social media • Technological systems used in nearly all industries 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • State installed larger firewall after DAPL protest – has a direct impact on county functions • Increased investment in security measures in private and public sectors (i.e., firewalls) • Ongoing investment in preventative education and enhanced countermeasures • NDIT and NDSLIC • Redundancies in state and county technology and power systems • Foster County is fully migrated over to NDIT’s Cortex XDR security package and replaced switches in 2020

Table 4.3.2 – Foster County Cyberattack Risk Assessment - Continued

<p>Vulnerability</p>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • All state and local governments, businesses, and organizations/institutions that use digital/technological systems • Growing automation of daily tasks in individual’s lives, and private and public sectors • Social media • Technological systems used in nearly all industries • Elderly population relying largely on landlines for communication purposes, remote medical care and equipment monitoring 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • NDIT has a Cyberattack Incident Response Plan that covers Foster County systems • State installed larger firewall after DAPL protest • Ongoing investment in preventative education and enhanced countermeasures • NDIT and NDSLIC • 66th Legislative Assembly of ND, Senate Bill 2110 to amend and reenact sections 54-50-01 and 54-59-05 of the N.D. Century Code. NDIT setting strategies and advising all branches of government for cyberattack and counter measures – signed on April 12, 2021 • Redundancies in state and county technology and power systems • High regulation of banking and other industries to mitigate cyberattacks • K20W Initiative – training school-aged kids on cyber education • Foster County is fully migrated over to NDIT’s Cortex XDR security package and replaced switches in 2020 • Carrington Public School and Midkota Public School have firewalls through NDIT
<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address cyberattack • Carrington Public Schools Technology Plan (includes a statement on cybersecurity) • Foster County Cyberattack Response Plan • Midkota Public School Technology Plan (includes a statement on cybersecurity) • NDIT Cyberattack Incident Response Plan - includes Foster County systems 	

Vulnerabilities to New and Future Development

Cyberattacks target digital information and technological systems and therefore should have little to no impact on new and future development. However, with the increasing use of internet-connected technological systems in American households and the world economy, the understanding of the vulnerability to new and future development is evolving/expanding.

Data Limitations and Other Key Documents

The probability and vulnerability of a cyberattack are hard to quantify given the multitude of plausible scenarios for an event. The threat has had little recorded history in North Dakota, until DAPL.

This plan incorporates data from the following documents. Information from this plan will be incorporated in the update of said documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Carrington Public Schools Cyberattack Response Plan
- Foster County Cyberattack Response Plan
- Foster County Local Emergency Operations Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- Midkota Public Schools Cyberattack Response Plan
- North Dakota Continuity of Operations Plan
- North Dakota Cybersecurity Framework (NDCSF)
- North Dakota Emergency Operations Plan, Cyberattack Annex
- NDIT Cyberattack Incident Response Plan - includes Foster County systems
- NDIT Security Incident Response Plan
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.4 Dam Failure

Characteristics

A dam is any artificial man-made barrier that impounds or diverts water or underground streams. A dam failure is defined as a sudden, rapid, and uncontrolled release of impounded water that will create a potential significant downstream hazard.

Although it is recognized that loss of life is possible with any dam failure, the following categories of dams have been established:

Low Hazard – Dams located in rural or agricultural areas where there is little possibility of future development. Failure of low hazard dams may result in damage to agricultural land, township and county roads, and farm buildings other than residences. No loss of life is expected if the dam fails.

Medium (Significant) Hazard – Dams located in predominantly rural or agricultural areas where failure may damage isolated homes, main highways, railroads, or cause interruption of minor public utilities. The potential for a few lives lost may be expected if the dam fails.

High Hazard – Dams located upstream of developed and urban areas where failure may cause severe damage to homes, industrial and commercial buildings, and major public utilities. There is a potential for the loss of more than a few lives if the dam fails.

All federal dams in North Dakota are required to have an emergency action plan. In addition, per the N.D. Century Code 61-03-25, emergency action plans are required for the nonfederal dams classified as medium/significant-or high-hazard dams in North Dakota.

Seasonal Pattern	None
Duration	Minutes/Hours/Days/Weeks – dependent on respective inundation area
Speed of Onset	Minutes to Hours
Location	Inundation Area specific to each dam and the corresponding geography of the local area and critical facilities and infrastructure

For more information regarding dam failure please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

<https://www.des.nd.gov/planning>

History

According to the National Performance of Dams Program-Stanford University, Foster County Emergency Management, and U.S. Army Corps of Engineers (USACE), no incidents have dam failure have occurred in Foster County.

There have been no emergencies or disaster declarations regarding dam failure in Foster County.

List of Dams – Foster County

- Table 4.4.1 lists the high hazards dams and its respective inundation area(s) in Foster County. The inundation area(s) are based on the Probable Maximum Flood (PMF) elevation, which would be a catastrophic dam failure event involving water spilling over the crest of each respective dam. According to the State Water Commission there are approximately 18 dams in Foster County. Detailed information on dams in Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment.
- Based on information provided by the Steering Committee, the Dover and Tollefson Dams are the only dams in Foster County that would have an impact on buildings, property, and people if a failure did occur.
- Due to homeland security purposes, limited information is shown regarding high hazard dams in Foster County. Per the 2018 N.D. Enhanced Mitigation MAOP, there are no high-hazard or significant hazard dams physically located in Foster County.

Additional information can be accessed by contacting the State Water Commission, Foster County Emergency Management, or USACE.

Table 4.4.1 – Foster County Significant and High Hazard Dams

Dam	Authorized Purpose	Classification	Location	Area(s) of Inundation
Dover Dam	Recreation	Low Hazard	47.445396, - 99.250569	<ul style="list-style-type: none"> • 2nd St. NE and Main St • Farmland and approximately seven farmsteads
Tollefson Dam	Livestock, Fish & Wildlife	Low Hazard	47.447232, - 98.924809	<ul style="list-style-type: none"> • 2nd St NE • Farmland and two farmsteads

Source(s): Foster County Emergency Management; State Water Commission; National Inventory of Dams (USACE)

Probability

The probability of a hazard or threat is how likely it is it will happen. Based on dam failure history for Foster County and the presence of dams, the probability of dam failure is unlikely. The 2018 N.D. Enhanced Mitigation MAOP lists Foster County as having low vulnerability to dam failure. However, if a failure occurred at the Sykeston Dam in neighboring Wells County, areas of Foster County could be impacted.

Figure 4.4.1 illustrates the location of dams by hazard potential in Foster County. The information was provided by the USACE, National Inventory of Dams, which highlights five dams in Foster County. The average age of the dams shown is 70 years and none provide hydropower. **All five dams are regulated by state agencies.**

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount and/or number of damages or losses either actualized in a community or estimated based on known assets and levels of risk. The magnitude of dam failure in Foster County can be determined by the area or areas of inundation for each respective dam. Meeting participants discussed the extent/magnitude of a failure and determined the extent/magnitude of a dam failure in Foster County is limited.

Risk Assessment

Table 4.4.2 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for dam failure. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.4.2 represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

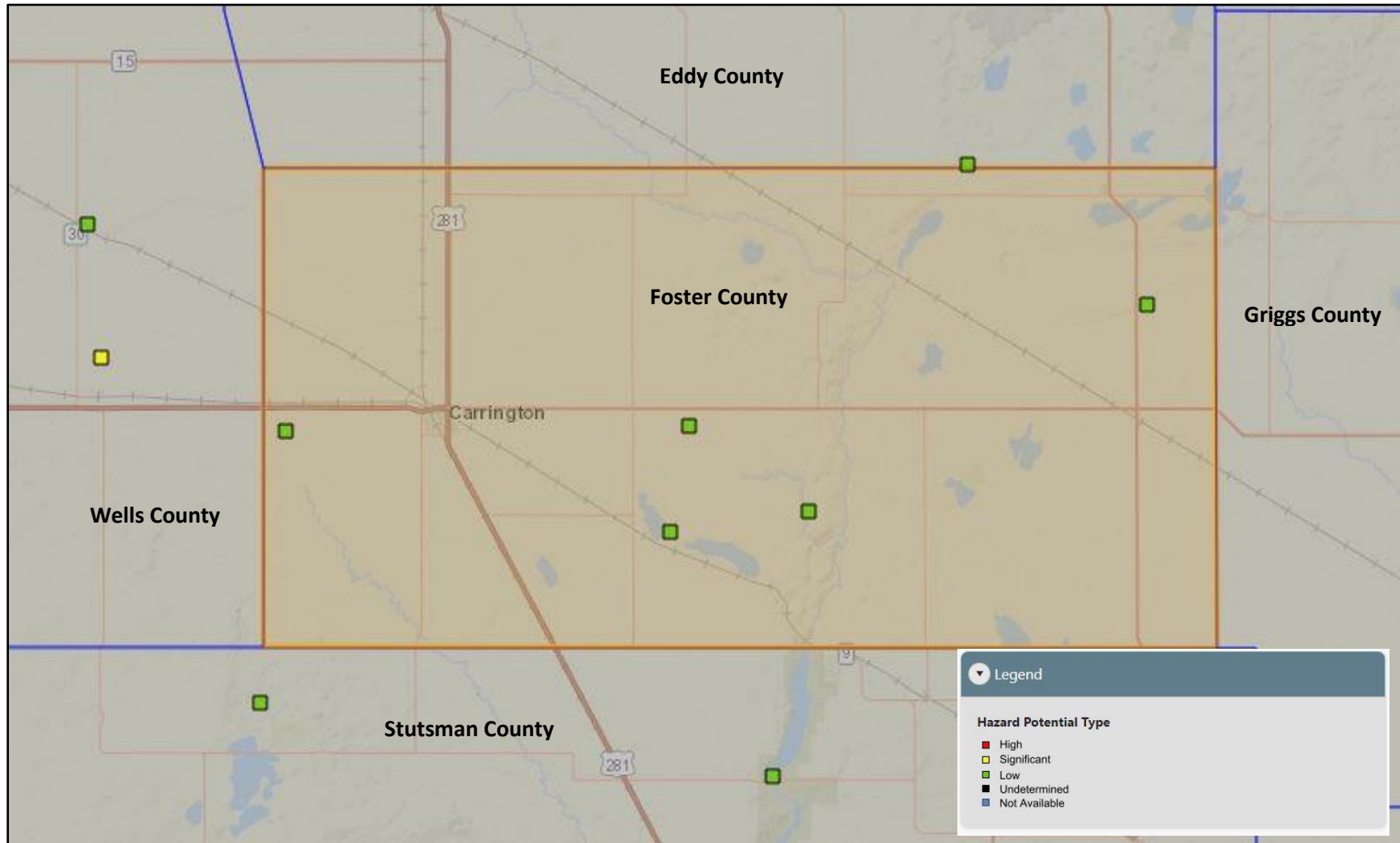
Table 4.4.2 – Foster County Dam Failure Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	2	1	2	2	1	6
City of Carrington	2	1	2	2	1	6
City of Glenfield	1	1	1	1	1	3
City of Grace City	1	1	1	1	1	3
City of McHenry	1	1	1	1	1	3

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.4.3 provides information on the specific impact, frequency, likelihood, vulnerability and capability of dam failure in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown in Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Figure 4.4.1 – Foster County Dams by Hazard Potential Type



Source(s): USACE, National Inventory of Dams

Table 4.4.3 – Foster County Dam Failure Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Blocked Roads • Crop Loss and Loss of Livestock • Delayed Emergency Response • Evacuation (Localized) • Loss of Critical Facilities and Infrastructure • Loss of Potable/Drinking Water • Loss of Power • Loss of Transportation Systems/Accessibility • Loss of Wildlife Habitat • Mass Casualties/Fatalities <ul style="list-style-type: none"> • Loss of recreational activities and summer-time population resulting in economic loss • Possible temporary homeless population due to lack of facilities to shelter large numbers of people 	
<p>Frequency</p>	<ul style="list-style-type: none"> • Never an occurrence 	
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance
<p>Vulnerability</p>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents • Dover Dam west of the city of Carrington • Tollefson Dam east of the city of Carrington 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge • Dam failure
<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address dam failure. 	

Vulnerabilities of Publicly-Owned Buildings and Property

There are no publicly-owned buildings and property vulnerable to dam failure in Foster County.

Vulnerabilities of Critical Facilities and Infrastructure

Critical facilities and infrastructure are vulnerable to dam failures like publicly-owned buildings and property and are highly susceptible to impacts from flood waters resulting from dam failures. Infrastructure such as rail and roads in the transportation network, communication infrastructure, drinking/potable water and wastewater systems, and power lines in the utility network are vulnerable and have the potential to experience complete destruction. Major transportation routes such as U.S. Highway 52/281 and railroad infrastructure.

Chapter 3, Profile and Inventory provides information on publicly-owned buildings and property in Foster County and Chapter 9, Maps provides maps of the transportation network in Foster County.

Vulnerabilities to New and Future Development

New and future development geographically located in dam inundation areas are most at risk to dam failure. Vulnerabilities of new and future development in Foster County can be eliminated if prohibited in the small amount of areas dam failure impact potential.

Data Limitations

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

Other Key Documents

An Emergency Action Plan (EAP) specifies actions dam owners should take to moderate or alleviate the problems at the dam. It contains procedures and information such as failure inundation maps to assist emergency management officials with early-warning notification and evacuation plans. As stated in the North Dakota Century Code, dams with a storage capacity greater than 1,000 acre-feet are required to have an EAP. No dams in Foster County have an EAP.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Foster County Comprehensive Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- Foster County Zoning Ordinances
- Foster County Public Health District Evacuation and Shelter Plan
- Foster County Public Health District Local Emergency Operations Plan
- Foster County Public Health District Shelter and Mass Care Plan
- North Dakota Continuity of Operations Plan
- *North Dakota Dam Design Handbook (being updated)*
- North Dakota Emergency Operations Plan, Dam Failure Annex
- North Dakota State Disaster Recovery Plan
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.5 Drought

Including precipitation levels well below normal and heat – temperatures higher than normal.

Characteristics

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. Drought is a temporary diversion from normal climatic conditions and is different than aridity, which is a permanent feature of climate in regions where low precipitation is the norm, as in a desert. Drought characteristics usually include precipitation levels well below normal and temperatures higher than normal.

According to the National Drought Mitigation Center, the following types of droughts exist.

- **Meteorological drought** is usually an expression of precipitation’s departure from normal over some period. These definitions are usually region-specific, and presumably based on a thorough understanding of regional climatology.
- **Agricultural drought** occurs when there is not enough soil moisture to meet the needs of a crop at any given time. Agricultural drought happens after meteorological drought but before hydrological drought. Agriculture is usually the first economic sector to be affected by drought.
- **Hydrological drought** refers to deficiencies in surface and subsurface water supplies. It is measured as streamflow and as lake, reservoir, and groundwater levels. There is a time lag between lack of rain and less water in streams, rivers, lakes, and reservoirs, so hydrological measurements are not the earliest indicators of drought. When precipitation is reduced or deficient over an extended period, this shortage will be reflected in declining surface and subsurface water levels.
- **Socioeconomic drought** occurs when physical water shortage starts to affect people, individually and collectively. Or, in more abstract terms, most socioeconomic definitions of drought associate it with the supply and demand of an economic good.

Seasonal Pattern	Primarily summer, but can occur in spring, fall, and winter
Duration	Weeks/months, up to a decade in severe cases
Speed of Onset	Slow and gradual
Location	Total geographic extent of Foster County

The U.S. is vulnerable to the social, economic, and environmental impacts of drought. The over 100-year weather record of the U.S. indicates that there were three to four major drought events. Two of these, the 1930s Dust Bowl drought and the 1950s drought, each lasted five to seven years and covered large areas of the continental United States.

For more information regarding drought please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

2018 North Dakota Enhanced Mitigation Mission Area Operations Plan

<https://www.des.nd.gov/planning>

History

Information on the history of drought in Foster County was obtained from the National Climatic Data Center (NCDC); 2018 N.D. Enhanced Mitigation MAOP; the USDA, Risk Management Agency; Palmer Drought Severity Index (PDSI), and Foster County Emergency Management and profile meeting participants. A detailed hazard history for Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment.

National Climatic Data Center/National Oceanic and Atmospheric Administration

- According to the National Climatic Data Center (NCDC), no occurrences of drought were reported in Foster County between January 1, 1950, and December 31, 2020.

2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)

- Since 1930, North Dakota has suffered drought in the 1930s, 1950s, early 1960s, mid 1970s, early 1980s, 1988 through 1991, 2002 through 2004, 2006, 2008, 2012/2013, and 2017.
- A state-wide drought was declared in 1980, 1981, 1988/1989, 2002, 2005, and 2012 impacting all counties in North Dakota.
- **Typically, presidential declarations pertaining to drought occur before secretarial declarations by the USDA as secretarial declarations are not permitted without a presidential declaration. Since 1976, Foster County has been included in 30 drought declared disasters or emergencies, of which 13 were state declared emergency orders, one was presidential, and 16 were U.S.D.A. Secretarial Declarations.**

U.S. Dept. of Agriculture

- USDA Secretarial Disaster Designations S4840 and S4939 were approved on October 16, 2020, and April 29, 2021, respectively. Both disaster designations include Foster County.

U.S. Dept. of Agriculture, Risk Management Agency

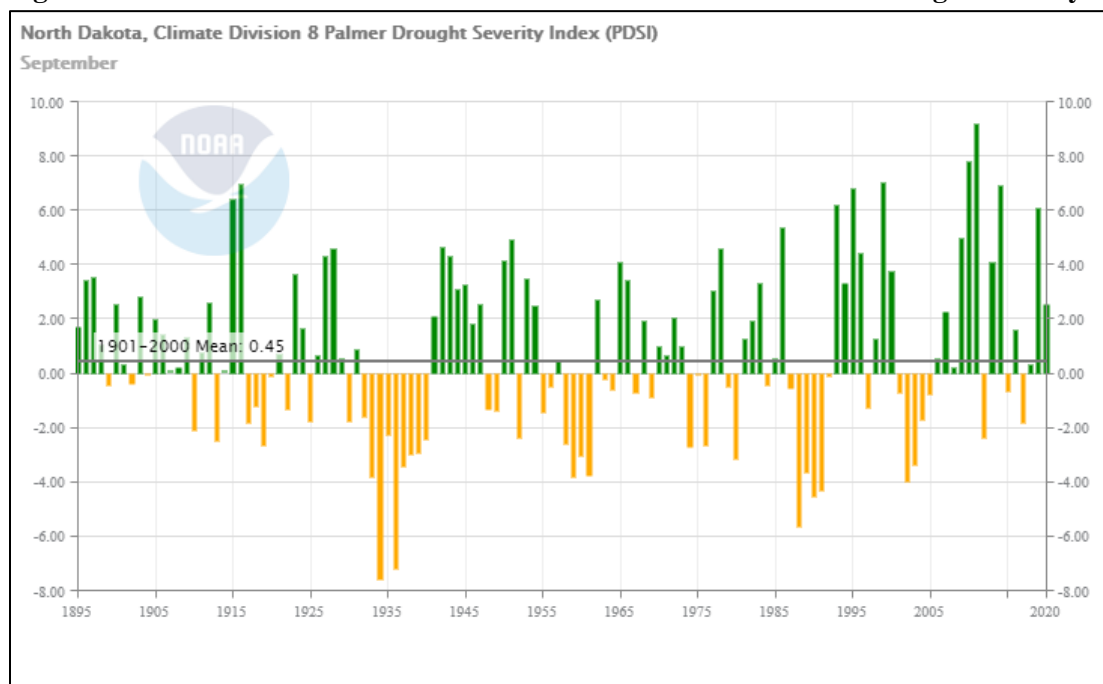
- Crop loss from drought is tracked by the U.S. Dept. of Agriculture, Risk Management Agency (RMA). The RMA provides data on the crop type affected, damage cause description, determined acres, and indemnity amount. The damage-cause description identifies the cause of damage and the number of acres lost due to damage, and the indemnity amount identifies the total amount of the loss for the designated peril. **Between January 1, 2001, and December 31, 2020, Foster County experienced 152 incidents of crop loss due to drought impacting approximately 186,726.94 acres of crops totaling \$13,202,665.42 in losses.**

Palmer Drought Severity Index (PDSI)

The Palmer Drought Severity Index (PDSI) is an estimated measurement of dryness based on temperature and precipitation based available. It is a standardized index that generally spans -10 (dry) to +10 (wet). Maps of operational agencies like NOAA typically show a range of -4 to +4, but more extreme values are possible. The PDSI has been reasonably successful at quantifying long-term drought. As it uses temperature data and a physical water balance model, it can capture the basic effect of global warming on drought through changes in potential evapotranspiration. Monthly PDSI values do not capture droughts on time scales less than about 12 months; more pros and cons are discussed in the Expert Guidance.

- Figure 4.5.1 is the PDSI and was provided by the North Dakota State Climatologist at North Dakota State University.
- According to PDSI, between 1895 and 2020 Foster County experienced multi-year droughts in the 1930s, 1950s, 1980s, and 2000s.

Figure 4.5.1 – 1895 to 2020 North Dakota Climate Division 8 Palmer Drought Severity Index



Source(s): Palmer Drought Severity Index (PDSI); North Dakota State University

Information gathered from Steering Committee meetings indicated that while dryer periods have come and gone, the most recent drought of significant occurred in 1988/1989 and lasted until 1991/1992. Participants also noted a five-to 10-year cyclical pattern where dry conditions will persist for that period, then transition to more wet conditions.

Probability

The probability of a hazard or threat is how likely it is it will happen. The probability of drought varies annually and is highly dependent on seasonal weather patterns. According to profile meeting participants, the probability of drought in Foster County is highly likely meaning that there is a 100 percent probability

in the next year of a drought to a varying degree of severity. Drought is a naturally occurring phenomenon and, therefore, it is indisputable that a drought of significance will occur based on climatic patterns at some point in the future.

- **Based on 13 state declared emergency orders, one was presidential, and 16 were U.S.D.A. Secretarial Declarations pertaining to drought between 1976 and 2017, the probability of drought is 71 percent in any given year.**
- With the local economy of small, incorporated cities in the county heavily reliant on the agriculture industry, the probability of drought can be measured by crop loss. According to crop loss data from the USDA-RMA, Foster County experienced \$660,133.27 in annualized crop damage and approximately eight annual claims of indemnity between 2001 and 2020. **Therefore, based on data available, the probability of crop loss from drought is calculated to be 100 percent.**

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount and/or number of damages or losses either actualized in a community or estimated based on known assets and levels of risk. Profile meeting participants indicated the magnitude or impact of drought in Foster County as catastrophic meaning that more than 50 percent of the county, its people and property are affected if a drought of significance occurred. The following are key points from the state risk assessment in the 2018 N.D. Enhanced Mitigation MAOP.

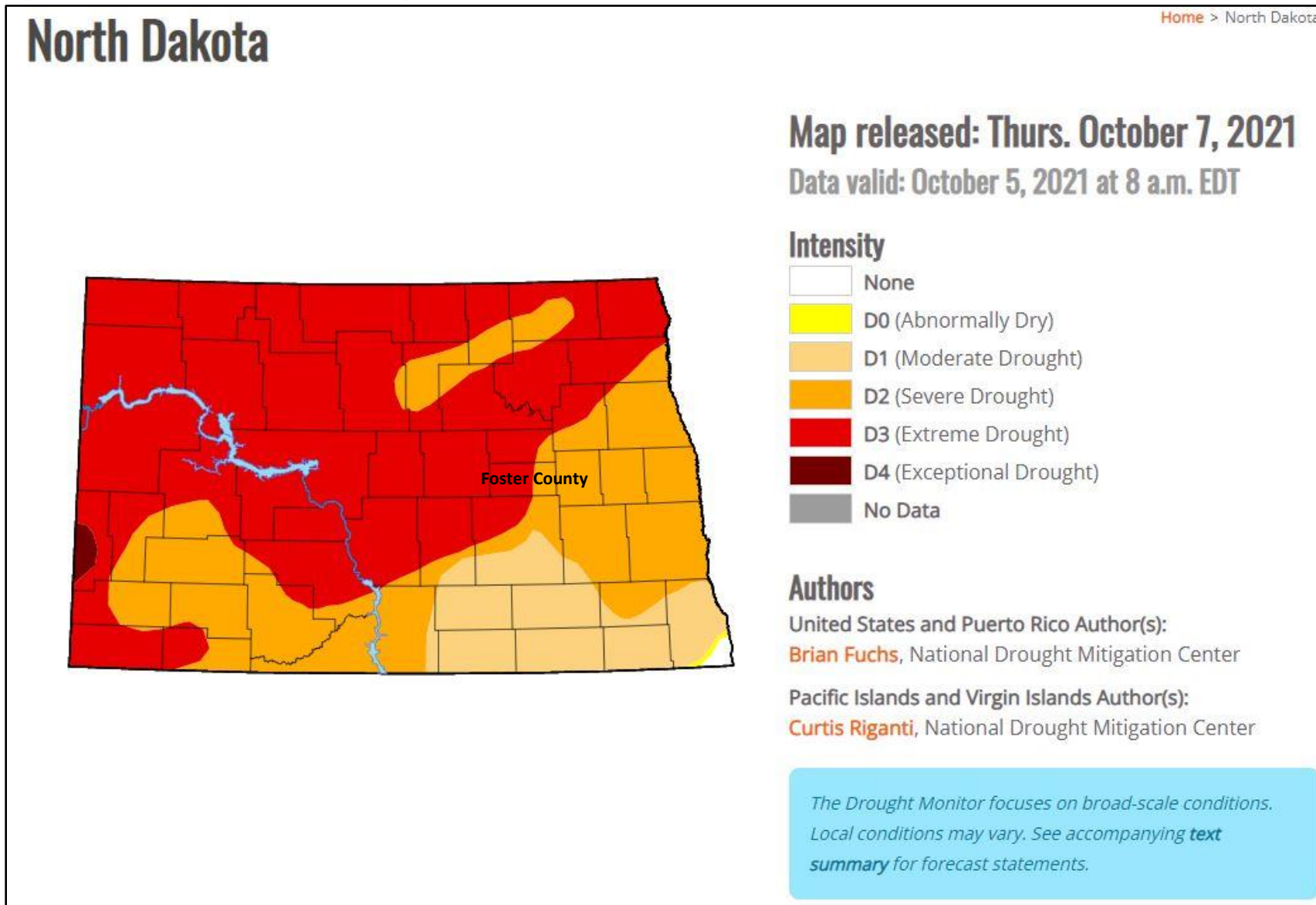
- Foster County has a low overall vulnerability from drought based on \$10,839,411 in crop insurance paid between 2003 and 2017 due to impacts of drought resulting in annualized payments of \$722,627 in the same time frame.
- Annualized crop damage of \$811,941 between 2003 and 2017.

U.S. Drought Monitor (USDM). The USDM is a drought communication system managed by the National Drought Mitigation Center at the University of Nebraska-Lincoln updated every Thursday to show the location and intensity of drought across the United States. The USDM uses the following five-category system, labeled:

- Abnormally Dry or D0, (a precursor to drought, not actually drought);
- Moderate (D1);
- Severe (D2);
- Extreme (D3), and
- Exceptional (D4) Drought.

Drought categories show experts' assessments of conditions related to dryness and drought including observations of how much water is available in streams, lakes, and soils compared to usual amounts for the same time of year. U.S. Drought Monitor data go back to 2000. Figure 4.5.2 shows the status of drought conditions in North Dakota as of October 7, 2021. A substantial portion of Foster County was classified as D3 or Extreme Drought while the east-southeast areas were classified as D1 (Moderate Drought) and D2 (Severe Drought).

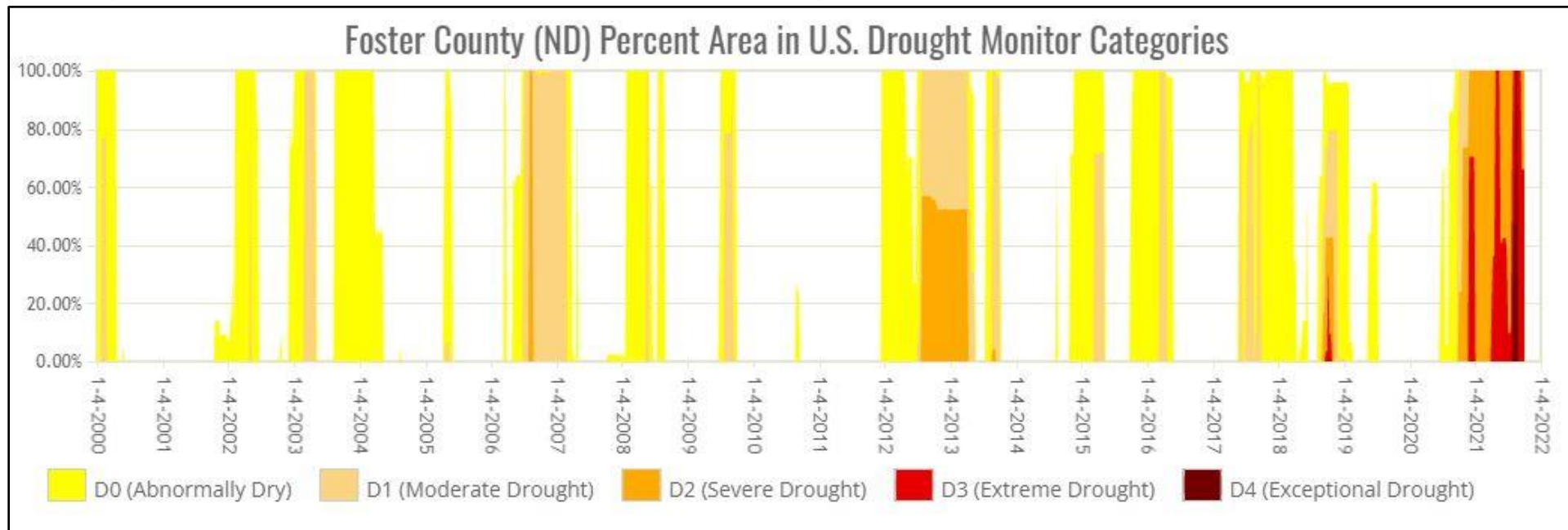
Figure 4.5.2 – October 7, 2021, U.S. Drought Monitor, North Dakota



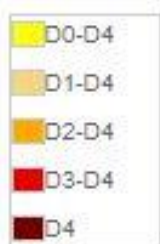
Source(s): U.S. Drought Monitor

Figure 4.5.3 shows the time series of drought for Foster County from January 4, 2000, to January 4, 2022, and the percent of the county and its respective drought classification. The figure is shown to assist Foster County in understanding the characteristics of local drought impacts. As seen in the figure, Foster County has had a majority of abnormally dry conditions every year with brief periods of moderate drought mixed with small instances of severe and extreme drought between 2006 and 2007, 2012 and 2013, in the summer of 2017, and the summer/fall of 2021.

Figure 4.5.3 – January 4, 2000, to January 4, 2022, Foster County Drought Time Series



Source(s): U.S. Drought Monitor



Risk Assessment

Table 4.5.1 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for drought. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.5.1 represents the sum of each jurisdiction's impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction's capabilities to respond to the hazard/threat.

Table 4.5.1 – Foster County Drought Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	2	4	4	3	11
City of Carrington	4	2	4	3	3	10
City of Glenfield	4	2	4	3	2	11
City of Grace City	4	2	4	2	1	11
City of McHenry	4	2	4	2	1	11

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown in Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Table 4.5.2 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of drought in Foster County.

Table 4.5.2 – Foster County Area Drought Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Crop Loss • Loss of Economy • Loss of Livestock • Loss of Wildlife Habitat • Increase in Wildland Fire Potential • Water quality compromised from lakes and stock dams • Diminished soil health • Negative impact on mental health of producers and fire responders – “community impact” • Soil erosion 	<ul style="list-style-type: none"> • Local producers forced to reduce herd sizes and restructuring of harvest usage • Population decline due to loss of jobs/economy • Annualized crop damage of \$811,941 between 2003 and 2017 (2018 State Enhanced Mitigation MAOP) • Between January 1, 2001, and December 31, 2020, Foster County experienced 308 incidents of crop loss due to drought impacting approximately 186,726.94 acres of crops totaling \$13,202,665.42 in losses.
<p>Frequency</p>	<ul style="list-style-type: none"> • Severe Drought of 1961/1962, 1988/1989 through 1991/1992, 2012/2013 • Summer of 2017, local producers forced to sell off portions of their herds • End of July through winter of 2016 – county reached severe drought status • Severe drought conditions winter 2020/2021 and summer/fall 2021 • CRP was released from haying 	<ul style="list-style-type: none"> • Foster County experienced \$660,133.27 in annualized crop damage and eight annual claims of indemnity between 2001 and 2017 • FSA activated the Livestock Forage Program in 2012 • Based on 13 state declared emergency orders, one was presidential, and 16 were U.S.D.A. Secretarial Declarations pertaining to drought between 1976 and 2017, the probability of drought is 71 percent in any given year.
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Dry/wet cycle every five to six years • Climatic patterns will result in an eventual drought of significance • Lack of precipitation • Weather patterns becoming more irregular and extreme 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Heavy precipitation • Drain tile will drain excess soil moisture/water but not contribute to severe drought conditions because it only drains to field capacity • Producers work with state to develop irrigation measures

Table 4.5.2 – Foster County Area Drought Risk Assessment – Continued

Vulnerability	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Loss of economy from decreased wildlife & hunting • Agriculture economy • Elderly population • Flat terrain/open topography contributes to conditions • Pastureland adjacent to structures and city limits • Lack of water sources for drought relief and for suppression of fires resulting from drought in some jurisdictions • Presence of aquifers, which are used for livestock and municipal water sources, can be depleted during droughts of significance 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Financial assistance programs made available by the state and federal government • Burn bans • Fire Index monitoring and mapping from NDDES • Drought Monitor updating drought conditions on a weekly basis (every Thursday) • Advanced communications such as internet and TV • Incorporated jurisdictions with water towers • Regional water systems • No-till farming practices in use across the county • Presence of CRP • Presence of aquifers for water supplies • N.D. Agriculture Weather Network
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Table 4.5.2 – Foster County Area Drought Risk Assessment - Continued

Capability	See Chapter 7 for a list of capabilities to address drought.
	<p><u>Administrative and Technical</u></p> <ul style="list-style-type: none"> • Active county commission • Full-time emergency manager and asst. emergency manager • NDSU Extension/Foster County • Farm Service Agency (FSA) • Natural Resource Conservation Service (NRCS) • Contracts for engineering, planning and grant writing • GIS services provided through state • County-wide mutual aid agreement • U.S.D.A. Emergency Board • Foster County Soil Conservation District (SCD) • N.D. Agriculture Weather Network
	<p><u>Education and outreach</u></p> <ul style="list-style-type: none"> • NDSU Extension/Foster County • Farm Service Agency (FSA) • Active emergency management department with education and outreach available on the department’s website
	<p><u>Financial</u></p> <ul style="list-style-type: none"> • FSA has programs designed to financially assist farmers in times of need (FLP, LIP, LFAP – all cattle) • National Resources Conservation Service (ECP – all cattle) • U.S.D.A., Risk Management Agency crop insurance subsidized by federal government • U.S.D.A. Rural Development-REAP grants • Rural water district
	<p><u>Planning and Regulatory</u></p> <ul style="list-style-type: none"> • Burn bans • State implements burn bans – needs updating/improvement • Farmers receiving USDA benefits required to have a highly erodible plan of operation in place • Drought management and water conservation plans • Rural Water Districts – have drought management and water conservation plans in place

Vulnerabilities to Publicly-Owned Buildings and Property

Drought has not had a direct impact on buildings and property in Foster County. Loss of water supply would influence the function of publicly-owned buildings. Disruptions in service and extended periods of closure may occur. Drought would threaten publicly-owned buildings and property from the increase in fire threat and the potential decrease in available water for fire suppression.

A summary of publicly-owned buildings is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Critical facilities that rely on water for operation and continued use are most vulnerable to drought. Large employers in the agriculture sector and manufacturing can be negatively affected by drought and are viewed as critical facilities, depending on the number of people they employ and the impact they have on local economies.

According to the 2018 ND Enhanced Mitigation MAOP, the largest water user in 2016 by reported use was irrigation utilizing ground water resources.

Vulnerabilities to New and Future Development

The greatest vulnerability from drought to new and future development would be underground water sources, the agriculture industry, and energy development. New development has the potential to diminish underground sources with increases in population and economic activity as municipal water is sourced from aquifers. Individuals with wells and septic systems are not regulated and are more susceptible to drought.

The agriculture sector is becoming increasingly precision-based with advanced technological systems, which can simultaneously increase the demand for water and the vulnerability of drought in Foster County.

With the possibility of climate change, the state can expect drought conditions affecting certain counties and regions to occur more frequently. Drought will impact Foster County with more frequency and increased severity.

Data Limitations

A data limitation for understanding impacts from drought is the difficulty in identifying the true extent of the drought in terms of time, or when a drought begins and when a drought concludes. Characteristics of drought are hard to distinguish between periods of dryer than normal conditions and cyclical weather patterns. Droughts tend to impact areas slowly and is not sudden like other hazards such as severe winter weather or flooding. In addition, impacts of drought are far reaching and tend to have a trickle-down effect on many sectors of the economy. Therefore, a process to determine near accurate loss estimates for drought is challenging, at best.

National Climatic Data Center/National Oceanic and Atmospheric Administration

The hazard history provided through the National Climatic Data Center/National Oceanic Atmospheric Administration's Storm Events Database contains data as entered by NOAA's National Weather Service (NWS). Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The following timelines show the different time spans for each period of unique data collection and processing procedures. **Drought was not recorded as a separate incident until 1996. Therefore, the drought of 1988/1989 through 1991/1992, which was a significant event in recent North Dakota history, was not listed as impacting Foster County when hazard history was taken from the National Climatic Data Center.**

- 1. Tornado:** From 1950 through 1954, only tornado events were recorded.
- 2. Tornado, Thunderstorm Wind and Hail:** From 1955 through 1992, only tornado, thunderstorm wind and hail events were keyed from the paper publications into digital data. From 1993 to 1995, only tornado, thunderstorm wind and hail events have been extracted from the Unformatted Text Files.
- 3. All Event Types (48 from Directive 10-1605):** From 1996 to present, 48 event types are recorded as defined in [NWS Directive 10-1605](#).

U.S. Dept. of Agriculture, Farm Services Agency

According to the Farm Services Agency, crop loss due to drought is calculated at harvest time due to planted acres determined at the beginning of the season. Therefore, the data could be skewed due to prior impacts from other hazards.

Other Key Documents

This plan incorporates data from the following documents. Information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Burn Bans
- Foster County Comprehensive Plan
- Foster County Commercial Animal Feed Operation Ordinance
- Foster County Evacuation and Shelter Plan
- Foster County Local Emergency Operations Plan
- Foster County Shelter and Mass Care Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Drought Response Plan
- North Dakota Emergency Operations Plan, Drought Annex
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.6 Fire

Including urban fire/structure collapse, rural fire, and wildland fire.

Characteristics

Fire is the rapid oxidation of a material in the exothermic chemical process of combustion, releasing heat, light, and various reaction products.

Structure-Urban Fire. Structure fire is the result of three components: a heat source, a fuel source, and an oxygen source per the U.S. Fire Administration. When combined, these three sustaining factors will allow a fire to ignite and spread. Within a structure, a small flame can get completely out of control and turn into a major fire within seconds. Thick black smoke can fill a structure within minutes. The heat from a fire can be 100 degrees Fahrenheit at floor level and rise to 600 degrees at eye level. In five minutes, a room can get so hot that everything in it ignites at once; this is called flashover.

Structure Collapse. Structure collapse occurs when the forces of gravity or other external forces overcome the structural integrity of a building. The reasons for structure collapse can vary from poor construction to explosions to extreme winds to heavy snow loads. Structure collapse can trap occupants and damage property. In Foster County, numerous commercial, private elevators and large storage bins could be subject to structure collapse. Cattle operations have large cattle confinement structures that are also at risk of collapse. Urban fire/structure collapse can happen independently from other incidents.

Rural Fire. Rural fires result from farming activities whereby farm equipment may ignite a fire while haying, harvesting and other farming activities.

Wildland Fire. A wildland fire is an uncontrolled fire in a vegetated area. Wildland fires are a natural part of the ecosystem. They have a purpose in nature and following years of fire suppression, many areas have built up fuels that can lead to larger, more intense fires.

Seasonal Pattern	Urban Fire/Structure Collapse – None. Probability is always more prevalent in urban areas due to large concentrations of structures Rural and Wildland Fire – More prevalent during summer months
Duration	Rural and Urban Fire/Structure Collapse – Minutes/hours/days Wildland Fire – Minutes/hours/days, up to weeks in exceptional cases
Speed of Onset	Little to no warning.
Location	Urban Fire/Structure Collapse – incorporated jurisdictions Rural and Wildland Fire – rural areas of the county but may spread to incorporated jurisdictions

For more information regarding urban fire/structure collapse and wildland fire please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan
https://www.des.nd.gov/planning](https://www.des.nd.gov/planning)

Chapter 4.5.1 profiles urban fire/structure collapse and Chapter 4.5.2 profiles wildland fire.

4.6.1 Urban Fire/Structure Collapse

History

Statistical information on incidents of urban fire/structure collapse is provided by the National Fire Incident Reporting System (NFIRS), Carrington Fire Department, and the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP).

National Fire Incident Reporting System

Table 4.6.1.1 illustrates the history of urban fire/structure collapse in Foster County and indicates 55 structure fires, 45 vehicle fires, and 87 other fires between January 1, 2000, and December 31, 2020, for a total of 187 fire calls. In addition, local fire agencies responded to 62 rescue calls (44 medical and 18 other). Approximately 68.2 percent (30 – which are sometimes combined with EMS) of all medical calls were received by Carrington Fire Department. Fire departments are included on medical calls when they are in response to an accident, lift assistance or a specialized rescue. Fire losses from fire only totaled \$265,000.00 between January 1, 2000, and December 31, 2019, while combined with other losses totaled \$271,000.00 during the same time frame.

Table 4.6.1.1 – January 1, 2000, to December 31, 2019, Foster County Urban Fire/Structure Collapse Hazard History Summary

Fire Protection Agency	Fires				Rescue Calls			Losses	
	Struc.	Vehicle	Other	Total	Med.	Other	Total	Fire Only	Total
Carrington Fire Dept.	19	8	7	34	30	13	43	\$57,000.00	\$63,000.00
Carrington Rural Fire Dept.	32	31	72	135	13	5	18	\$177,000.00	\$177,000.00
Glenfield Fire Prot. Dist.	3	3	1	7	1	0	1	\$10,000.00	\$10,000.00
McHenry Rural Fire Dept.	1	3	7	11	0	0	0	\$21,000.00	\$21,000.00
TOTAL	55	45	87	187	44	18	62	\$265,000.00	\$271,000.00

Note: All fires, rescue calls and loss statistics are from January 1, 2000 to December 31, 2019.

Source: National Fire Incident Reporting System (NFIRS), Summary By Incident Type

The National Fire Incident Reporting System (NFIRS) data is summarized by fire department and district the number of structure fires, vehicle fires, and unclassified (other) fires from January 1, 2000, through December 31, 2020. This information is used to help better understand the risk of urban fire/structure collapse in Foster County. The data was provided by the N.D. State Fire Marshal's Office. A detailed hazard history for Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment.

Carrington Fire Department

The history of urban fire/structure collapse from the Carrington Fire Department is summarized in the following section.

- **September 22, 2012.** Residential fire east of the city of Carrington approximately six miles resulting in the death of the owner. The cause of the fire is suspected to be a space heater. The fire required over 18,000-gallons of water to be ferried to the site.

- **Tufte Fire - February 25, 2017.** The initial call was received around 5 o'clock. The fire started in the same room where the children were sleeping and was noted most likely due to an electric space heater. There were no working smoke alarms in the home and the fire was found because the father had woken up to a noise. The three children perished and the family also lost their dog in the fire. That weekend six crew members were attending fire school in Minot. All crew members came back to relieve the first responding crew.

Fire departments from neighboring counties have coverage over parts of Foster County either through mutual aid agreements or their respective fire district extends into the county. Total number of fires reported may be more than what occurred in the county. As such, data from departments in neighboring counties was excluded to avoid skewing of data history and is shown for supportive purposes of the continued need for investment of funding into fire departments and districts in Foster County.

Probability

The probability of a hazard or threat is how likely it is it will happen. Per Tables 4.6.1.1, the probability of urban fire/structure collapse in Foster County is 100 percent based on the following information.

Profile meeting participants indicated the probability of urban fire/structure collapse in Foster County as possible meaning there is between a one and 10 percent chance of an incident in the next year.

National Fire Incident Reporting System (NFIRS)

- Fire departments in Foster County respond to an average of nine fire calls per year between January 1, 2000, and December 31, 2020, or approximately three structure fires, two vehicle fires, four other fires annually. Foster County experiences, on average, \$13,250.00 in fire losses and \$13,550.00 in other losses annually.

Extent/Magnitude

The extent/magnitude of a structure fire can range anywhere from negligible for small exterior or interior fires extinguished without professional help to catastrophic for fires threatening structural integrity of critical facilities and infrastructure, sometimes resulting in loss of service or demolition. A catastrophic incident would be the total loss of the Foster County Courthouse, an emergency services building such as a fire or ambulance hall, public schools, care centers, major employers, or transportation infrastructure. In addition, if an incident were to occur at an industrial subdivision, pipeline, or Tier II site, a catastrophic hazardous material release may occur with the potential to result in tens of millions of dollars in property damage, lost economic activity, shutting down of major transportation infrastructure, or mass casualties/fatalities.

Profile meeting participants indicated the extent/magnitude or impact of urban fire/structure collapse as catastrophic meaning more than 50 percent of the jurisdiction and its people could be affected, depending on the structure.

National Fire Incident Reporting System (NFIRS)

- According to data provided by the NFIRS and the Carrington Fire Department, communities/fire agencies in Foster County experienced \$265,000.00 in fire losses and \$271,000.00 in other losses January 1, 2000, and December 31, 2020.

Carrington Fire Department

- The magnitude for structure fires in terms of human life can be categorized as catastrophic as any loss of life would have a significant impact on a community. The Carrington Fire Department reported three fatalities on February 25, 2017, referred to as the Tufte fire.

Risk Assessment

Table 4.6.1.4 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for urban fire/structure collapse. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in the table represents the sum of each jurisdiction’s impact, frequency, likelihood and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

Table 4.6.1.4 – Foster County Urban Fire/Structure Collapse Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	2	2	3	2	9
City of Carrington	4	2	2	2	3	7
City of Glenfield	4	2	2	2	2	8
City of Grace City	4	2	2	4	1	11
City of McHenry	4	1	2	2	2	9

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.6.1.5 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of urban fire/structure collapse in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Vulnerabilities to Publicly-Owned Buildings and Property

All publicly-owned buildings and property are vulnerable to urban fire/structure collapse. The risk to the hazard depends on the location of the building and if it is equipped with fire suppression mechanisms, such as sprinkler systems and smoke detectors, among others. Risk to publicly-owned buildings and property also depends on the proximity of fire suppression equipment and response times from fire departments/districts. Older publicly-owned buildings may be more susceptible to fire being built prior to building and electrical codes. Publicly-owned buildings with flat roofs are more at risk to building collapse from snow loads. Flat-roofed buildings, whether publicly-owned or privately owned, are typically located in the downtown area or older and/or more established neighborhoods of incorporated jurisdictions.

A summary of publicly-owned buildings is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Like publicly-owned buildings and property, critical facilities and infrastructure are vulnerable to urban fire/structure collapse. If an incident were to occur, the critical facility or infrastructure impacted could result in loss of or delay in services. A fire affecting critical infrastructure such as power lines or lift stations could leave residents without power, potable water, or sanitary sewer, depending on the severity of the incident. Loss of communications from fire can also occur and result in a complete shutdown of daily operations of critical facilities and infrastructure. Communication infrastructure suspended in the air and not buried underground is most vulnerable.

Vulnerabilities to New and Future Development

New and future development could be more vulnerable in communities that lack building codes. Buildings in jurisdictions that lack building codes could be more susceptible to snow loads, structural instability, and may lack fire suppression systems. Foster County has adopted the state building codes, which covers new and future development in the county. Adoption and enforcement of building codes should reduce the risk and vulnerability to new and future development. However, the city of Carrington is the only incorporated jurisdiction in Foster County that has building inspection services.

An inventory of household units by type by jurisdiction in Foster County is shown in Chapter 3, Profile and Inventory.

Strengthening of buildings codes would mitigate impacts from the hazard as populations grow and more people are at risk of injury and potential death. This mitigation project for the county can be found in Chapter 6, Mitigation Strategy.

Table 4.6.1.5 – Foster County Urban Fire/Structure Collapse Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Blocked Roads • Building Collapse • Business Interruptions/Loss of Economy • Delayed Emergency Response • Evacuation (Localized) • Explosion • Human Injury/Death • Increased Fire Potential • Mass Casualties/Fatalities 	<ul style="list-style-type: none"> • Loss of Power/Downed Power Lines • Level of impact depends on the structure
<p>Frequency</p>	<ul style="list-style-type: none"> • Annual occurrences of structures/vehicle fires • Significant fire once every 5 to 10 years • Tufts Fire in 2017 	<ul style="list-style-type: none"> • Local fire agencies responded to 55 structure fires, 45 vehicle fires, and 87 other fires between January 1, 2000, and December 31, 2019, for a total of 187 fire calls.
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Close spacing and age of downtown structures • Increased use of electric heaters and devices • Outdated electric wiring and heating systems in older homes/buildings • Older trees and unkept vegetation in incorporated jurisdictions 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Better building standards and maintenance of buildings • Smoke detectors required by code • Well-equipped fire departments with trained volunteers • Annual inspections of commercial properties • Smoke alarm drive in April 2018 installed over 200 free smoke alarms with the help of the American Red Cross
<p>Vulnerability</p>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Close spacing and age of downtown structures • Increased use of electric heaters and devices • Outdated electric wiring and heating systems in older homes/buildings • Older trees and unkept vegetation in incorporated jurisdictions • Growing population • Shrinking volunteerism for fire protection 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors required by code • Well-equipped fire departments with trained volunteers • Annual inspections of commercial properties • Smoke alarm drive in April 2018 installed over 200 free smoke alarms with the help of the American Red Cross
<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address urban fire/structure collapse. 	

Data Limitations and Other Key Documents

The NFIRS data does not distinguish between an urban fire and structure collapse. As a result, there is difficulty in determining the true probability and overall impact of structure collapse. Fire department and district boundaries also cross county lines as fire departments/districts from neighboring counties have coverage over parts of Foster County through mutual aid agreements. As a result, the total number of fires reported may be more than what occurred in the county. Smaller and rural fire departments/districts do not tabulate history and therefore, it is difficult to determine impact, frequency, likelihood and overall probability. Also, the lack of a definition of the 'Other Fires' category in data from NFIRS limits the understanding of the hazard to develop appropriate mitigation strategies.

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Carrington Fire Department Annual Report
- Foster County Comprehensive Plan
- Foster County Commercial Animal Feed Operation Ordinance
- Foster County Evacuation and Shelter Plan
- Foster County Local Emergency Operations Plan
- Foster County Shelter and Mass Care Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- James River Firefighter's Association
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Fire Annex
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.6.2 Wildland Fire (including Rural)

History

Statistical information on incidents of wildland fire is provided by the N.D. Dept of Emergency Services; USDA, Risk Management Agency; the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP), and Foster County Emergency Management.

N.D. Dept. of Emergency Services

- As of June 30, 2021, a total of 10 fires burning 20 acres were reported in Foster County. The first fire was reported March 18, 2021.

U.S. Dept. of Agriculture, Risk Management Agency

- Crop loss from wildland fire is tracked by the U.S. Dept. of Agriculture, Risk Management Agency (RMA). The RMA provides data on the crop type affected, damage cause description, determined acres and indemnity amount. The damage cause description identifies the cause of damage, determines acres identifies the number of acres lost due to damage, and the indemnity amount identifies the total amount of the loss for the designated peril. **Between January 1, 2001, and December 31, 2020, Foster County experienced two incidents of crop loss due to wildland fire impacting approximately 1,587.00 acres of crops totaling \$57,704.00 in losses.**

2018 N.D. Enhanced Mitigation MAOP

A statewide fire emergency declaration and burn ban are issued in response to extremely dry conditions, local/tribal burn bans and fire restrictions declared throughout the state, Fire Weather Watches, and Red Flag Warnings issued by the National Weather Service, unseasonably warm temperatures, low humidity, and high winds. Table 4.6.2.1 shows the history of statewide fire emergency declarations in North Dakota. The following are key points.

- According to the 2018 N.D. Enhanced Mitigation MAOP, between 1980 and June 26, 2017, the state of North Dakota had declared 17 fire emergencies.

There have been no declared disasters or emergencies pertaining to wildland fire in Foster County.

Probability

The probability of a hazard or threat is how likely it is it will happen. Profile meeting participants indicated the probability of wildland fire in Foster County is highly likely meaning there is a 100 percent chance in the next year of an occurrence of the hazard.

The probability of a wildland occurrence can be measured by the presence and extend of the wildland-urban interface. The population living in rural residential areas in Foster County has increased over the last five years.

2013 West Side Wildfire Risk Assessment (WWA)

- The 2013 West Side Wildfire Risk Assessment (WWA) is a wildfire risk assessment and report for 17 western states and is developed by the Oregon Dept. of Forestry. Figure 4.6.1 is the fire risk index based on the WWA. The probability of a wildland fire is low across Foster County.

Table 4.6.2.1 – 1980 to June 26, 2017, North Dakota Statewide Fire Emergency Declarations

Declaration	Location	Date	Magnitude
State EO	North Dakota	1980	State Declared Fire Disaster
State EO	North Dakota	1981	State Declared Fire Disaster
State EO	North Dakota	1988	State Declared Fire Disaster
State EO	North Dakota	1990	State Declared Fire Disaster
State EO	North Dakota	1999	State Declared Fire Disaster
State Request	North Dakota	2000	Governor's Request for USDA assistance for Montana Wildfires
State EO	North Dakota	2000	State Declared Fire Disaster
State EO	North Dakota	2002	State Declared Fire Disaster
State EO	North Dakota	2004	State Declared Drought Disaster/Fire Danger Emergency
State EO	North Dakota	2005	State Declared Fire Disaster
State EO 2005-01	North Dakota	3/10/2005	State declared drought disaster and fire danger emergency
State EO 2006-06	North Dakota	6/28/2006	State declared rural fire emergency potential
State EO 2008-01	North Dakota	4/25/2008	State declared fire emergency
State EO 2012-02	North Dakota	3/30/2012	State declared fire emergency
State EO 2012-09	North Dakota	9/5/2012	State declared fire emergency
State EO	North Dakota	4/1/2015	State declared fire emergency
State EO 2017-07	North Dakota	6/26/2017	Statewide fire and drought emergency

Source(s): 2018 N.D. Enhanced Mitigation MAOP

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount and/or number of damages or losses either actualized in a community or estimated based on known assets and levels of risk. Profile meeting participants indicated the magnitude or impact of wildland fire as catastrophic meaning more 50 percent of people and property in Foster County could be affected. In terms of magnitude, smaller and less severe fires are more frequent with larger and more severe fires happening sparingly. The probability of wildland fires fluctuates based on season, local weather patterns, traffic conditions, among other variables. The chance of wildland fires increases during summer months when the agriculture sector is in full force and natural vegetation can become dry due to extreme heat. Larger fires can skew averages as one large incident can offset many smaller incidents.

The magnitude of wildland fire in Foster County can also be determined by using data provided by the 2018 N.D. Enhanced Mitigation MAOP. The following are key points.

2018 N.D. Enhanced Mitigation MAOP

- Foster County has \$154,200 (2013 dollars) in housing unit values in high and moderate wildfire risk areas.

- Foster County has two people and two housing units in the High and Moderate Wildland Urban Interface Threat Zones; two people and one housing unit in high-risk areas, and no people and one housing unit in moderate risk areas.

Risk Assessment

Table 4.6.2.2 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for wildland fire. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in the table represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

Table 4.6.2.2 – Foster County Wildland Fire Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	3	4	2	2	11
City of Carrington	4	3	4	2	2	11
City of Glenfield	4	3	4	2	2	11
City of Grace City	4	2	3	4	1	12
City of McHenry	4	1	3	2	1	9

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.6.2.3 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of wildland fire in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Wildland-Urban Interface (WUI)

The probability of wildland fire impacting people and property depends on the Wildland-Urban Interface (WUI). WUI is the zone of transition between unoccupied land and human development. Communities that are within 0.5 miles of the zone may also be included. These lands and communities adjacent to and surrounded by wildlands are at risk to wildland fires. There are two types of WUI: intermix and interface.

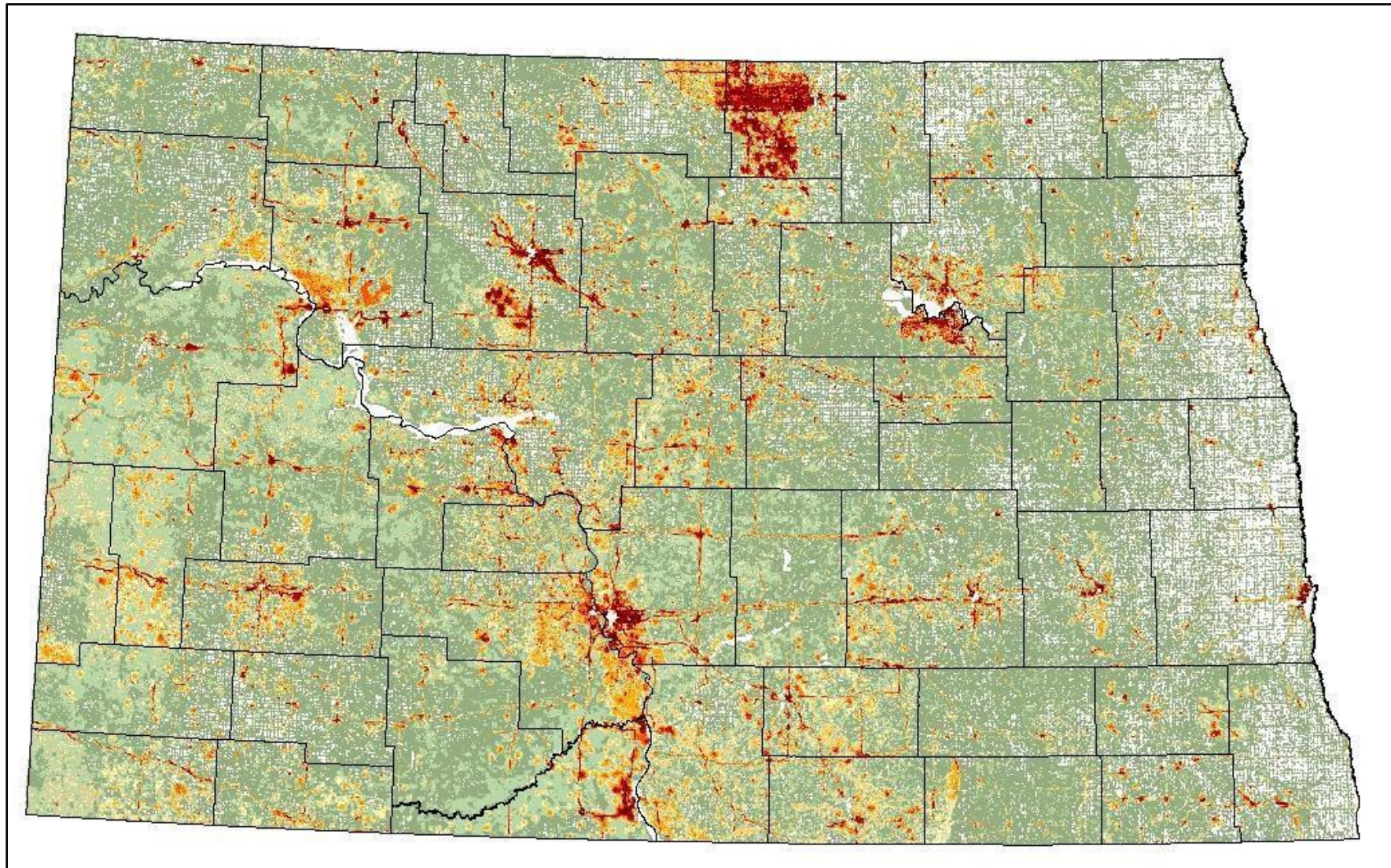
- **Intermix** refers to areas where housing and vegetation intermingle.
- **Interface** refers to areas with housing near contiguous wildland vegetation.

Figures 4.6.1.2 to 4.6.1.7 show the WUI for Foster County and the cities of Carrington, Glenfield, Grace City, McHenry, and unincorporated Bordulac and Juanita. The areas colored in orange indicate areas where housing and vegetation intermingle.

Table 4.6.2.3 – Foster County Wildland Fire Risk Assessment

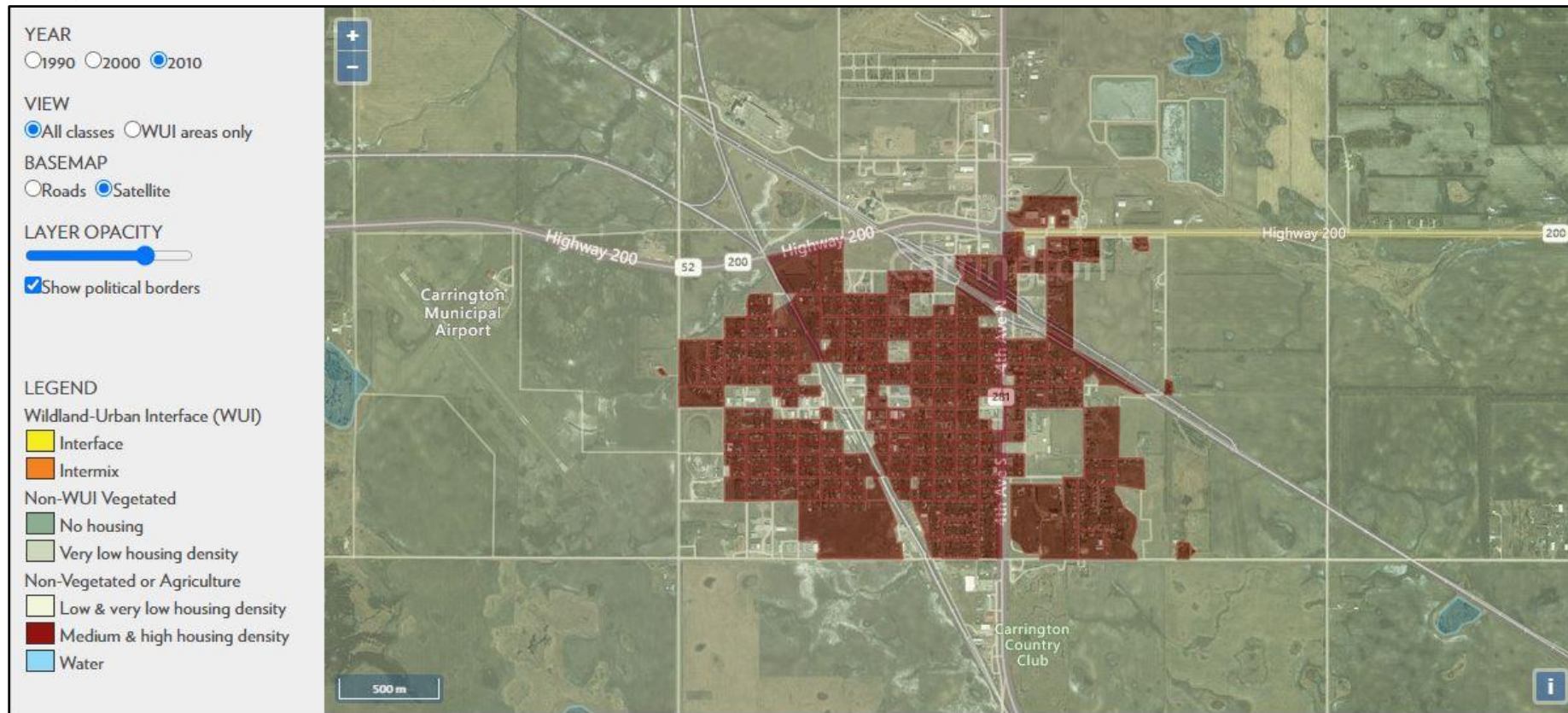
<p>Impact</p>	<ul style="list-style-type: none"> • Building Collapse • Crop Loss • Delayed Emergency Response • Evacuation (Localized) • Explosion • Increase Fire Potential 	<ul style="list-style-type: none"> • Loss of Power/Downed Power Lines • Mass Casualties/Fatalities • Property damage on a significant scale if becoming urban and transforming into a large-scale urban fire/structure collapse incident • Loss of farm equipment or buildings
<p>Frequency</p>	<ul style="list-style-type: none"> • Controlled burns becoming out of control between 25 and 50 percent of the time 	<ul style="list-style-type: none"> • 90 percent of wildland fires responded to by local departments are wildland from hay land or CRP
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Agricultural burn-off, sometimes includes garbage and manure • High winds in conjunction with dry conditions • CRP adjacent to structures/city limits • Pastureland adjacent to structures/city limits • Changing climates and weather patterns • Human activity - smoking 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation
<p>Vulnerability</p>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Agricultural burn-off, sometimes includes garbage and manure • High winds in conjunction with dry conditions • CRP adjacent to structures/city limits • Pastureland adjacent to structures/city limits • Large fire districts – strained coverage/resources • Lack of reliable water sources in rural areas • Lack of fire breaks around all incorporated and unincorporated communities • Shrinking volunteerism for fire protection • Lack of permanent generators at fire halls across the county • Lack of fire index signs 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Burn bans • Removal of CRP • Heavier precipitation than other parts of the state • MOUs with neighboring fire departments • Incorporated jurisdictions with limited wildland-urban interface • Investments in equipment for local fire departments • The non-Wildland-Urban Interface (WUI), both intermix and interface, consists of 100.0 percent of the total land area of Foster County.
<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address wildland fire (including rural). 	

Figure 4.6.2.1 – North Dakota Fire Risk Index Based on 2013 WWA



Source(s): 2018 N.D. Enhanced Mitigation MAOP; 2013 West Wide Wildfire Risk Assessment (WWA)

Figure 4.6.2.2 – 2010 City of Carrington Wildland-Urban Interface



Source: University of Wisconsin, Silvis Lab – Spatial Analysis for Conservation and Sustainability

Figure 4.6.2.3 – 2010 City of Glenfield Wildland-Urban Interface



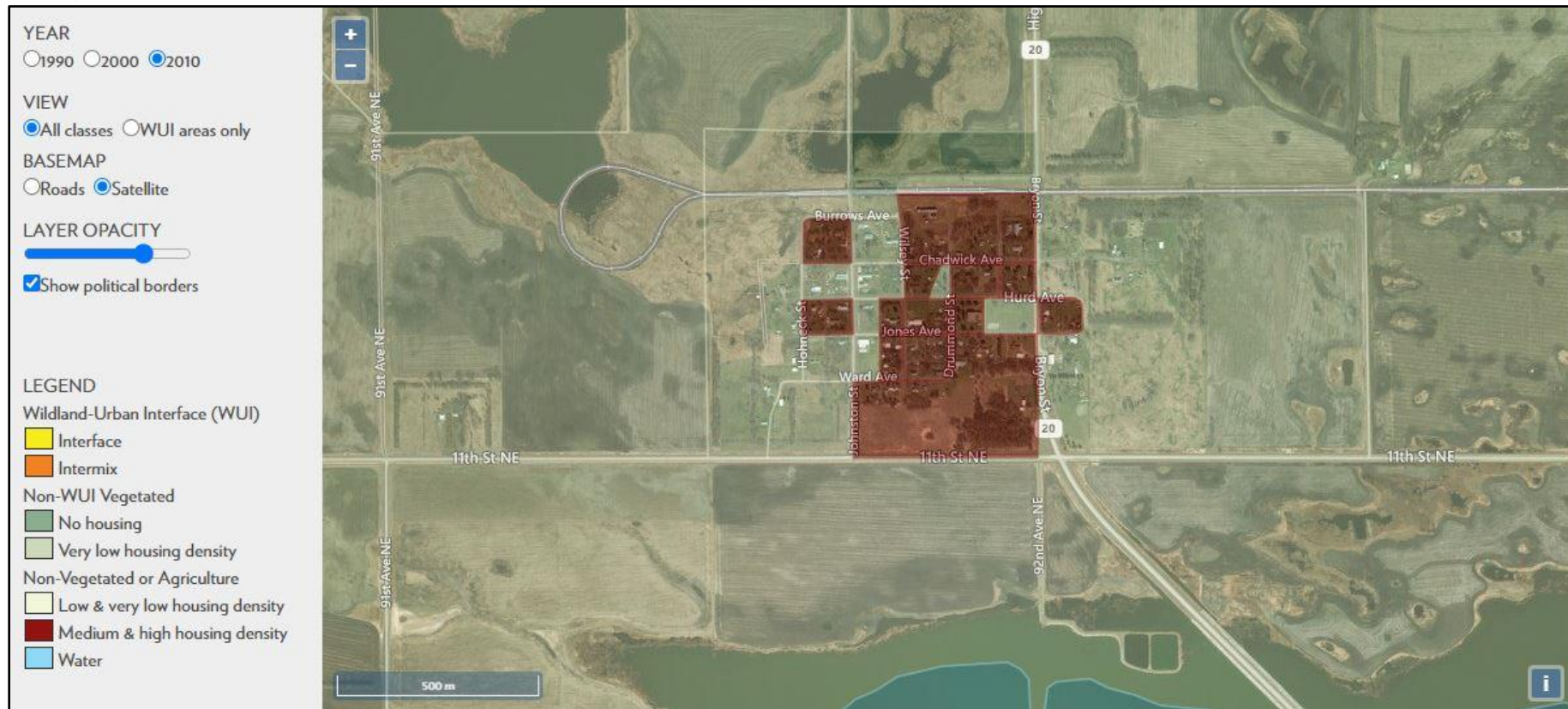
Source: University of Wisconsin, Silvis Lab – Spatial Analysis for Conservation and Sustainability

Figure 4.6.2.4 – 2010 City of Grace City Wildland-Urban Interface



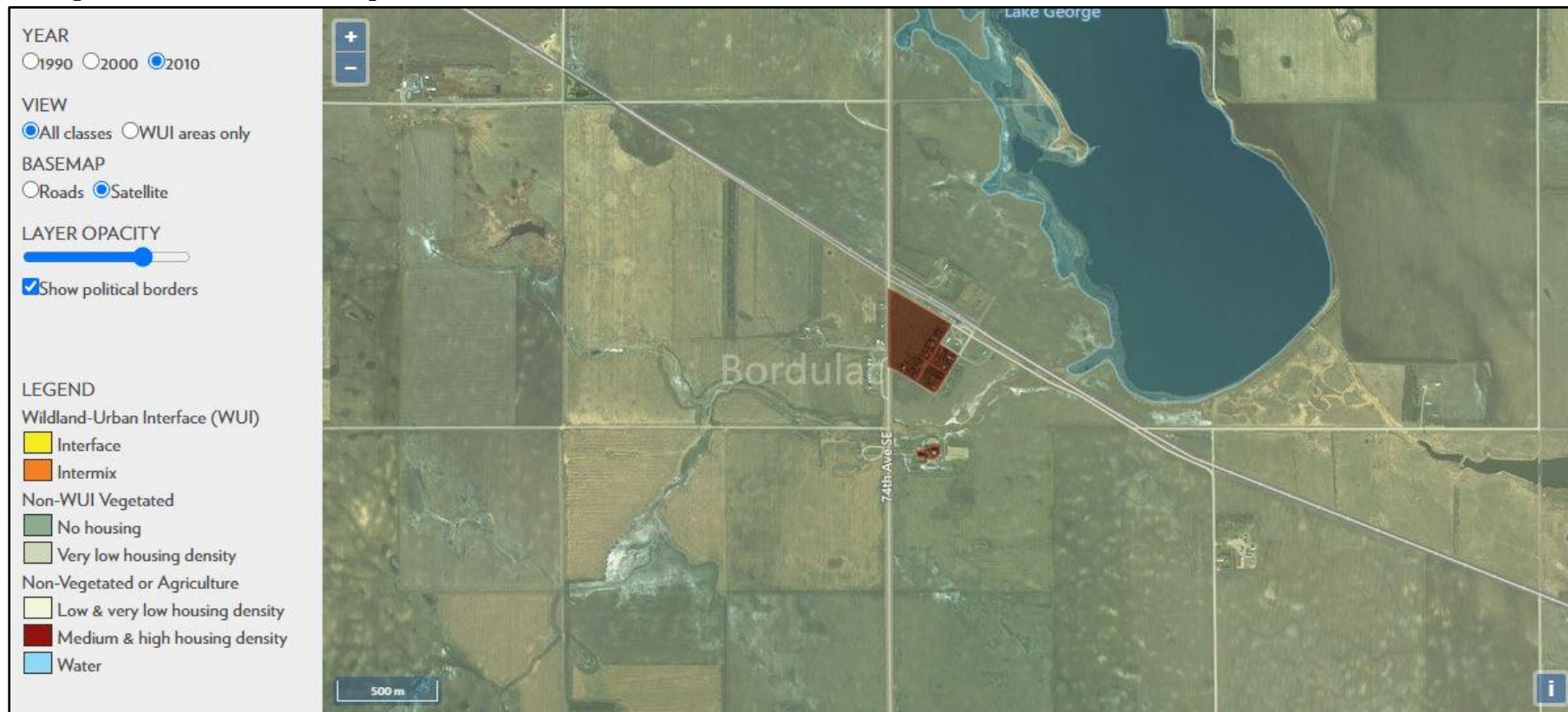
Source: University of Wisconsin, Silvis Lab – Spatial Analysis for Conservation and Sustainability

Figure 4.6.2.5 – 2010 City of McHenry Wildland-Urban Interface



Source: University of Wisconsin, Silvis Lab – Spatial Analysis for Conservation and Sustainability

Figure 4.6.2.6 – 2010 Unincorporated Bordulac Wildland-Urban Interface



Source: University of Wisconsin, Silvis Lab – Spatial Analysis for Conservation and Sustainability

Figure 4.6.2.7 – 2010 Unincorporated Juanita Wildland-Urban Interface



Source: University of Wisconsin, Silvics Lab – Spatial Analysis for Conservation and Sustainability

Vulnerabilities to Publicly-Owned Buildings and Property

Publicly-owned buildings and property located in the Wildland-Urban Interface (WUI) or in remote areas are vulnerable to wildland fire. The risk of the hazard depends on building and property location, and if emergency services can reach the property in a timely manner.

An inventory of publicly-owned buildings and property is shown in Chapter 3, Profile and Inventory.

The lack of firebreaks around all incorporated cities in Foster County increase vulnerability to publicly-owned buildings and properties. If a wildland fire were to grow and become uncontrollable, buildings and properties would be at risk from the spread of the fire. Firebreaks can and should be implemented where the WUI poses the greatest threat to people and property. Maps of the WUI shown in this chapter illustrate where measures should be implemented to mitigate wildland fires. **The WUI Intermix, areas where housing and vegetation intermingle, remained the same between 1990 and 2010 consisting of 0.0 percent of the total area of Foster County.**

Vulnerabilities of Critical Facilities and Infrastructure

Like publicly-owned buildings and property, critical facilities and infrastructure are vulnerable to wildland fire. The vulnerability will vary depending on location from the wildland-urban interface. If an incident were to occur, depending on the facility or infrastructure impacted, a loss of or delay in emergency or utility services could be the result. Maps of the WUI shown in this chapter illustrate where measures should be implemented to mitigate wildland fires.

A summary of critical facilities and infrastructure is shown in Chapter 3, Profile and Inventory.

Vulnerabilities to New and Future Development

Rural homesteads on large parcels of land in remote areas are a trend in residential development in areas of North Dakota surrounding larger cities like Bismarck, Jamestown, and Minot. Foster County should strengthen planning and zoning regulations limiting where new residential development can occur, specifically large rural lots. The vulnerability of new and future development to wildland fire also increases as the distance from fire departments and emergency services increases. Residential development in remote areas increases the opportunity for human-induced wildland fires. **The non-Wildland-Urban Interface (WUI), both intermix and interface, consists of 100.0 percent of the total land area of Foster County.**

Data Limitations and Other Key Documents

Foster County fire department and district boundaries cross county lines, and therefore, provide coverage in neighboring counties. This cross-over may provide challenges to data tracking purposes.

National Association of State Foresters

- The history data provided by the National Association of State Foresters did not indicate the county where the fire occurred prior to 2009.

National Fire and Aviation Management

- Information from the National Fire and Aviation Management did not provide crop or property loss, cause of the fire or the responding fire departments/districts but did include the final fire acre quantity and latitude and longitude coordinates.

National Fire Incident Management System (NFIRS)

- Information from NFIRS does not distinguish which fires were wildland in nature.

NDSU/N.D. Forest Service

- In addition to unavailable hazard data at the local level, wildland fire data was not available after 2008 from the NDSU/N.D. Forest Service. The NDSU/N.D. Forest Service reported that due to database system errors, the history of wildland fires in North Dakota was lost.

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Burn Bans
- Foster County Comprehensive Plan
- Foster County Evacuation and Shelter Plan
- Foster County Local Emergency Operations Plan
- Foster County Shelter and Mass Care Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- Fire Management Plans for federal lands
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Fire Annex
- North Dakota Forest Service, Building Sustainable Communities Through Forestry
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Statewide Assessment of Forest Resources and Forest Resource Strategy
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.7 Flood

Including closed basin, flash floods, groundwater saturation and seepage, ice jams, levee/floodwall failure, overland flooding, and river flooding.

Characteristics

Flooding, as a natural hazard, has been a part of the county's conflict with nature throughout history and is defined as an overflow of water on land not normally covered by water. Floods are a natural phenomenon; however, flood hazards are often intensified by man-made interference with nature.

A brief description of the types of flooding are as follows and was provided by the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP):

- **Closed Basin:** Flooding in a closed basin occurs when surface water cannot flow naturally out of the basin as a river does (until a natural overflow elevation is reached), and therefore, normally dry locations can fill in with water during wet periods.
- **Flash Floods:** Flash flooding occurs when heavy rain falls in such a short time that the soil cannot absorb it and/or drainage systems (natural or human-made) cannot carry the volume of water away as quickly as it accumulates.

A flash flood is usually caused by severe thunderstorms, heavy rains on snowpack, slow moving storms, dam, dike, or levee failures, or ice jam releases. Flash floods can occur anywhere when a large volume of water inundates an area over a short time-period. Because of the localized nature of flash floods and variables in rainfall amounts and duration, clearly defined areas prone to flash flooding are difficult to identify.

- **Groundwater Seepage:** Groundwater seepage occurs when water (originating from rainwater and soaks into the ground filling available space in the soil) flows or collects beneath the ground and makes its way back to the surface.
- **High Dam Release:** High dam release flooding is caused by intentional water release from dams to prevent water from breaching a spillway or the ends of the dam. A high dam release is typically a slow release of water from the dam over time but can cause flooding in surrounding areas.
- **Ice Jams:** Flooding can also result from ice jamming or blockage along streams. Ice breaking up into pieces, called flows, move along with the flowing rivers or streams. The ice flows can jam at curves, narrow places in the channel, structures, river/stream confluences, or where there is a sharp decrease in riverbed gradient, creating an effective dam that produces water backup and overflow. Ice jams can cause considerable increases in upstream water levels, while at the same time downstream water levels may drop.
- **Levee/Floodwall Failure:** Levees are earth embankments constructed along rivers and coastlines to protect adjacent lands from flooding. Floodwalls are concrete structures, often components of levee systems, designed for urban areas where there is insufficient room for earthen levees.

Levees are usually engineered to withstand a flood with a computed risk of occurrence. When a larger flood occurs and/or levees and floodwalls and their appurtenant structures are stressed beyond their capabilities to withstand floods, levee failure can result in loss of life and injuries as well as damage to property, the environment, and the economy.

- **Overland Flooding:** Overland Flooding occurs when flood waters flow overland from an outside source or body of water onto dry land and seeps into buildings and/or infrastructure.
- **Riverine Flooding:** Riverine flooding originates from a body of water, typically a river, creek, or stream, as water levels rise onto normally dry land. Most riverine floods are slow developing events with a natural, predictable source of water or moisture, such as snowmelt, slow rain, or a controlled dam release. This type of flood can often be forecast based on the amount of moisture or water available. The timing and location of flood conditions can often be calculated to a reasonable degree. If implemented in a timely manner, protective measures can sometimes mitigate the potential damage and loss.

Seasonal Pattern	More frequent during spring and summer. Fall flooding occurs on very rare occasions. Spring and winter flooding can occur from ice jams in culverts and local bodies of water.
Duration	Several hours for flash flooding; up to 2 weeks or several months depending on severity for major overland and/or riverine flooding.
Speed of Onset	Minutes for flash flooding. Between 12 and 24 hours warning for closed basin, overland, and riverine flooding. Prolonged warning for potential risk to riverine flooding due to a dam failure.
Location	<u>Foster County.</u> Baldhill Creek – tributary of Sheyenne River. Carrington Creek. Kelly Creek. Pipestem Creek. Rocky Run natural watercourse. James River. Low-lying areas near or adjacent to bodies of water, or with inadequate drainage. Closed basins. The Foster County Courthouse in Carrington has experienced ground seepage and interior flooding in the basement. See Figures 4.7.1 and 4.7.2 for locations of damages to bridges, dams, and roads from occurrences of flooding. <u>Incorporated Jurisdictions.</u> See Chapter 8, Jurisdictions. Alkali Lake near the city of McHenry.

For more information regarding flooding please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

<https://www.des.nd.gov/planning>

History

Information on the history of flooding in Foster County was obtained from the Federal Emergency Management Agency (FEMA); National Climatic Data Center (NCDC); National Oceanic and Atmospheric Administration (NOAA); Foster County Auditor’s Office; Foster County Office of

Emergency Management; U.S. Dept. of Agriculture, Risk Management Agency (RMA); and the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP).

Federal Emergency Management Agency

- Since 1953, Foster County has had 21 Presidential Disaster Declarations, of which 16 were for flooding. Flooding accounts for or is a factor in approximately 76 percent of disasters declared in Foster County.

National Climatic Data Center/National Oceanic and Atmospheric Administration

Table 4.7.1 summarizes the history of flooding in Foster County between January 1, 1996, and December 31, 2020. Data was not available between January 1, 1950, to December 31, 1995, as only occurrences of tornado, thunderstorm wind and hail were recorded. Starting January 1, 1996, all event types (48) are recorded. This data does not include recent instances of flooding, which were included in presidential disaster declarations in 2019 and 2020. A detailed hazard history for Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment. The following are key points.

- Foster County experienced six occurrences of flooding resulting in approximately one incident of significance every four years.
- Approximately \$1,725,000.00 in property damage was reported.
- Three injuries and no fatalities were reported.

Table 4.7.1 – 1996 to 2020 Foster County Flood Hazard History Summary

Flood				
Occurrences	Fatalities	Injuries	Property Damage	Crop Damage
6	0	3	\$1,725,000.00	\$0.00

Source(s): National Climatic Data Center (NCDC), National Oceanic and Atmospheric Administration (NOAA)

Foster County Auditor’s Office and Foster County Emergency Management

Table 4.7.2 illustrates public infrastructure damage information from presidential disaster declarations from flooding in Foster County between 2009 and 2020. The following are key points.

- **DR-1829.** A total of 38 damaged sites were identified from the 2009 flood declaration totaling \$592,106.99. The cost share was approximately 3.0 percent local, 7.0 percent state, and 90.0 percent federal. The average cost per damaged site was \$15,581.76. According to the Foster County Emergency Manager, three bridges were impacted with damages.
- **DR-1907.** A total of 11 damaged sites were identified from the 2010 flood declaration totaling \$83,663.59. The cost share was approximately 15.0 percent local, 10.0 percent state, and 75.0 percent federal. The average cost per damaged site was \$7,605.78.
- **DR-1981.** A total of 44 damaged sites were identified from the 2011 flood declaration totaling \$549,609.14. The cost share was approximately 3.0 percent local, 7.0 percent state, and 90.0 percent federal.

percent federal. The average cost per damaged site was \$12,491.12. According to the Foster County Emergency Manager, three bridges were impacted with damages.

- **DR-4118.** A total of 73 damaged sites were identified from the 2013 flood declaration totaling \$121,545.70. The cost share was approximately 15.0 percent local, 9.5 percent state, and 76.2 percent federal. The average cost per damaged site was \$1,665.01.
- **DR-4475.** A total of 64 damaged sites were identified from the 2019 flood declaration totaling \$124,236.05. The cost share was approximately 14.3 percent local, 9.52 percent state, and 76.19 percent federal. The average cost per damaged site was \$1,941.19.
- **DR-4553.** A total of 255 damaged sites were identified from the 2020 flood declaration, of which only 18 were approved by FEMA totaling \$40,950.01. The cost share was approximately 15.0 percent local, 10.0 percent state, and 75.0 percent federal. The average cost per damaged site was \$2,275.00.

Table 4.7.2 2009 to 2020 Public Infrastructure Damages from Flooding

Disaster No.	Year	Damaged Sites*	Local Share	State Share	Federal Share	Grade Raises
DR-4553	2020	18*	\$6,142.49	\$4,095.01	\$30,712.51	0
DR-4475	2019	64	\$17,747.99	\$11,832.01	\$94,656.05	0
DR-4118	2013	73	\$18,231.86	\$12,154.57	\$91,159.27	NA
DR-1981	2011	44	\$16,488.18	\$38,472.67	\$494,648.29	NA
DR-1907	2010	11	\$12,549.51	\$8,366.35	\$62,747.73	NA
DR-1829	2009	38	\$17,763.19	\$41,447.48	\$532,896.32	NA

*The number of sites approved by FEMA. Does not include the total amount of damaged sites included in the application.

Source(s): Foster County Auditor's Office; Foster County Emergency Management

U.S. Dept. of Agriculture, Risk Management Agency

- Crop loss from flood is tracked by the U.S. Dept. of Agriculture, Risk Management Agency (RMA). The RMA provides data on the crop type affected, damage cause description, determined acres and indemnity amount. The damage cause description identifies the cause of damage, determines acres identifies the number of acres lost due to damage, and the indemnity amount identifies the total amount of the loss for the designated peril. **Between January 1, 2001, and December 31, 2020, Foster County experienced 20 incidents of crop loss due to flooding impacting approximately 3,276.57 acres of crops totaling \$755,026.75 in losses.**

2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)

The James River begins in neighboring Wells County and flows through Foster County into Stutsman County to the south. According to the 2018 N.D. Enhanced Mitigation MAOP, the following information on the James River Basin was obtained, in addition to historical flooding information and related damages in Foster County.

- The James River, the largest river in the basin, is a major tributary of the Missouri River. The principal tributary of the James River is Pipestem Creek. Other important tributaries to the James River include Maple, Beaver, Bone Hill, and Cottonwood Creeks. These creeks all drain the area to the west of the river, while Bear Creek is the only major east-side tributary.

Jamestown and Pipestem Dams, both just north of Jamestown, hold water throughout the year and provide flood protection to communities along the James River from Jamestown to the South Dakota state line. These dams provide over 90 percent flood damage reduction along the James River. The river becomes permanent below these dams, but periods of no flow are not uncommon. Countless wetlands store water in the noncontributing portions of the basin.

Flooding has occurred in the basin. Major floods occurred in 1881, 1920, 1922, 1942, 1950, 1969, 1993-1997, 1999, and 2009. In addition, at least 17 minor floods are known to have taken place since 1881. Flooding in the James River Basin is most often caused by rapid runoff from relatively steep tributaries to the nearly flat main channel of the James River which may be obstructed along its route by small jams, log jams, vegetation, sediment deposits, and inadequate bridge capacities. It is not uncommon for tributary discharges to exceed the channel capacity of the James.

The major water problems in the James River Basin relate to periodic flooding of agricultural cropland, hay land, pasture, and several communities. Communities most severely affected include Jamestown, **Carrington**, Spiritwood Lake, Oakes, LaMoure, and Edgeley. A major issue within the basin is the controversy involving agricultural drainage versus wetland preservation. River channel obstructions and stream bank erosion exist in many areas along the James River below the Jamestown Dam.

- **According to the National Centers for Environmental Information, as of 2018, Foster County has experienced four flash flood events resulting in \$1,120,000.00 in property damage and no crop damage, and two flood events resulting in \$605,000.00 in property damage and no crop damage. No injuries were reported.**

Probability

The probability of a hazard or threat is how likely it is it will happen. Profile meeting participants and the Steering Committee indicated the probability of a flood in Foster County as likely meaning that there is between a 10 and 100 percent probability in the next year of an incident. The probability of flood in Foster County can be determined through data provided by the National Climatic Data Center/National Oceanic and Atmospheric Administration; the U.S. Dept. of Agriculture, Risk Management Agency; Foster County Emergency Management; and the 2018 N.D. Enhanced Mitigation MAOP.

National Climatic Data Center/National Oceanic and Atmospheric Administration

Per Table 4.7.1, the following statistics on the probability of flooding in Foster County is as follows:

- Probability of flooding in Foster County is approximately 25 percent based on six flood occurrences between January 1, 1996, and December 31, 2020, resulting in approximately one incident of significance every four years.
- Foster County experiences approximately \$69,000.00 in property damage and no crop damage annually between January 1, 1996, and December 31, 2020. Three injuries or fatalities were reported between January 1, 1996, and December 31, 2020.

U.S. Dept. of Agriculture, Risk Management Agency

- According to information obtained from the U.S. Dept. of Agriculture, Risk Management Agency (RMA), crop loss due to severe summer weather impacted approximately 163.83 acres totaling \$37,761,34 in losses annually in Foster County.

Foster County Emergency Management

- Figures 4.7.1 and 4.7.2 illustrate infrastructure impacted from the 2009, 2010, 2011, 2013 and Fall 2019 flooding events in western and eastern Foster County, which were included in the respective presidential disaster declaration.

2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)

- Figure 4.7.3 is from the 2018 N.D. Enhanced Mitigation MAOP and shows the one-percent annual chance floodplain in North Dakota based on FEMA's NFHL, which only shows areas with DFIRM data available. The one-percent annual chance floodplain is present along the James River in central Foster County.

Extent/Magnitude

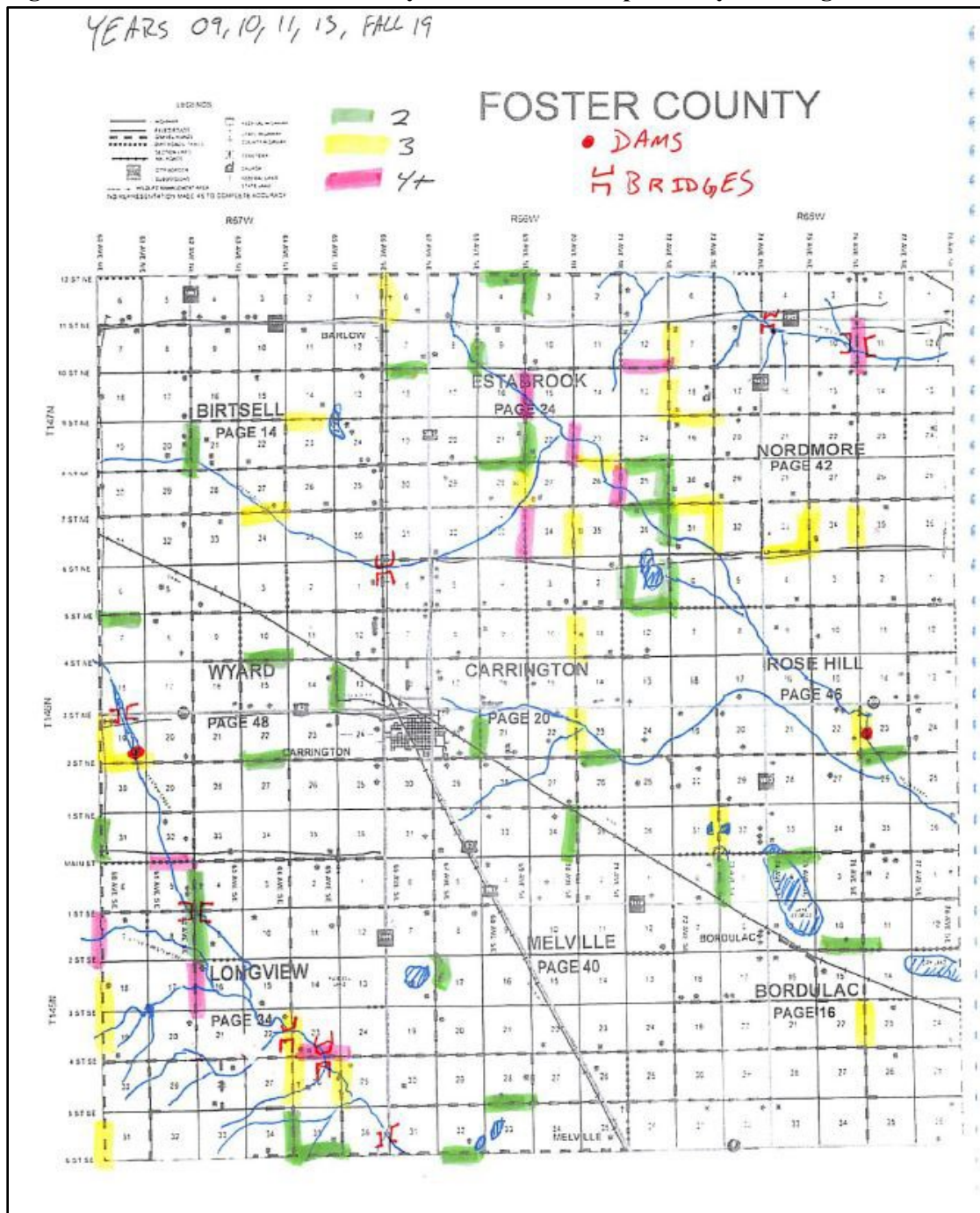
The extent/magnitude of a hazard or threat is expressed in the number of damages or losses either actualized in a community or estimated based on known assets and levels of risk. Profile meeting participants and the Steering Committee indicated the extent/magnitude of a flood in Foster County as catastrophic meaning that more than 50 percent of the jurisdiction, its people and property can be impacted. Based on history of flooding in Table 4.7.1 (National Climatic Data Center), Table 4.7.2, and crop loss information from the USDA,RMA, the following extent/magnitude of flooding in Foster County is determined.

- Per Table 4.7.1, approximately \$1,000,000.00 in property damage occurred from a flash flood event on August 6, 2011, in unincorporated Bordulac. Lake George and Dry Lake were inundated with runoff resulting in damages to county and township roads, and railroad infrastructure.
- Per Table 4.7.2, the largest flooding event in terms of monetary damage and average cost per damaged site was DR-1829 with \$592,106.99 in total damages and \$15,581.76 per site. The largest flooding event in terms of damaged sites was DR-4118 with 73 damaged sites.
- High water on Alkali Lake, which receives water from an adjacent unnamed lake also experiencing high water, causes flooding impacts to roadways to the City of McHenry, McHenry Township, and the ND Department of Transportation. The City's sanitary sewer lagoon system is located adjacent to the lake and would be completely inundated before Alkali Lake reaches its natural outlet elevation.

U.S. Dept. of Agriculture, Risk Management Agency

- Crop loss data from the USDA, RMA shows the largest indemnity paid for crop loss due to flooding was in 2020 for \$491,775.00 for corn.

Figure 4.7.1 – Western Foster County Infrastructure Impacted by Flooding Events



Source: Foster County Emergency Management

Figure 4.7.2 – Eastern Foster County Infrastructure Impacted by Flooding Events

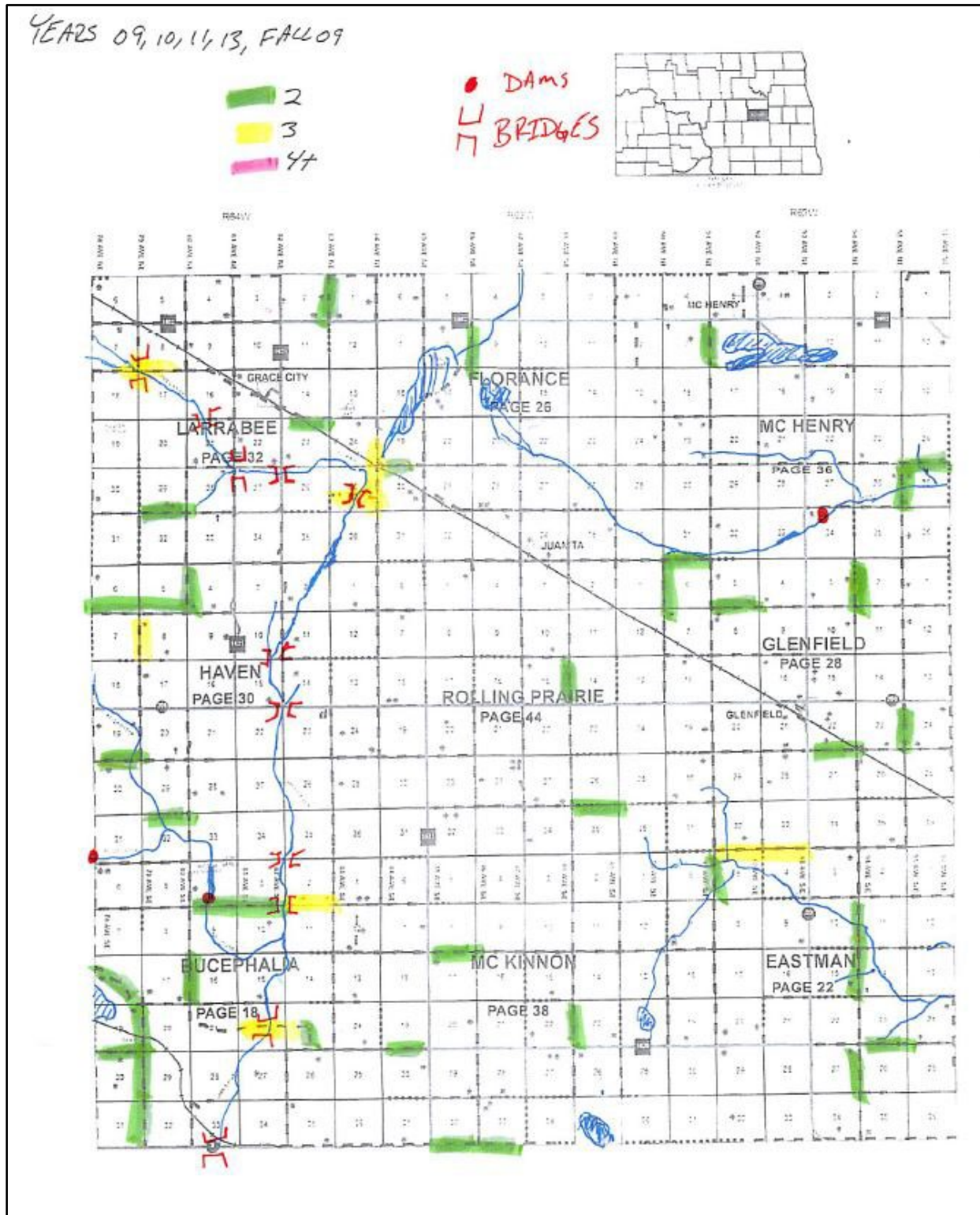
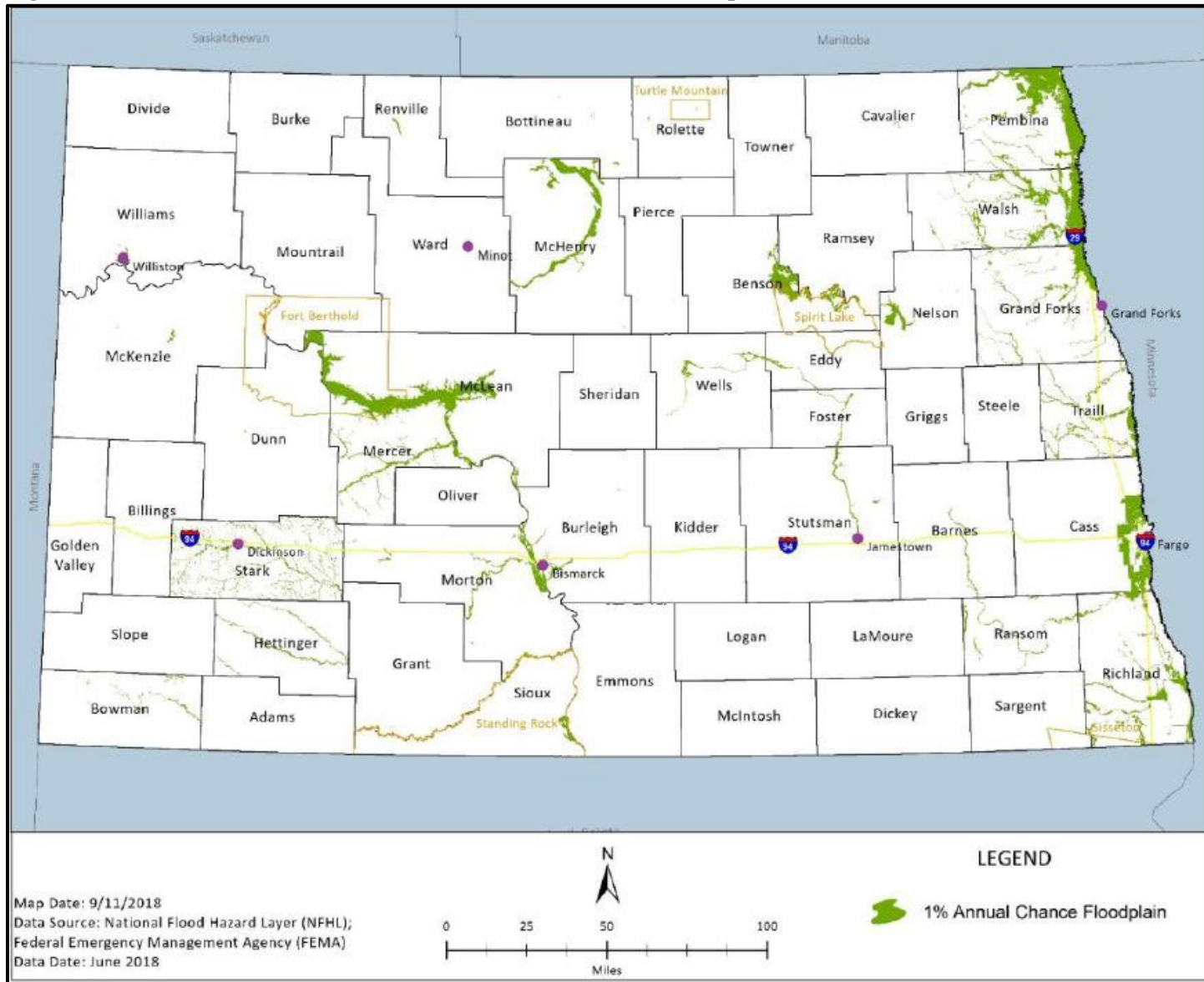


Figure 4.7.3 – 2019 North Dakota One-Percent Annual Chance Floodplain



Source(s): 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)

National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP), managed by the Federal Emergency Management Agency (FEMA), enables homeowners, business owners, and renters in participating communities to purchase federally backed flood insurance. The NFIP provides affordable insurance to property owners and encourages communities to adopt and enforce floodplain management regulations. This insurance offers an insurance alternative to disaster assistance to meet the escalating costs of repairing flood damage to buildings and their contents.

Participating communities agree to adopt and enforce floodplain management ordinances to reduce future flood damage. There are now more than 20,600 participating communities across the United States and its territories.

Federal flood insurance is available for residents and business owners in both high-risk and moderate-to-low risk areas. The insurance is required for buildings in high-risk areas that have loans from federally regulated or insured lenders. This requirement extends to disaster assistance loans from the Small Business Administration. However, it is not a requirement of the NFIP to have a mortgage or SBA loan or live in a high-risk area to obtain flood insurance. It is available community-wide, with premiums that vary according to the level of risk.

Table 4.7.3 shows the communities participating in the National Flood Insurance Program. Communities that participate in the National Flood Insurance Program (NFIP) are required to adopt flood plain regulations that meet NFIP objectives:

- New buildings must be protected from flooding damages because of a 1-percent chance flood.
- New development must not cause an increase in flood damages to other property.
- The DFIRMs for Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment.
- Chapter 6, Mitigation Strategy includes mitigation projects to enroll jurisdictions and encourage participation in the National Flood Insurance Program (NFIP). Mitigation Project PR-3 encourages enrollment and participation in the NFIP. Mitigation Project PR-4 encourages review of local ordinances to meet or exceed minimum federal and state requirements, comply with NFIP, and enroll in the Community Rating System.

Table 4.7.3 – Participation in National Flood Insurance Program (NFIP) – Foster County

Jurisdiction Name	CID #	Initial FHBM Identified	Initial FIRM Identified	Mapped
Foster, County of	380696	--	06/21/17	06/21/17(M)
Carrington, City of	380218	05/28/76	--	(NSFHA)

Source: FEMA Community Status Book Report, North Dakota

NFIP Program Policies, Claims and Loss Payments

According to the N.D. Dept. of Water Resources, as of September 30, 2021, there are two NFIP policies in Foster County covering \$630,000.00 in property and assets. The number of claims made since 1978 in Foster County is 10 with \$110,338.00 paid on those claims.

NFIP Repetitive Loss Properties

Per FEMA, a repetitive loss (RL) property is any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. The losses must be within 10 years of each other and be at least 10 days apart. A RL property may or may not be currently insured by the NFIP.

As of June 30, 2021, there are no repetitive loss properties were in Foster County.

NFIP Severe Repetitive Loss Properties

A Severe Repetitive Loss (SRL) property is a residential property that has had at least four NFIP claim payments over \$5,000 each with two such claims occurring within any ten-year period, or residential property that has had at least two separate claim payments within any ten-year period that have cumulatively exceeded the value of the property.

As of June 30, 2021, there are no severe repetitive loss properties were in Foster County.

Risk Assessment

Table 4.7.3 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for flood. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.7.3 represents the sum of each jurisdiction's impact, frequency, likelihood and vulnerability to a hazard/threat less the jurisdiction's capabilities to respond to the hazard/threat.

Table 4.7.3 – Foster County Flood Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	2	4	3	3	10
City of Carrington	4	2	4	3	3	10
City of Glenfield	4	2	4	3	2	11
City of Grace City	4	2	2	3	3	8
City of McHenry	4	3	4	4	1	14

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.7.4 provides information on the specific impact, frequency, likelihood, vulnerability and capability of flood in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown in Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Table 4.7.4 – Foster County Flood Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Roads can become washed out and limit access for emergency services and economy activity • Loss of economy resulting from crop damage • Increased mosquitos-may transmit disease due to lots of grass and debris laying around • Large property loss, vehicles, personal property • Can impact lift stations and cause sewer backups contributing to infectious disease • Power outages, sometimes prolonged • Damage to critical facilities and infrastructure • Potential loss of life from fast moving water • Homes with basements can become flooded from ground saturation/seepage • Temporary displaced population • Temporary relocation of medical services would decrease range of services offered 	<ul style="list-style-type: none"> • Increased crime as emergency services are limited in access and mobility • Increase in infectious disease from overland flooding and standing water (mold and blue/green algae) • Cause of secondary hazards such as shortage or outage of critical materials or infrastructure, or transportation incidents • Increase in traveling distances for residents commuting to work, school buses, emergency response vehicles, general economic activity, and agriculture-related activity due to blocked roads from flooding • Potential permanent closure of township roads • Compromise/diminished water quality from agricultural runoff carried by flood waters • \$110,338.00 in losses paid on 10 claims through the NFIP since 1978 in Foster County • Between January 1, 2001, and December 31, 2020, Foster County experienced eight incidents of crop loss due to flooding impacting approximately 456.30 acres of crops totaling \$47,779.20 in losses. • The largest flooding event in terms of monetary damage and average cost per damaged site was DR-1829 with \$592,106.99 in total damages and \$15,581.76 per site.
<p>Frequency</p>	<ul style="list-style-type: none"> • Annual occurrences of localized flooding of streets in incorporated cities and county roads and bridges • Periodic flash flooding from heavy rains during the summer • Overland flooding from increased heavy rains in the summer and snow melt in the spring occurring each year to varying degrees of severity • Increasing irregularity in precipitation patterns • Agricultural land management practices to maximize production can impact the severity flooding 	<ul style="list-style-type: none"> • Presidential Disaster Declarations in Foster County in 2009, 2010, 2011, 2013, 2019, and 2020.

Table 4.7.4 – Foster County Flood Risk Assessment – Continued

Likelihood	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Presence of the Baldhill Creek – tributary of Sheyenne River, Carrington Creek, Kelly Creek, Pipestem Creek, Rocky Run natural watercourse, James River • Pipestem Creek creates the most flooding issues • Rapid change of seasons = excessive snow melt/drainage • Low spots on county/township roads, and county and state highways • Closed basins increase likelihood of flooding due to being at capacity and not allowing new drainage • Overland flooding likely due to lack of storm water systems in smaller incorporated cities and rural areas • High water table • Increased impervious surface and pavement increases runoff and decreases water absorbed naturally • Farm and field drain tile and dewatering systems 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Likelihood dependent local weather climate patterns • Structure-specific drain tile and dewatering systems • Farm and field drain tile and dewatering systems
Vulnerability	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Pipestem Creek creates the most flooding issues • Lack of storm water system in smaller jurisdictions • Smaller jurisdictions and rural areas with agriculture based economic are vulnerable to crop and livestock losses from flooding impacts • Low-lying roads in rural areas of the county and townships • Multiple severe weather systems occurring close together further inundating existing flooding impacts • Limited local financial resources to accomplish projects independently during Presidential Disaster Declarations • Ground seepage at the Foster County Courthouse 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • LiDAR and constant improvements in technology is available for flood mapping. The DWR is currently updating all DFIRMS through a FEMA grant. • Advanced warning systems such a Everbridge, cell phones, internet, and TV for flash flooding events • Road raises have been completed and properties have been removed from flood prone areas – ongoing based on current conditions and impacts

Table 4.7.4 – Foster County Flood Risk Assessment – Continued

<p>Capability</p>	<p><u>Administrative and Technical</u></p> <ul style="list-style-type: none"> • FEMA Flood Maps – being updated to include enhanced aerial imagery and the base level engineering data • Active County Commission and City Council(s) • Contracts for engineering, planning, and grant writing • GIS services are provided by county engineering contract • City of Carrington with GIS capabilities through their engineering contract • Foster County Water Resource District • ND Dept. of Water Resources - ND Risk Assessment Mapping (NDRAM) <p><u>Education and Outreach</u></p> <ul style="list-style-type: none"> • Active emergency management department with education and outreach capabilities • Foster County Water Resource District provides regulation to land-owners for issues pertaining to water <p><u>Financial</u></p> <ul style="list-style-type: none"> • Relies on federal and state entities for assistance with major projects <p><u>Planning and Regulatory</u></p> <ul style="list-style-type: none"> • Foster County Water Resource District • Foster County Planning and Zoning Committee and Administrator/Floodplain Administrator • City of Carrington Flood Plain Ordinances • County adopted NFIP and related flood ordinances • Natural Resource Conservation Service • ND Dept. of Water Resources - ND Risk Assessment Mapping (NDRAM) • ND Dept. of Water Resources also has regulations in place for surface water • Carrington Planning & Zoning Committee and Administrator
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Vulnerabilities to Publicly-Owned Buildings and Property

Vulnerabilities to publicly-owned buildings and property from floods are always present whether flooding is due to flash flooding, overland, ground seepage, river channel, or closed basin. Locations of publicly-owned buildings and property will determine vulnerabilities to river channel and overland flooding. In the city of Carrington, 10th Avenue and 11th Avenue experience overland flooding, impacting Carrington City Hall, Carrington Fire Hall, and the Carrington and Armory.

A summary of publicly-owned buildings and property is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Damage to critical facilities and infrastructure such as drinking/potable water and sewer systems, roadways, and electric power lines can happen when flooding occurs. Drinking/potable water and sewer systems can be shut down when power to lift stations and water treatment facilities are suspended, or the systems become overwhelmed. Roads can be washed out or blocked from overland flooding, which limits access for emergency services. In the city of Carrington, 10th Avenue and 11th Avenue experience overland flooding, impacting Carrington City Hall, Carrington Fire Hall, and the Carrington and Armory.

N.D. Highway 20 and the sanitary sewer lagoons for the city of McHenry are impacted by Alkali Lake during high precipitation events.

An inventory of critical facilities and infrastructure is provided in Chapter 3, Profile and Inventory.

Vulnerabilities to New and Future Development

New and future development in Foster County is at high risk to flooding if allowed in a floodplain. With projected local populations stable in Foster County through 2030, more people will be vulnerable to flooding if development is not restricted from flood-prone areas.

Data Limitations

The lack of digitized records of public assistance provided to local governments from flood events makes flood mitigation planning difficult to comprehend during mitigation planning processes.

National Climatic Data Center/National Oceanic and Atmospheric Administration

The hazard history provided through the National Climatic Data Center/National Oceanic Atmospheric Administration's Storm Events Database contains data from **1950 to 2020**, as entered by NOAA's National Weather Service (NWS). Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The following timelines show the different time spans for each period of unique data collection and processing procedures.

Flooding was not recorded as a separate incident until 1996.

1. **Tornado:** From 1950 through 1954, only tornado events were recorded.
2. **Tornado, Thunderstorm Wind and Hail:** From 1955 through 1992, only tornado, thunderstorm wind and hail events were keyed from the paper publications into digital data. From 1993 to 1995,

only tornado, thunderstorm wind and hail events have been extracted from the Unformatted Text Files.

- 3. All Event Types (48 from Directive 10-1605):** From 1996 to present, 48 event types are recorded as defined in NWS Directive 10-1605.

Other Key Documents

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Foster County, North Dakota Alkali Lake High Water Outlet Feasibility Study (preliminary)
- Foster County Comprehensive Plan
- Foster County Evacuation and Shelter Plan
- Foster County Local Emergency Operations Plan
- Foster County Shelter and Mass Care Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- National Flood Insurance Program (and required flood ordinances)
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Flood Annex
- North Dakota League of Cities: Planning and Zoning Handbook
- North Dakota Risk Assessment Mapping (RAM) Service (flood mapping software)
- North Dakota State Building Code
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.8 Geologic Hazard

Including abandoned mine lands, earthquakes, environmental minerals (erionite, uranium, arsenic), environmental minerals (radon), expansive/unstable soils, landslides, meteorite falls, and volcanic hazards.

Characteristics

A geologic hazard, and the different classifications of the hazard, are described as follows:

- **Abandoned Mine Lands (AMLs):** AMLs are hazardous mine subsidence and are caused by the collapse of abandoned underground mines.
- **Earthquake:** An Earthquake is a sudden movement of the earth caused by the abrupt release of strain that has accumulated over a long time.
- **Environmental Minerals (Erionite, Uranium, Arsenic):** These minerals, and the rocks that host them, are hazardous with localized and prolonged exposure.
- **Environmental Minerals (Radon):** Radon is a colorless, odorless, and tasteless gas that originates from the radioactive decay of uranium minerals found in soils and in igneous rock and their derivative mineral weathering products.
- **Expansive/Unstable Soils:** Expansive/unstable soils are soils that expand when water is added and shrink when they dry out.
- **Landslides:** Landslides are the movement of rock, soil, artificial fill, or a combination thereof on that moves down-slope.
- **Meteorite Falls:** Meteorite Falls are samples of early solar system materials.
- **Volcanic Hazards:** Geologic impacts from volcanic activity.

Seasonal Pattern	None. Can occur at any time throughout the year. Most prevalent after heavy precipitation events such as severe summer or winter weather.
Duration	Seconds/Hours/Days/Weeks/Months/Years
Speed of Onset	Seconds/Hours/Days/Weeks/Months/Years
Location	Depends on the extent/magnitude of each specific geologic hazard characteristic but can county-wide across all jurisdictions (incorporated and/or unincorporated) for Expansive/Unstable Soils in river valley areas or ubiquitous risk of Environmental Minerals (Radon) across the county. According to the N.D. Public Service Commission (PSC) there are no records of abandoned mine lands in Foster County.

For more information regarding geologic hazard please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

<https://www.des.nd.gov/planning>

History

The history of geologic hazard is summarized on the following pages. A detailed hazard history for Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment.

- **Abandoned Mine Lands (AMLs).** There are no AMLs located in Foster County.
- **Earthquake.** There is not a history of earthquakes in Foster County. Figure 4.8.1 illustrates the locations of earthquakes in North Dakota as of 2015.
- **Environmental Minerals (Erionite, Uranium, Arsenic).** There is not a history of environmental minerals (erionite, uranium, arsenic) soils events in Foster County.
- **Environmental Minerals (Radon).** According to the N.D. Dept. of Environmental Quality, between January 1, 2014, and March 1, 2021, there were approximately 43 positive tests for radon in residential homes in Foster County.
- **Expansive/Unstable Soils.** There is not a history of expansive/unstable soils events within Foster County.
- **Landslides.** According to the N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP, North Dakota has only had one disaster declaration due to a geologic hazard: DR-1279 was declared for severe storms, tornadoes, snow and ice, flooding, ground saturation, and landslides/mudslides. The event occurred from March 1, 1999, to July 19, 1999, and impacted 42 counties and four reservations. Over \$100 million in disaster assistance was provided. Foster County was included in this disaster declaration. Figure 4.8.2 illustrates areas of the state of North Dakota mapped by the N.D. Geological Survey to show landslide susceptibility.
- **Meteorite Falls.** There is not a history of meteorite falls in Foster County.
- **Volcanic Hazards.** There is not a history of volcanic hazards in Foster County.

Probability

The probability of a hazard or threat is how likely it is it will happen. The 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP) classifies each type of geologic hazard's probability below.

Common Occurrence	Abandoned Mine Lands (AMLs), Expansive/Unstable Soils, Environmental Minerals (Radon) and Landslides
Limited Occurrence	Environmental Minerals (Erionite, Uranium, Arsenic), Earthquake
Remote Occurrence	Meteorite Falls and Volcanic Hazards

Note: Due to their classification as remote occurrences, detailed information on meteorite falls and volcanic hazards is not available.

The Steering Committee identified the state's definitions for probability of geologic hazard as applicable to Foster County. The following probability for geologic hazard in Foster County is as follows:

- **Abandoned Mine Lands (AMLs).** According to the N.D. Public Service Commission (PSC), there are no Abandoned Mine Lands in Foster County. The probability of this type of geologic hazard is zero.
- **Earthquake.** The likelihood of earthquake occurrence in North Dakota is low. However, small magnitude earthquakes, commonly in the range of magnitude 3, which are not felt at the surface, have occurred in the state at the rate of approximately one event per decade (N.D. Geologic Survey). The locations of these earthquakes vary but has never occurred in Foster County. The probability of earthquake in Foster County is low.
- **Environmental Minerals (erionite, uranium, arsenic).** This type of geologic hazard is localized to its area of geologic origination. They are not expansive or extensive and not found in Foster County at high concentrations based on available information. Gravel mining in western North Dakota excavated deposits of these minerals to be used in surfacing of roads, parking lots and other infrastructure surfaces throughout the state. The probability of an exposure incident is unknown in Foster County. Therefore, the probability of this geologic hazard would be low to unknown in Foster County.
- **Environmental Minerals (radon).** All of North Dakota is in EPA Radon Zone 1. Therefore, all counties in the state are vulnerable to this hazard and all homes have a high potential to test for elevated levels of radon. According to the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP), there is greater than a 90 percent chance of this type of geologic hazard occurring each year anywhere in the state.
- **Expansive/Unstable Soils.** This type of geologic hazard can be found across North Dakota and is exacerbated by drought and periods of high precipitation. Therefore, the probability of expansive/unstable soils can be tied to the severity of other natural hazards that can occur at any time throughout the year.
- **Landslides.** Landslide events are indicative of moisture conditions as they occur more frequent during wet years and are even more probably if the wet years were preceded by dry years. According to the N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP), the probability of future occurrences of landslides is low in Foster County as no areas of high susceptibility are identified.
- **Meteorite Falls.** This type of geologic hazard is classified as a remote occurrence and, therefore, the probability is very low.
- **Volcanic Hazards.** This type of geologic hazard is classified as a remote occurrence and, therefore, the probability is very low.

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount of damage or losses either caused

or could occur in a community. Jurisdictions with the highest number of abandoned mine lands, hydrologic corridors, locations with expansive/unstable soils or other geologically active areas are at the greatest risk to impacts from occurrences of geologic hazards.

- **Abandoned Mine Lands (AMLs).** The extent/magnitude of the collapse of an AML is specific to the location and size of the AML. Therefore, the extent/magnitude can range from no damage at the surface and small in geographic expanse to extensive damage if impacting structures or infrastructure.
- **Earthquake.** A HAZUS Analysis was completed in the N.D. 2018 Enhanced Mitigation Mission Area Operations Plan (MAOP) to estimate losses from a magnitude 5 earthquake. The total economic losses to Foster County are estimated to be between \$250,000 to \$500,000 from this type of event.
- **Environmental Minerals (erionite, uranium, arsenic).** This type of geologic hazard is localized to its area of geologic origination. They are not expansive or extensive and not found in Foster County at high concentrations based on available information. Therefore, the extent/magnitude of this geologic hazard would be low or unknown in Foster County.
- **Environmental Minerals (radon).** Based on information provided by the N.D. Dept. of Environmental Quality, prolonged exposure to radon can cause lung cancer. Based on a U.S. Environmental Protection Agency (EPA) assessment of risk for radon in homes, radon in indoor air is estimated to cause about 21,000 lung cancer deaths each year in the United States. Radon-induced lung cancer typically develops 5-25 years after exposure. There is no evidence that other respiratory diseases, such as asthma, are caused by radon exposure.
- **Expansive/Unstable Soils.** The extent/magnitude of expansive/unstable soils event could render a structure uninhabitable or unusable. Damage from this type of geologic event could also result in either short-term or prolonged loss of service of transportation or energy infrastructure. There is not a history of his type of geologic event in Foster County. Therefore, the extent/magnitude of expansive/unstable soils is unknown in Foster County.
- **Landslides.** The extent/magnitude of a landslide event could render a structure uninhabitable or unusable. Damage from this type of geologic event could also result in either short-term or prolonged loss of service of transportation, communication, or energy infrastructure.
- **Meteorite Falls.** The extent/magnitude of a meteorite fall is unknown as it has never occurred in Foster County.
- **Volcanic Hazards.** There are no volcanoes in Foster County.

Risk Assessment

Table 4.8.2 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for geologic hazard. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

The total in Table 4.8.2 represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

Table 4.8.2 – Foster County Geologic Hazard Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	1	2	2	2	2	5
City of Carrington	1	2	2	2	2	5
City of Glenfield	1	2	2	2	2	5
City of Grace City	1	2	2	2	2	5
City of McHenry	1	2	2	2	2	5

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

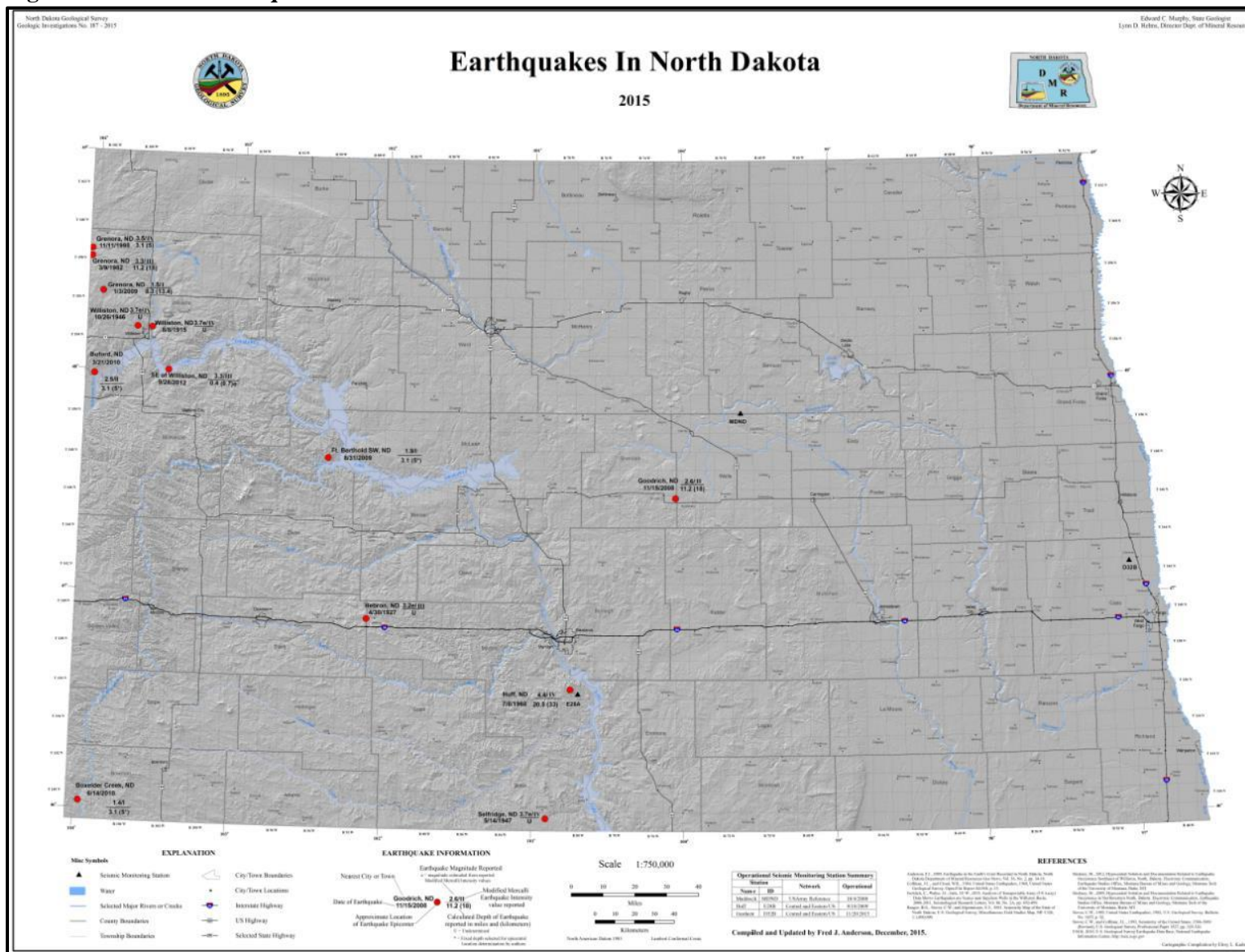
Tables 4.8.3 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of geologic hazard in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown in Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Vulnerabilities to Publicly-Owned Buildings and Property

According to the 2018 N.D. Enhanced Mitigation (MAOP), the following vulnerabilities exist to publicly-owned buildings and property from the following geologic hazards:

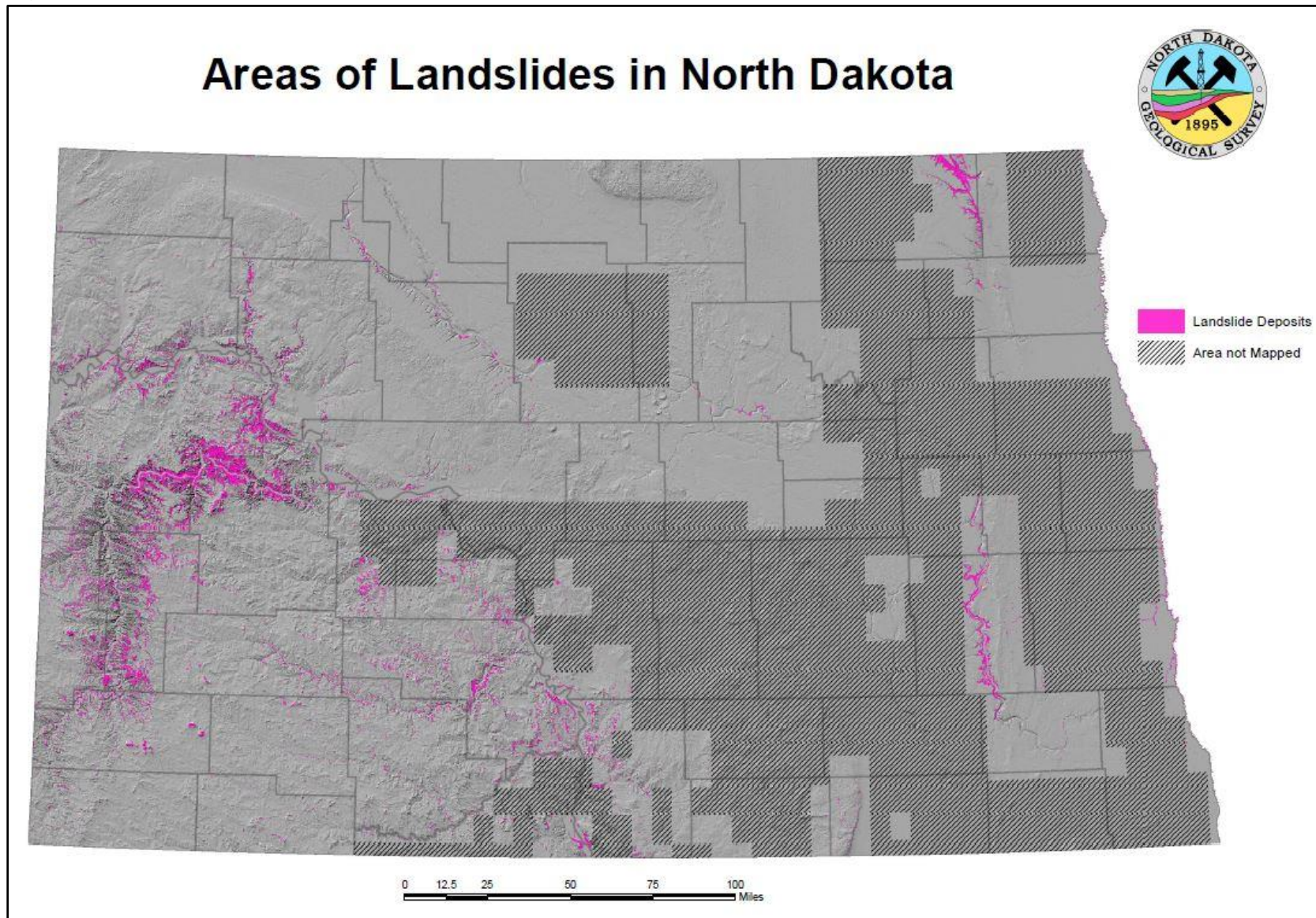
- **Abandoned Mine Lands (AMLs).** According to the PSC, no known publicly owned buildings or infrastructure are believed to be affected.
- **Environmental Minerals (erionite, uranium, arsenic).** This type of geologic hazard is localized to its area of geologic origination. They are not expansive or extensive and not found in Foster County at high concentrations based on available information. Therefore, publicly-owned buildings and property in Foster County are not vulnerable.
- **Environmental Minerals (radon).** Radon poses a risk to all publicly-owned buildings and infrastructure as all North Dakota counties are in the EPA Zone I. Radon could cause economic impacts or impacts to the functioning of government services through prolonged exposure to employees that may develop lung cancer.
- **Expansive/Unstable Soils.** Most structures remain unaffected by known impacts from expansive/unstable soils. However, if damage were to occur, the continuity of publicly-owned buildings and property could be disrupted.
- **Landslides.** Most structures remain unaffected by known impacts from landslides. However, if damage were to occur, the continuity of publicly owned buildings and property could be disrupted.
- **Meteorite Falls.** No known vulnerability to publicly-owned buildings and property.
- **Volcanic Hazards.** No known vulnerability to publicly-owned buildings and property.

Figure 4.8.1 – 2015 Earthquakes in North Dakota



Source(s): 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP); N.D. Geological Survey

Figure 4.8.2 – 2021 Landslides in North Dakota



Source(s): N.D. Geological Survey

Table 4.8.3 – Foster County Geologic Hazard Risk Assessment

Impact	<ul style="list-style-type: none"> Blocked Roads & Delayed Emergency Response Business & Government Interruptions Infrastructure Degradation Loss of Power/Electricity Outage Soil Degradation/Erosion 	<ul style="list-style-type: none"> Short-term or prolonged loss of service of transportation, communication, or energy infrastructure. Structures could become uninhabitable or unusable.
Frequency	<ul style="list-style-type: none"> DR-1279 from March 1, 1999, to July 19, 1999, and impacted 42 counties and four reservations. Over \$100 million in disaster assistance was provided. Foster County was included in this disaster declaration. 	<ul style="list-style-type: none"> January 1, 2014, and May 21, 2021, there were approximately 41 positive tests for radon in residential homes in Foster County.
Likelihood	<p><u>More likely</u></p> <ul style="list-style-type: none"> All North Dakota counties are in EPA Radon Zone 1 Drought and periods of heavy precipitation exacerbate expansive/unstable soils Presence of James River Valley Hydrologic Corridor 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> Abandoned mine reclamation projects by the N.D. Public Service Commission No AMLs in Foster County
Vulnerability	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> All North Dakota counties are in EPA Radon Zone 1 Drought and periods of heavy precipitation exacerbate expansive/unstable soils Presence of James River Valley Hydrologic Corridor Foster County not entirely mapped for landslide susceptibility by the N.D. Geological Survey 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> Building codes and zoning Landslide mapping by N.D. Geological Survey Abandoned mine reclamation projects by the N.D. Public Service Commission No AMLs in Foster County
Capability	<ul style="list-style-type: none"> The federal reclamation fee on coal that has been mined in the United States since the 1970s funds the N.D. Public Service Commission abandoned mine reclamation projects. The landslide mapping done by the N.D. Geological Survey identifies the location and extent/magnitude of existing landslides and provides context to direct future development. 	

Vulnerabilities of Critical Facilities and Infrastructure

Like publicly-owned buildings and property, critical facilities and infrastructure could be impacted by geologic hazards. The primary threats to critical facilities and infrastructure from geologic hazards are to county, city and township road systems, and transportation, communication, and energy infrastructure. Electrical grid facilities and transportation infrastructure are the most likely to be impacted if a geologic hazard event occurred. The delivery of goods and services could be disrupted if damage occurred to transportation infrastructure. Medical care facilities and emergency response capabilities would be impacted by power outages (whether prolonged or brief) occurring from geologic hazards. A summary of publicly-owned buildings is provided in Chapter 3, Profile and Inventory.

- **Abandoned Mine Lands (AMLs).** According to the PSC, No known publicly owned buildings or infrastructure are believed to be affected.
- **Environmental Minerals (erionite, uranium, arsenic).** Critical facilities and infrastructure are not at risk to Environmental Minerals.
- **Environmental Minerals (radon).** Radon poses a risk to all publicly-owned buildings and infrastructure as all North Dakota counties are in the EPA Zone I. Radon could cause economic impacts or impacts to the functioning of government services through prolonged exposure to employees that may develop lung cancer.
- **Expansive/Unstable Soils.** Most critical facilities remain unaffected by known impacts from expansive/unstable soils. However, if damage were to occur, the services provided by the impacted critical facility or infrastructure could be disrupted resulting in either temporary or prolonged shortages or outages.
- **Landslides.** Most critical facilities remain unaffected by known impacts from landslides. However, if damage were to occur, the services provided by the impacted critical facility or infrastructure could be disrupted resulting in either temporary or prolonged shortages or outages.
- **Meteorite Falls.** No known vulnerability to critical facilities and infrastructure.
- **Volcanic Hazards.** No known vulnerability to critical facilities and infrastructure.

Vulnerabilities to New and Future Development

New development would largely avoid physical impact from geologic hazards and are not vulnerable if located away from AMLs or area susceptible to expansive/unstable soils or landslides. However, incorporated jurisdictions lacking zoning and building codes and/or enforcement can be more vulnerable to geologic hazards as this oversight in development is lacking.

- **Abandoned Mine Lands (AMLs).** No vulnerability to new and future development in Foster County.
- **Environmental Minerals (erionite, uranium, arsenic).** No vulnerability to new and future development in Foster County.

- **Environmental Minerals (radon).** New and future development will be vulnerable to Radon as all counties in North Dakota are in the EPA Zone I.
- **Expansive/Unstable Soils.** New and future development should be directed to areas not prone or susceptible to expansive/unstable soils ensure vulnerabilities are reduced and/or eliminated.
- **Landslides.** New and future development should be directed to areas not prone or susceptible to landslides to ensure vulnerabilities are reduced and/or eliminated.
- **Meteorite Falls.** No known vulnerability to publicly-owned buildings and property.
- **Volcanic Hazards.** No known vulnerability to publicly-owned buildings and property.

Data Limitations and Other Key Documents

The N.D. Geological Survey's landslide mapping identifies areas that have failed, which can be suggestive of an increased likelihood of future events. However, the landslide mapping completed-to-date is not predictive.

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Foster County Commercial Animal Feed Operation Ordinance
- Foster County Comprehensive Plan
- Foster County Local Emergency Operations Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Geologic Hazard Annex
- North Dakota Geological Survey 1:24,000 Landslide Area Map Series
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.9 Hazardous Material Release

Characteristics

Hazardous materials are any substance in any quantity or form that may pose an unreasonable risk to the safety, health, environment, and property of citizens. The term “hazardous material” covers a wide array of products, from relatively innocuous ones such as hair spray in aerosol dispensers and wash preservatives such as creosote to highly toxic or poisonous material such as polychlorinated biphenyl (PCB’s) and phosgene gas. The potential severity of hazards of these materials is varied but the primary reason for their designation is their risk to public safety. The Federal Motor Carrier Safety Administration has nine categories of hazardous materials that are:

- Explosives (Class 1)
- Gases (Class 2)
- Flammable and combustible liquids (Class 3)
- Flammable solids, spontaneously combustible, and dangerous when wet (Class 4)
- Oxidizing substances and organic peroxides (Class 5)
- Toxic/poisonous substances poison inhalation (Class 6)
- Radioactive materials (Class 7)
- Corrosive substances (Class 8)
- Miscellaneous hazardous materials/products, substances, or organisms (Class 9)

Hazardous material incidents can be categorized into two distinct groups – incidents of a transportation nature and those that occur at a stationary or fixed facility (Tier II).

Seasonal Pattern	None
Duration	Minutes/hours/days/weeks
Speed of Onset	No warning
Location	Along major transportation routes: Tier II and agricultural and/or industrial storage sites, pipelines, railroads and roads: U.S. Highway 52/281, and N.D. Highways 9, 20, 200, and local/township roads

For more information regarding hazardous material release please reference **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

<https://www.des.nd.gov/planning>

History

Information on the history of hazardous material release in Foster County was provided by the Carrington Fire Department, the N.D. Dept. of Health, Foster County Emergency Management, and the National Pipeline Mapping System. Table 4.9.2 summarizes the history of hazardous material release in Foster County from the N.D. Dept. of Health. A detailed hazard history for Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment.

Carrington Fire Department

The following hazardous material releases have occurred since 2017.

- **08/31/2017.** Fuel spill at Caseys General Store diked all run-off sewers and on standby until local contractor could provide sand to make the spill inert.
- **10/16/2017.** Called to investigate anhydrous smell at the Arrowood Fertilizer Plant, Fertilizer Plant had a maintenance blow down earlier in the day.
- **05/06/2018.** Called to Arrowood Coop Fertilizer plant. Once on scene found a valve leaking and assisted Plant Maintenance in close the valve.
- **07/07/2018.** Called to Anhydrous Leak at 74 Ave S.E and 1st S S.E. Anhydrous tank farm had four tanks with valves left open. We closed valves and cordoned area off until Anhydrous dissipated.
- **10/17/2018.** Called to 311 9 Ave N, contractor hit a buried Natural Gas line, MDU was on site right before Fire and plugged leak.
- **12/11/2018.** Called to Casey's General Store to investigate natural gas smell. Area that the employee state the smell coming from had only electric appliances. We check the meter assembly and furnace and could not detect any trace of gas. MDU was notified and the PD remained on site until they arrived.
- **01/26/2019.** Called to the neighborhood of 5th Street and 5th Ave South for a natural gas smell. Found the meter assembly leaking at 525 5th Ave South. Advised the residents that the gas would be shut off until MDU could make repairs. MDU was notified and responded.
- **03/02/2019.** Called to Train Derailment around 90 70th Ave N.E. CPR train had a 27-car complete derailment/damaged with 3 leaking cars (2 anhydrous, 1 propane) (8) more cars were derailed but not damaged. Incident lasted from 3-2-2019 to 4-1-2019 (See Attached report).
- **03/06/2019.** Called to natural Gas Leak at 115 15th Ave N gas regulator was found leaking, feed valve was shut off and MDU notified. Stayed on scene until MDU arrived.
- **06/13/2019.** Called to a natural Gas Line strike at 1239 2nd St N. pinched off gas line and held scene until MDU was on scene.
- **07/02/2019.** Called to a natural gas release at 1146 3rd St N. Gas line could not be shut off. Evacuated house and held scene until MDU arrived.
- **10/16/2019.** Called to Westside Trailer Court 19th Ave S. PD reported a strange smell. We scanned the area with our 4 gas meter and could not locate any leaks. On meeting with MDU and the Police Chief we caught a whiff of the odor and found a gear oil spill. Owner of the property stated he would clean it up.

- **12/19/2019.** Called the Cobblestone Inn for a Gas Leak. Investigation found the water heater was malfunctioning Cobblestone Maintenance and MDU were notified and gas was turned off. All gas meter levels were unremarkable so scene was turned back to the site manager.
- **02/27/2020.** Called to Casey's General Store for fuel spill. Diked off all runoff sewers and provide coverage and traffic control until a local contractor could provide sand to make the spill inert.
- **04/12/2020.** Called to 247 6th St N for gas smell. Building was not service by gas and no odor or gas leak could be located. Building is about 6 blocks from the city lagoon. Allowed residence back in the building and returned to base.
- **04/25/2020.** Called to Train derailment on the CP Rail Tracks from 11th Ave to 5th Ave. CR Rail track crew informed that there was 30 cars derailed but none were pressurized or carrying hazardous material. CP Rail Carrington Fire and Carrington Public Works set up a safe zone from 5th Ave to 11th Ave 5th St N to 8th St N. Only responding equipment and crew we allowed inside the zone. We helped with traffic control and resource management. (See Attached report).
- **11/13/2020.** Called to 20 11th Ave alley behind Armory. Natural Gas Line strike. Provided coverage for repair crew.
- **12/08/2020.** Called to 74th Ave Bordulac for a Propane Tank leak. 1000-gallon propane tank had to be dropped and broke control assembly. It was damaged in a way that it could not be closed so we cordoned off the area and provided coverage until the tank was empty.
- **03/08/2021.** Called to 828 3rd St S for natural gas leak. Detected gas smell around the home shut off gas to home and notified MDU.

N.D. Dept. of Health

- Per table 4.9.1, a total of 13 releases/spills were reported in Foster County from 1975 to 2020 discharging a total of 823 gallons/35,535 pounds of hazardous materials.

Foster County Emergency Management

- **March 3, 2019.** A Canadian Pacific train derailed east of the city of Carrington around 8 a.m. Approximately 35 cars derailed with some containing anhydrous ammonia and propane. A small amount of anhydrous was released. Local firefighters, law enforcement, and emergency medical technicians responded and were on the scene throughout cleanup. CP Railway said the line was reopened to rail traffic on Monday at 8 a.m. One family was evacuated and was cleared to return to their home on Monday.

National Pipeline Mapping System

- The National Pipeline Mapping System website provides mapping services to illustrate where pipeline infrastructure geographically traverses political subdivisions. As shown in Figure 4.9.1, there have been no incidents involving pipelines in Foster County.

Table 4.9.1 – 1975 to 2020 Foster County Hazardous Material Release History Summary

Incident ID	Date Reported	Date of Incident	County	TwnRngSec	Latitude	Longitude	Contaminant	Volume	Units	Contained
EIR110	12/21/1989	12/21/1989	Foster	14606619	47.45021	-99.12788	Diesel Fuel	40	gallons	
EIR91	2/2/1990	2/18/1990	Foster	14606619	47.45021	-99.12788	Diesel Fuel	30	gallons	
EIR216	10/11/1994	10/10/1994	Foster	14606618	47.46469	-99.12784	Diesel Fuel	100	gallons	
EIR219	11/16/1994	11/15/1994	Foster	14606617	47.46456	-99.10657	Transformer Oil	10	gallons	
EIR247	8/31/1995	8/30/1995	Foster	14506433	47.33394	-98.82953	Ethylene glycol	500	gallons	
EIR518	5/2/2002	5/2/2002	Foster	14706712	47.56612	-99.14894	Diesel Fuel	40	gallons	
EIR545	7/1/2002	7/1/2002	Foster	14506509	47.39191	-98.95792	Hydraulic Oil	10	gallons	
EIR761	5/2/2005	4/30/2005	Foster	14606619	47.45021	-99.12788	Triflurex HFP (Trifluralin)	8	gallons	
EIR1514	9/2/2011	9/1/2011	Foster	14606815	47.46508	-99.31931	Diesel	25	gallons	
EIR1704	6/12/2012	6/5/2012	Foster	14706607	47.56612	-99.12771	Pre-emergent weed killer	20	gallons	
EIR1900	4/4/2013	4/3/2013	Foster	14606619	47.45021	-99.12788	Hydraulic Oil	30	gallons	
EIR3663	2/19/2015	2/17/2015	Foster	14506621	47.36317	-99.0767	Urea Ammonium Nitrate Solution, 28-0-0,	35,535	pounds	Yes
EIR5502	8/31/2017	8/31/2017	Foster	14606618	47.45853	-99.11831	Diesel Fuel - 1993	10	gallons	Yes
TOTAL - Gallons								823.00		

Source(s): N.D. Dept. of Health

Probability

The probability of a hazard or threat is how likely it is it will happen. Per Table 4.9.1, the probability of a hazardous material release is one incident every three and-a-half years based on 13 occurrences between 1975 and 2020. Meeting participants also indicated the probability of a hazardous material release highly likely, meaning that there is a 100 percent probability in the next year of an occurrence.

The following are key points regarding hazardous material release probability in Foster County:

- **Airports.** Hazardous materials are not transported via plane to and from Foster County using the Carrington Municipal Airport and private landing strips. There are no reported incidents of a plane crash carrying hazardous materials in Foster County.
- **Fixed Facilities (Tier II and Extremely Hazardous Substance).**

Tier II. Tier II refers to facilities covered by the Emergency Planning and Community Right-to-Know Act (EPCRA). These facilities are required to maintain a material safety data sheet and submit an inventory of chemicals used to their Local Emergency Plan Update Committee (LEPC), the state emergency response commission and local fire departments each year. **Per the 2018 N.D. Enhanced Mitigation MAOP, Foster County has 24 Tier II Sites.**

A lot of anhydrous operations have closed in Foster County in the last five years due to new federal requirements and the business no longer being cost-effective.

- **Pipelines.** According to the 2018 N.D. Enhanced Mitigation MAOP, there are 49.49 miles of gas transmission pipelines and 53.03 miles of hazardous liquid pipelines traversing Foster County comprising 1.42 percent of the total in the state. The pipelines are Alliance, Kinder-Morgan and MDU.

Figures 4.9.1, 4.9.2, and 4.9.3 illustrate pipelines in Foster County, crude oil pipelines in the state of North Dakota and Foster County, and natural gas pipelines in the state of North Dakota and Foster County, respectively.

- **Rail.** Burlington Northern Santa Fe (BNSF) Railway, Canadian Pacific (CP) Railway, and Red River Valley & Western (RRV&W) operate railroad infrastructure through Foster County.
- **Road.** It is unknown if the reported incidents in Table 4.9.1 were the result of a transportation accident or a leak from a storage site. The N.D. Dept. of Health provided the data but did not specify the cause of each release. However, according to Foster County Emergency Management and meeting participants, releases/spills do occur from road transportation incidents. Interstate 94, U.S. Highway 52/281 and N.D. Highways 9, 20, and 200 are highways where large quantities of hazardous materials are transported.

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount and/or number of damages or losses either actualized in a community or estimated based on known assets and levels of risk. The extent/magnitude of a hazardous material release can vary from minimal in localized incidents to catastrophic in situations of explosions or high wind. Releases when high winds are present may carry chemicals and material great distances and impact many people.

- Per Table 4.9.1, the largest reported spill/release was 35,535 pounds of urea ammonium nitrate solution of diesel fuel on February 17, 2015, followed by 500 gallons of ethylene glycol August 30, 1995. Planning for the extent/magnitude of hazardous material releases is difficult to determine as reporting history lacks the cause for the leak/spill in most cases. However, any type of release/spill in rural areas of the county could pose a challenge to smaller emergency services.
- **Per the 2018 N.D. Enhanced Mitigation MAOP, the number of trains carrying 1,000,000 gallons of crude oil (BNSF Railway) reached 172 per year in 2015 and declined to 18 annually by 2018 in Foster County. Similarly, the state plan also indicated that the number of CP Railway trains carrying 1,000,000 gallons of crude oil reached 16 in 2014 and declined to eight by 2018 in Foster County. The state plan also ranked hazardous material release as high for Foster County.**

Profile meeting participants indicated the extent/magnitude or impact of a hazardous material release as catastrophic meaning more than 50 percent of the county, its people and property could be affected.

Risk Assessment

Table 4.9.2 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for hazardous material release. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.9.2 represents the sum of each jurisdiction's impact, frequency, likelihood and vulnerability to a hazard/threat less the jurisdiction's capabilities to respond to the hazard/threat.

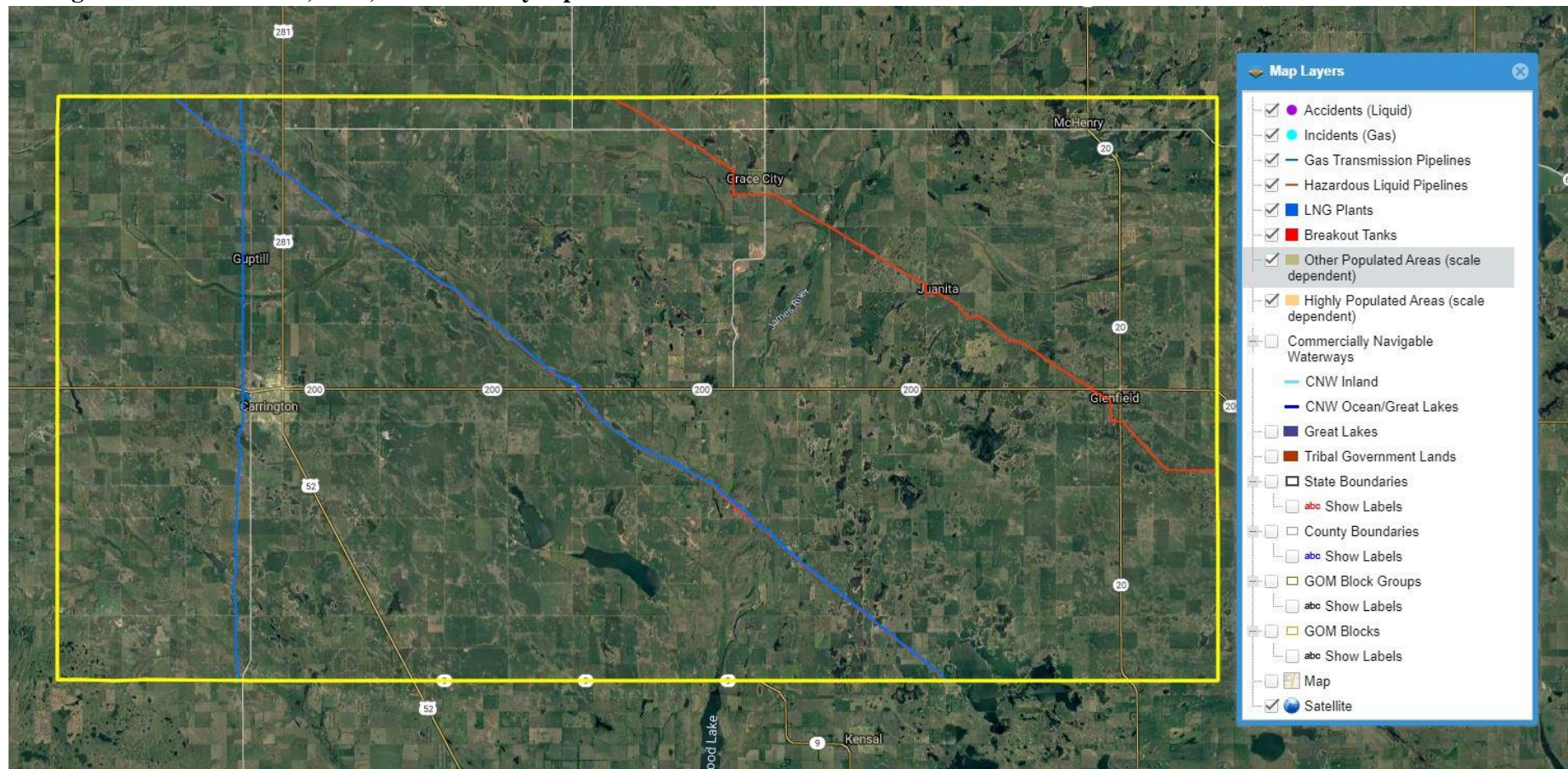
Table 4.9.2 – Foster County Hazardous Material Release Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	2	4	4	2	12
City of Carrington	4	2	4	4	2	12
City of Glenfield	4	2	2	4	1	13
City of Grace City	4	2	2	3	1	11
City of McHenry	4	1	2	2	1	8

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

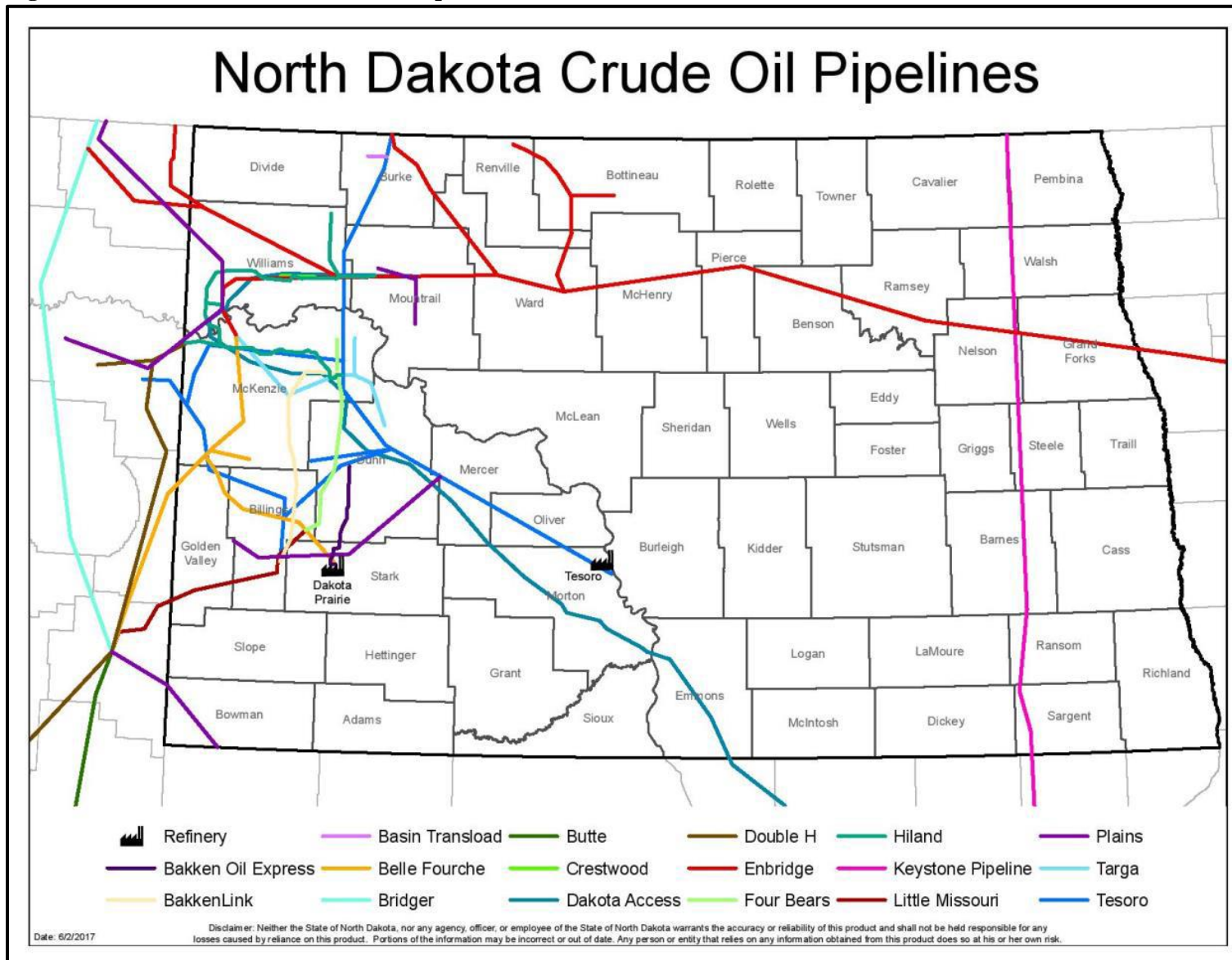
Table 4.9.3 provides information on the specific impact, frequency, likelihood, vulnerability and capability of hazardous material release in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown in Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Figure 4.9.1 – October 1, 2021, Foster County Pipelines



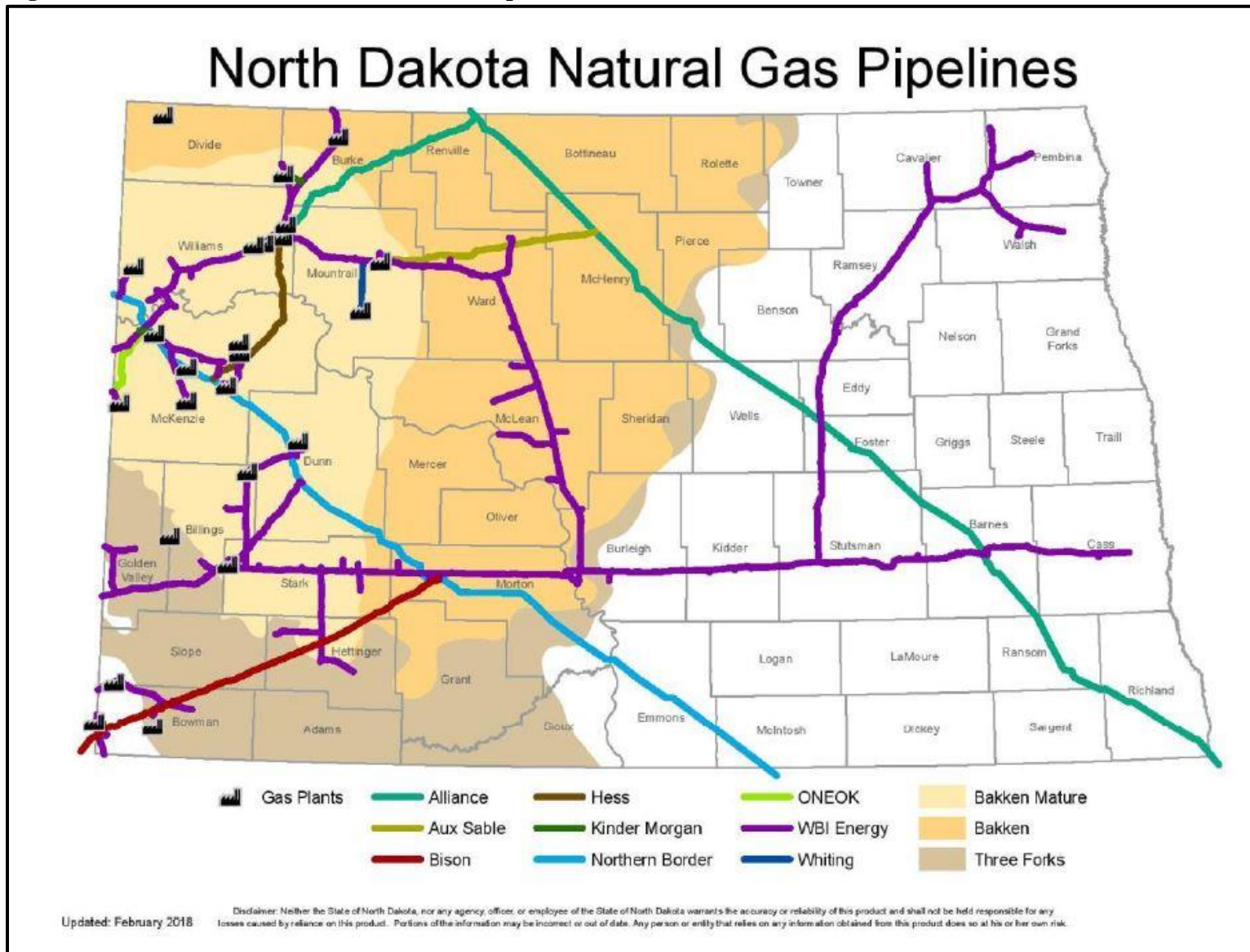
Source(s): National Pipeline Mapping System

Figure 4.9.2 -- North Dakota Crude Oil Pipelines



Source(s): 2018 N.D. Enhanced Mitigation MAOP

Figure 4.9.3 – 2018 North Dakota Natural Gas Pipelines



Source(s): 2018 N.D. Enhanced Mitigation MAOP

Vulnerabilities to Publicly-Owned Buildings and Property

All publicly-owned buildings and property are at risk to hazardous material release as this type of hazard/threat can occur anywhere at any given time for a multitude of reasons. Buildings and property located near or adjacent to transportation modes, such as highways, railroads or airports are more at risk as the hazard/threat typically occurs during transportation of hazardous materials. In the city of Carrington, the Foster County Courthouse, Carrington City Hall, emergency services buildings and public schools are vulnerable to a hazardous material release due to nearby highways, and railroad infrastructure.

If facilities are located near fixed hazardous material sites (Tier II), such as propane or anhydrous ammonia tanks, the risk is increased as the source for the hazard/threat will always be present. If an explosion were to occur, buildings and properties located nearby could experience moderate to severe damage and contamination, depending on the intensity and duration of the release.

A summary of publicly-owned buildings is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Like publicly-owned buildings and property, the vulnerability of the hazard to critical facilities and infrastructure depends largely on location. Critical facilities and infrastructure located near transportation arteries or hazardous material storage sites are most at risk. Depending on the facility or infrastructure, impact could range from moderate to severe. Water infrastructure could become contaminated and threaten public health. Critical facilities such as hospitals could be shut down temporarily or indefinitely. If a release were to occur on a major roadway, emergency services would be limited and response times could be increased.

In addition, the fire hall for smaller incorporated jurisdictions is typically located near the railroad or highway and is vulnerable to hazardous material release.

Vulnerabilities to New and Future Development

The vulnerability of new and future development depends largely on the type and density being proposed and where development is allowed. Residential development should be developed in areas away from hazardous material storage sites or major transportation arteries where chemicals are transported. If new development is already in progress, a development moratorium should be implemented to stop future growth or densities should be limited to reduce the number of people at risk.

Development in the industrial and agricultural sectors maintain demand for hazardous materials and are best situated near storage sites or transportation arteries to limit time spent in transit. Ultimately, hazardous materials should be prohibited from locating in residential or commercial areas, near hospitals, schools, or community gathering spaces. If already existing, plans should be put into place for relocation at a future time when funding permits or an appropriate alternative site becomes available. **This type of development should also be prohibited from being developed or located within 1,000 feet of a public school or facility with vulnerable populations such as daycares and care centers.**

Table 4.9.3 – Foster County Hazardous Material Release Risk Assessment

Impact	<ul style="list-style-type: none"> • Business Interruptions/Loss of Economy • Explosion • Environmental Degradation • Fuel Outage/Shortage • Human/Injury Death • Increased Public Safety Runs 	<ul style="list-style-type: none"> • Loss of Critical Facilities and Infrastructure • Loss/Overcrowded Medical Facilities Loss of Transportation Systems/Accessibility - Blocking of roads when emergency services response to incidents • Leaking fuel tanks contaminate local waterways and potable water supplies (individual wells) • School Closure
Frequency	<ul style="list-style-type: none"> • 13 releases/spills were reported in Foster County between 1975 and 2020 resulting in one incident every three and-a-half years. • March 3, 2019, train derailment released anhydrous ammonia 	<ul style="list-style-type: none"> • 35,535 pounds of urea ammonium nitrate solution of diesel fuel on February 17, 2015. • 500 gallons of ethylene glycol August 30, 1995.
Likelihood	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Natural gas lines traversing the county – See Figure 4.9.3 • Presence of U.S. Highways 52/281, and highways • Presence of railroad infrastructure and airports • Agriculture economy with heavy use of chemicals • Foster County has 24 Tier II Sites. • Shuttering of DAPL would result in increase of oil traffic on railroad infrastructure. Tier II reporting does not apply. 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Tier II reporting and regulations (fixed facilities only) • Decrease in the frequency of oil trains
Vulnerability	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Natural gas lines traversing the county – See Figure 4.9.3 • Presence of U.S. Highways 52/281, and highways • Presence of railroad infrastructure and airports • Agriculture economy with heavy use of chemicals • Foster County has 24 Tier II Sites. • Shuttering of DAPL would result in increase of oil traffic on railroad infrastructure. Tier II reporting does not apply. • One ag-based chemical business at the airport in Carrington 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Pipelines have SCADA systems • Railroads have emergency response personnel/equipment • Decrease in frequency of oil trains • Tier II reporting and regulations • Ordinances regulating development/placement of HAZMAT • Fire departments have frequent HAZMAT training • Used to be two ag-based chemical businesses at the airport in Carrington – now only one. • NDDDES has HAZConnect
Capability	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address hazardous material release. 	

Data Limitations

The difficulty in understanding a hazardous material release is the lack of complete data reported on past releases. If any of the following information – location, time of day, wind speed/direction, temperature, humidity, method of release (transportation or facility failure), the amount of release and what material(s) are involved – is not reported, the ability to understand the true impact of the hazard/threat and develop mitigation strategies is limited. With numerous sources for potential release, whether from the agriculture sector, oil and gas sector, commercial and residential entities, or a combination from another hazard/threat such as a transportation accident, understanding how releases occur and identifying ways to mitigate this hazard proves impractical. Developing an inventory of hazardous materials from agriculture operations on the location and type of hazardous material being used, and what mode is being utilized for transportation, would assist in understanding the hazard.

Other Key Documents

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Foster County Comprehensive Plan
- Foster County Commercial Animal Feed Operation Ordinance
- Foster County Evacuation and Shelter Plan
- Foster County Local Emergency Operations Plan
- Foster County Shelter and Mass Care Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, HAZMAT Annex
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.10 Infectious Disease

Including animal, human, and plant diseases.

Characteristics

Infectious disease is an illness that is caused by an infectious agent, such as bacteria, virus, fungi or parasites and/or toxic microorganisms and is transmittable from an infected animal, human or plant to another animal, human or plant.

Seasonal Pattern	<u>Animal.</u> Depends on the organism and current season.
	<u>Human.</u> Depends on the organism and current season.
	<u>Plant.</u> More susceptible in the summer as they are dormant in the winter, and year-round for plants grown indoors such as greenhouses.
Duration	Hours/Days/Weeks/Months/Years
Speed of Onset	Hours to weeks (12 hours for most diseases)
Location	County-wide across all jurisdictions (incorporated and/or unincorporated)

For more information regarding infectious disease please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

<https://www.des.nd.gov/planning>

History

Information on infectious disease was obtained from the U.S. Dept. of Agriculture, Farm Services Agency (FSA); N.D. Dept of Health; U.S. Dept. of Agriculture, Risk Management Agency (RMA); Foster County Public Health; and NDSU Extension/Foster County. The history of infectious disease for animals, humans and plants is summarized for Foster County in the following section. A detailed hazard history for Foster County can be found on a disc located at the beginning of Chapter 4.

Animal – Livestock. According to the Farm Services Agency (FSA), losses for livestock can be tracked by analyzing payments made under the Livestock Indemnity Program (LIP). However, the cause of the loss is not recorded. The FSA stated that disease is a likely contributor to losses occurring under LIP. Between 2013 and 2019, the following was paid to cover animal losses in Foster County:

- 2013: \$25,346.00
- 2014: \$5,538.00
- 2015: \$3,857.00
- 2016: \$15,145.00
- 2017: \$7,897.00
- 2018: \$4,392.00
- 2019: \$21,699.00

Animal - Rabies. According to the N.D. Dept. of Health, Foster County has experienced six cases of rabies in animals between 2006 and 2020. Table 4.10.1 illustrates the history of rabies in Foster County.

- Rabies was most prevalent in 2012 with four cases – one in a horse and three in skunks. One case was also reported in a skunk in 2008 and 2011.

Table 4.10.1 – 2006 to 2020 Foster County Rabies History

Animal	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	TOTAL
Bat																0
Cat																0
Cow																0
Dog																0
Goat																0
Horse							1									1
Pig																0
Raccoon																0
Skunk			1			1	3									5
Sheep																0
TOTAL	0	0	1	0	0	1	4	0	0	0	0	0	0	0	0	6

Source: N.D. Dept. of Health

Human. A history of infectious disease in humans is shown in Tables 4.10.2 and 4.10.3 in Foster County. Table 4.10.2 shows the history of influenza by season, which defined as a primarily between the months of August 1 to July 31 of any given year from 2010 to 2020. Table 4.10.3 shows the history of infectious diseases in Foster County between 2016 and 2020.

- Between 2010 and 2020, Foster County recorded an average of 23 cases of influenza on annually. The 2019/2020 flu season had the highest number of reported cases at 83 followed by the 2018/2019 flu season where 54 cases were reported. The prevalence of influenza was so high that the public school considered canceled the annual Christmas program in 2019.

Table 4.10.2 – 2010 to 2020 Foster County Influenza History

Infectious Disease	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Influenza	5	5	12	5	12	1	33	24	54	83

Note: Each seasonal total includes cases recorded between August 1 to July 31 of any given year.

Source: N.D. Dept. of Health

- Aside from influenza, Foster County recorded 41 infectious disease cases between 2016 and 2020, or roughly eight cases per year.
- Between 2016 and 2020, Foster County recorded 17 cases of Chlamydia, eight cases of Hepatitis C-Chronic, six cases of Campylobacteriosis representing 41.5 percent, 19.5 percent, 14.6 percent of reported infectious diseases, respectively.
- In 2014, a case of hantavirus was reported in Foster County and resulted in a fatality.

Table 4.10.3 – 2016 to 2020 Foster County Infectious Disease History in Humans

Infectious Disease	2016	2017	2017	2019	2020	Total By Disease
Campylobacteriosis	0	2	2	1	1	6
Chlamydia	3	4	4	4	2	17
E.coli, shiga-toxin producing	1	0	0	0	0	1
Gonorrhea	0	0	0	2	1	3
Hepatitis C, Chronic	1	2	2	2	1	8
Streptococcus pneumoniae, invasive	0	1	1	0	1	3
TB-Active	0	0	0	0	1	1
Salmonellosis	0	0	0	1	0	1
West Nile Infection	1	0	0	0	0	1
TOTAL	6	9	9	10	7	41

Source: Foster County Public Health

Humans – COVID-19 Pandemic. Between June 1, 2020, and July 29, 2021, a total of 1,981 unique individuals were tested resulting in 639 positive cases and 19 deaths.

Humans –Tuberculosis. Although not as common as in the past, the disease is still prevalent across North Dakota according to the N.D. Dept. of Health. There was one active case in Foster County in January of 2020.

Plant. Crop loss from infectious disease is tracked by the U.S. Dept. of Agriculture, Risk Management Agency (RMA). The RMA provides data on the crop type affected, damage cause description, determined acres and indemnity amount. The damage description identifies the cause of damage, determines acres, identifies the number of acres lost due to damage, and the indemnity amount identifies the total amount of the loss for the designated peril. **The indemnity amount was not available prior to 2001. Between January 1, 2001, and December 31, 2020, Foster County experienced 53 incidents of crop loss due to infectious disease impacting approximately 69,727.38 acres of crops totaling \$3,694,020.30 in losses.**

The NDSU Extension/Foster County indicated that crop/plant losses occur annually and vary in severity.

Probability

The probability of a hazard or threat is how likely it is it will happen. Jurisdictions with the highest animal and human populations, and crop exposure are at greatest risk of infectious disease occurrences.

Animal. Based on data from the Livestock Indemnity Program (LIP) and the assumption that all losses are disease-related, the probability of losses resulting from infectious disease in animals is \$11,982.00 in annual losses on average. Meeting participants indicated the probability of infectious disease in animals as likely meaning that there is a 50 percent probability in the next year of an occurrence.

Human. Per the infectious disease history for humans in Foster County, the probability of infectious disease is 100 percent. Meeting participants indicated the probability of infectious disease in humans as highly likely, meaning that there is a 100 percent chance in the next year of an occurrence.

Plant. Per the infectious disease history for plants in Foster County, the probability of infectious disease in any given year is approximately 100 percent. Meeting participants indicated the probability of infectious disease in crops as highly likely, meaning that there is a 100 percent chance in the next year of an occurrence.

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount of damage or losses either caused or could occur in a community. Jurisdictions with the highest animal and human populations, and crop exposure are at greatest risk to impacts from infectious disease occurrences.

Animal. With the lack of cause description and total number of animals lost in the data from the FSA, the extent/magnitude of animal loss from infectious disease cannot be determined.

- Meeting participants indicated that with the local rural economy heavily dependent on agriculture, significant animal losses could have a catastrophic impact.
- Figure 4.10.1 illustrates the cattle and calf inventory in North Dakota. Foster County has 28,000 head as of 2018.
- A total of six cases of rabies were reported in Foster County between 2006 and 2020.
- Meeting participants indicated that with the local economy heavily dependent on agriculture, significant animal losses may have a catastrophic impact.

Human. The extent/magnitude of infectious disease for humans can range from low to high, depending on the disease involved, and the specific location of occurrence. If an outbreak occurred in a remote area where there is a shortage of health professionals, the extent/magnitude could be catastrophic. Figure 4.10.2 shows the areas in North Dakota that have a shortage of health professionals. All of Foster County is designated as a Health Professionals Shortage Area (HPSA).

- According to Foster County Public Health, if a pandemic from a new strain of Influenza or Avian Flu occurred in Foster County, the impact could be catastrophic, like the COVID-19 Pandemic. The COVID-19 pandemic resulted in 19 fatalities in Foster County as of October 2021. The total economic losses from the pandemic are still unknown but are estimated to be in the hundreds-of-thousands to millions of dollars in Foster County. Approximately 19.9 percent of Foster County residents contracted the disease as of October 2021.
- Influenza is an infectious disease that is common-place and the extent/magnitude is managed by modern medical advances. However, the jet-age has contributed to faster spread of disease. With the re-emergence of Ebola and the onset of COVID-19, the extent/magnitude for infectious disease in humans has the potential to be catastrophic resulting from modern-day travel.
- Meeting participants indicated that infectious disease in humans can have a catastrophic impact after what was experienced in Foster County due to the COVID-19 Pandemic. The pandemic resulted in a near total shut down of local economic and human activity.

- **The extent/magnitude of infectious disease could be unanticipated in Foster County as unknown vectors are moving north due to climatic change.**

Plant. Per crop loss data from the RMA the following statistics illustrate the extent/magnitude of infectious diseases on crops in Foster County.

- There were 53 incidents of crop loss due to infectious disease between January 1, 2001, and December 31, 2020, resulting approximately two and-a-half occurrences of crop loss annually.
- On average, crop losses from infectious disease impacts 3,486.37 acres per year resulting in an average of \$184,701.02 in crop losses annually.
- Meeting participants indicated that with the local economy heavily dependent on agriculture, significant crop losses may have a catastrophic impact.

Risk Assessment

Table 4.10.4 shows the risk assessment as determined by individual jurisdictions and the Plan Update Committee for infectious disease. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment. The total in Table 4.10.4 represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard less the jurisdiction’s capabilities to respond to the hazard.

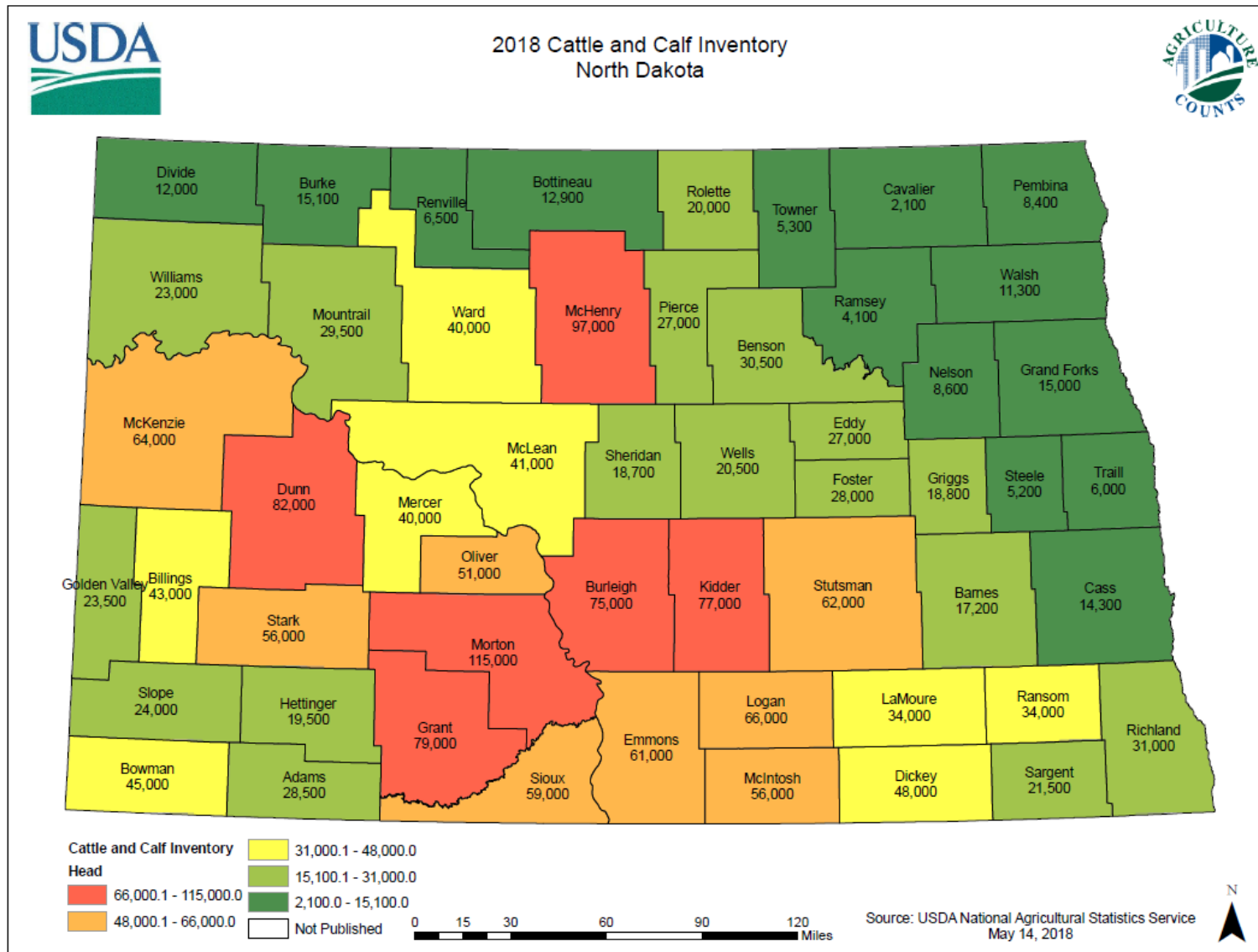
Table 4.10.4 – Foster County Infectious Disease Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County – Human	4	4	4	3	4	11
Foster County – Animal & Plant	4	4	4	4	4	12
City of Carrington	4	4	4	4	3	13
City of Glenfield	4	4	4	4	2	14
City of Grace City	4	4	4	3	1	14
City of McHenry	4	4	4	3	1	14

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

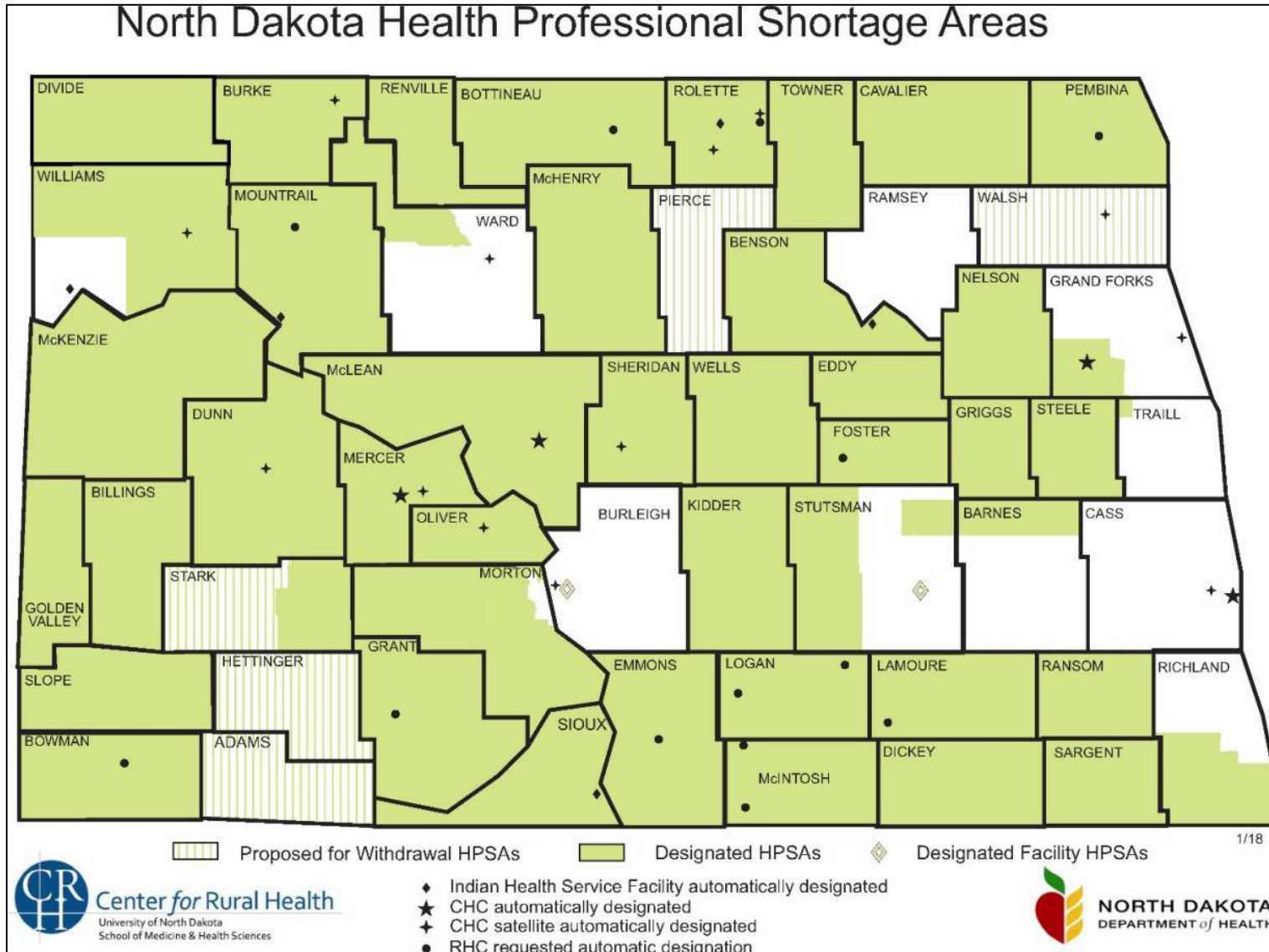
Tables 4.10.5, 4.10.6, and 4.10.7 provide information on the specific impact, frequency, likelihood, vulnerability, and capability of infectious disease in Foster County in animals, humans and plants, respectively. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Figure 4.10.1 – 2018 North Dakota Cattle and Calf Inventory



Source(s): 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP); USDA National Agricultural Statistics Service, 2018

Figure 4.10.2 – North Dakota Health Professional Shortage Areas



Source(s): 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP); Center for Rural Health, University of North Dakota School of Medicine and Health Sciences, 2018

Table 4.10.5 – Foster County Infectious Disease Risk Assessment - Animal

Impact	<ul style="list-style-type: none"> • Disease Outbreak/Mass Infections – (animals only) • Government Interruptions • Labor Shortages • Livestock Loss • Loss of Economy • Loss/Overcrowded Veterinarian Facilities • Loss of Drinking/Potable Water 	<ul style="list-style-type: none"> • Strain on local veterinarian resources • Financial cost to local producers and the public • Lack of awareness of general public resulting from difficulties in communicating through media sources • Distress of local producers from a pandemic • Compression of supply chain can lead to supplies and vaccination shortages • Carcass disposal
Frequency	<ul style="list-style-type: none"> • Animal losses due to infectious disease occur annually • A total of six cases of rabies were reported in Foster County between 2006 and 2017. 	
Likelihood	<p><u>More likely</u></p> <ul style="list-style-type: none"> • 28,000 head of cattle & calf in 2018 in the county • Agriculture economy • Dependent on weather for animals and crops • Transporting of animals across state lines • U.S. Highways 52/281 and N.D. Highway 200 = heavy livestock traffic • Overuse of antibiotics leading to disease tolerance 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public and private facilities, producers, etc. • Impact is highly dependent on the type of disease and its effect on the population of livestock
Vulnerability	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • 28,000 head of cattle & calf in 2018 in the county • Agriculture economy • Dependent on weather for animals and crops • Transporting of animals across state lines • U.S. Highways 52/281 and N.D. Highway 200 = heavy livestock traffic • Overuse of antibiotics leading to disease tolerance • Shortage of veterinary service • Cross contamination between producers 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public and private facilities, producers, etc. • Veterinarian clinics in the county help address the need for services, but does not meet overall demand
Capability	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address infectious disease. 	

Table 4.10.6 – Foster County Infectious Disease Risk Assessment - Human

<p>Impact</p>	<ul style="list-style-type: none"> • Human Injury/Death • Loss of Economy (crop, livestock, manufacturing, etc.) • Loss/Overcrowded Medical Facilities • Mass Casualties/Fatalities • Loss of Potable Water • School Closure • Compression of supply chain can lead to shortages of supplies and vaccinations • Disruptions in essential services and critical infrastructure operations due to lack of alternative staff 	<ul style="list-style-type: none"> • Financial cost to public health resources • Infrastructure degradation resulting from labor shortages • Mass casualties can overwhelm funeral homes and hospital’s morgue has limited space • Labor shortages in medical facilities • Loss of capability to transfer patients to other facilities with higher levels of care • Psychological impacts to the public and medical community – medical staff leaving the profession • Loss confidence in local government • COVID-19 resulted in 19 deaths as of October 2021
<p>Frequency</p>	<ul style="list-style-type: none"> • Annual occurrences of death, primarily among elderly • Occurrence of 1 in 3 for people annually • COVID-19 resulted in 19 fatalities • Approximately 19.9 percent of all county residents had confirmed cases of COVID-19 • 41 infectious disease cases between 2016 and 2020 in Foster County, or roughly eight cases per year • In 2014, a case of hantavirus was reported in Foster County and resulted in a fatality. 	<ul style="list-style-type: none"> • According to public health, the average age of COVID-19 cases are 48 years of age • Between 2016 and 2020, Foster County recorded 17 cases of Chlamydia, eight cases of Hepatitis C-Chronic, six cases of Campylobacteriosis representing 41.5 percent, 19.5 percent, 14.6 percent of reported infectious diseases, respectively.
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Growing elderly population • Public school, daycares, and skilled nursing, assisted living, and group homes • Increasing number of adults avoiding COVID-19 vaccinations for themselves and their children • Small increase in avoidance of vaccinating in general • 41 percent of people in Foster County are classified as obese in 2021 – lack of physical activity • Emergence of the COVID-19 variants 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv promoting wellness and preventative measures – conducted through public health and Foster County • Public health and employment regulations for public and private facilities, producers, etc. • Immunizations & medications • Lower population • Mask-wearing

Table 4.10.6 – Foster County Infectious Disease Risk Assessment – Human – CONTINUED

<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Breakthrough COVID-19 cases in vaccinated individuals • Unvaccinated individuals are 5 times more likely to contract COVID compared to vaccinated individuals and 29 times more likely to be hospitalized • Resistance of the public to mask wearing and following of isolation/quarantine guidelines 	
<p>Vulnerability</p>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Growing elderly population • Increase in mobility and air travel • Shortage of health professionals in Foster County • Shortage of advanced medical equipment – i.e. ventilators, bipap, bypass, dialysis, air and surface-sterilization • Lack of isolation and negative-pressure rooms at the hospital • Unknown vectors moving north from climate change • The prevalence of social media increasing skepticism of disease prevention measures • Public school, daycares, and skilled nursing, assisted living, and group homes • 41 percent of people in Foster County are classified as obese in 2021 – lack of physical activity • N.D. State Legislature voted in 2021 that the State Health Officer and the Governor cannot implement a mask mandate • Emergence of the COVID-19 variants 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv promoting wellness and preventative measures • Public health and employment regulations for public and private facilities, producers, etc. • Immunizations & medications • The population density of the rural parts of Foster County is sparse and the rural setting allows for immediate social distancing • Colder climate limits social interactions • Foster County Public Health • Carrington Ambulance • CHI St. Alexius Health Carrington Medical Center – has a permanent backup generator but needs upgrading • Adequate storage space and refrigeration units for stockpile of medical supplies at public health • Foster County is ranked as having a low social vulnerability • 96 percent of long-term care residents, 93 percent for assisted living tenants, and 60 percent of long-term care staff have received COVID-19 vaccinations in Foster County as of October 2021

Table 4.10.6 – Foster County Infectious Disease Risk Assessment – Human – CONTINUED

Vulnerability	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Breakthrough COVID-19 cases in vaccinated individuals Resistance of the public to mask wearing and following of isolation/quarantine guidelines • Delay of information sharing about disease trends to local public health from state department of health • Delay of information sharing due to local paper only publishing weekly • Lack of local epidemiologist providing specific disease statistics and reporting for Foster County • Lack of indoor drive-through mass vaccinating/testing facility • Hospital needs an upgraded generator for backup power • Lack of backup generator for Foster County Ambulance • Lack of consistent information from state leaders • Lack of sensaphones in backup refrigeration units • Lack of refrigeration storage comprehensively across the county between public health, pharmacies and the hospital • Infectious disease statistics is not always indicative of community spread as not all cases of disease are reported 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • N.D. Dept. of Health is statutorily responsible for disease outbreaks – local public health departments work under this direction by way of an MOU • Regional and state epidemiologists working with local public health to manage disease outbreaks • Regional Public Information Officer (PIO) • Regional Environmental Health Practitioner • Regional Emergency Preparedness and Response Coordinator • Foster County PIO and back up PIO • Foster County has a low Social Vulnerability Index per the CDC as of 2021 • Public health has an MOU with the hospital to transport vaccines if refrigeration units fail at public health • Foster County Public Health staff is 100 percent vaccinated for COVID-19 • CHI-St. Alexius Health Carrington Medical Center staff is 92 percent vaccinated for COVID-19
	Capability	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address infectious disease.

Table 4.10.7 – Foster County Infectious Disease Risk Assessment - Plant

Impact	<ul style="list-style-type: none"> • Crop Loss • Disease Outbreak/Mass Infections (plants only) • Livestock Loss • Loss of Economy • Soil Erosion 	<ul style="list-style-type: none"> • Strain on local, state, and federal governments resources, and private enterprise • Between January 1, 2001, and December 31, 2020, Foster County experienced 53 incidents of crop loss due to infectious disease impacting approximately 69,727.38 acres of crops totaling \$3,694,020.30 in losses.
Frequency	<ul style="list-style-type: none"> • Crop loss due to infectious disease occurs annually 	<ul style="list-style-type: none"> • Between January 1, 2001, and December 31, 2020, Foster County averaged 3,486.37 acres of crops impacted by infectious disease totaling \$184,701.02 in losses.
Likelihood	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Agriculture economy • Dependent on weather for animals and crops 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public and private facilities, producers, etc. • Pesticide Training facilitated by NDSU Extension
Vulnerability	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Agriculture economy • Dependent on weather for animals and crops 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities • Pesticide Training facilitated by NDSU Extension
Capability	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address infectious disease. 	

Vulnerabilities to Publicly-Owned Buildings and Property

Most structures remain unaffected by impacts from infectious disease as only animals, humans and plants are susceptible to the hazard. Buildings can become contaminated and uninhabitable due to secondary impacts from a pandemic – i.e. people sheltering-in-place and inadvertently neglecting property. Also, critical facilities are not always available for vaccinations or testing due to competing community events/uses. An increase in disinfection measures, both staff-time and cost to local budgets, does occur during influenza season and during pandemics, such as COVID-19.

There are almost no physical vulnerabilities to publicly-owned buildings and property from infectious disease in animals and plants.

A summary of publicly-owned buildings is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Since animals, humans and plants are affected by infectious disease, critical facilities and infrastructure are relatively unaffected in structural terms. However, critical facilities such as public health, clinics, hospitals, and veterinarian clinics can become contaminated and/or quickly overwhelmed if an outbreak/pandemic of infectious disease occurs in animals or humans. **The surge to facilities and shortages or outages of medical supplies (personal protective equipment also known as PPE) and staff can limit or stop altogether the functionality of medical and veterinarian facilities and services.** The stress/strain infectious disease can place on the private sector (businesses or individuals) and public sector also impacts the vulnerability to critical facilities and infrastructure due to people sheltering-in-place resulting in shortages of labor.

The ventilation system at CHI-St. Alexius Health Carrington Medical Center can contribute to contamination of the entire building if an infectious patient presents themselves for care at a location in the facility other than the emergency garage door.

Similarly, emergency services can also become stressed in rural areas where populations are dispersed over a large geographic expanse. The vulnerability and exposure to infectious disease is likely to increase due to greater frequency of emerging diseases, increased mobility (primarily jet travel), an aging population, and anti-vaccination trends.

Infrastructure for drinking/potable water could be impacted by infectious disease through contamination, or through quarantine of a large portion of a given population that could delay physical maintenance and/or repair to infrastructure. The age of the drinking/potable water system in the city of Carrington results in numerous water line breaks, which can contribute to higher rates of infectious disease in humans.

Due to presence of the livestock industry in Foster County, veterinary services can also become overwhelmed in the case of an outbreak in farm animals and livestock.

There are almost no physical vulnerabilities to critical facilities and infrastructure from infectious disease in animals and plants.

Vulnerabilities to New and Future Development

New development would largely avoid physical impact from infectious disease and not be vulnerable. While mold may make a building uninhabitable, it is not an infectious disease. However, new structures could be susceptible to deterioration from contamination if structures are not constructed properly. In addition, if drainage in new development is not designed properly or not installed altogether, the standing water could foster vector growth.

There are almost no physical vulnerabilities to new and future development from infectious disease in animals and plants.

Population growth or decline, attributable to new and future development, will either increase or decrease the vulnerability to infectious disease. Similarly, population growth in livestock could increase or decrease the vulnerability to infectious disease.

Data Limitations

Animal

The lack of available animal loss data from the N.D. Dept. of Agriculture results in the inability to track livestock losses from infectious disease. Similarly, the Farm Services Agency (FSA) provided information on payments made through the Livestock Indemnity Program, but the cause of the loss and the number of animals impacted is not available.

Statistics on infectious disease in animals available on the N.D. Dept. of Health website cannot be downloaded and must manually compiled and analyzed. Statistics on rabies and all other diseases are fragmented on the website, being available in separate sections throughout.

Human

Statistics on infectious disease in humans available on the N.D. Dept. of Health website cannot be downloaded and must manually compiled and analyzed. Statistics on influenza and COVID-19 are shown in separate sections on the department's website from all other infectious diseases impacting humans.

The delay of information sharing about disease trends and statistics from the N.D. Dept. of Health to local public health units causes disruption in delivery of services and reduces mitigation capability.

Plant

The U.S. Dept. of Agriculture-Risk Management Agency is not able to provide monetary crop loss information prior to 2001.

Other Key Documents

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)

- Centers for Disease Control Social Vulnerability Index, Foster County, North Dakota
- CHI-St. Alexius Health Carrington Medical Center Disaster Response Plan
- CHI-St. Alexius Health Carrington Medical Center Hazardous Waste Plan
- CHI-St. Alexius Health Carrington Medical Center Incident Command Response Plan
- CHI-St. Alexius Health Carrington Medical Center Loss of Utilities Response Plan
- CHI-St. Alexius Health Carrington Medical Center Mass Vaccination Plan
- Foster County Local Emergency Operations Plan
- Foster County Public Health Continuity of Operations Plan
- Foster County Public Health Mass Vaccination Plan
- Foster County Public Health Pandemic Influenza Response Plan
- Foster County Public Health Point of Dispensing Plan (POD)
- Foster County Public Health Shelter and Mass Evacuation Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Infectious Disease Annex
- North Dakota State Disaster Recovery Plan
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.11 Severe Summer Weather

Including downbursts, extreme heat, hail, high wind, lightning, and tornadoes.

Characteristics

Summer storms are caused by atmospheric temperature imbalances. Thunderstorms develop as warm, moist air rises. These conditions will produce updraft and downdrafts that can reach velocities of 170 mph. Updrafts and downdrafts are the reason for gust fronts, heavy rain (flash severe summer weather), lightning, hail, and high winds. Downburst or straight-line winds can be as deadly as tornadoes. If a thunderstorm continues to intensify, a tornado may develop. A thunderstorm affects a relatively small area when compared to a winter storm. The typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Despite their small size, all thunderstorms are dangerous. Severe summer storms can result in loss of life, injuries, and damage to property and crops.

Seasonal Pattern	March to November
Duration	2 to 6 hours
Speed of Onset	12 to 24 hours warning
Location	Total geographic extent of Foster County

Downbursts: Strong winds can form along the leading edge of a thunderstorm. Downburst winds occur when air is carried into a storm's updraft, cools rapidly, and comes rushing to the ground. These winds are forced horizontally when they reach the ground and can cause significant damage. These types of strong winds can also be referred to as straight-line winds.

Extreme Heat: According to information provided by FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Heat kills by taxing the human body beyond its abilities.

Hail: Hail is frozen precipitation that forms and falls from cumulonimbus clouds. Hail occurs when strong rising currents of air within a storm, called updrafts, carry water droplets to a height where freezing occurs. The ice particles grow, finally becoming too heavy to be supported by the updraft and fall to the ground.

High wind: High wind events occur separately from tornadoes and severe thunderstorms. These winds typically develop with strong pressure gradients and gusty frontal passages. The closer and stronger two systems are, (one high pressure, one low pressure) the stronger the pressure gradient, and therefore, the stronger the winds are.

Lightning: Lightning develops when ice particles in a cloud move around, colliding with other particles. These collisions cause a separation of electrical charges. Positively charged ice particles rise to the top of the cloud and negatively charged ones fall to the middle and lower sections of the cloud. The negative charges at the base of the cloud attract positive charges at the surface of the Earth.

Tornado: A tornado is a violently rotating column of air extending from a thunderstorm to the ground. Most tornadoes develop from supercell thunderstorms. Supercell thunderstorms have a persistent rotating updraft and can form when there is sufficient vertical wind shear in the atmosphere. A funnel cloud is a

rotating column of air extending out of a cloud base, but not yet touching the ground. Once a funnel cloud reaches the ground, it becomes a tornado. Tornadoes can create tremendous damage over a small area.

For more information regarding severe summer weather please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

<https://www.des.nd.gov/planning>

History

Information on the history of severe summer weather in Foster County was obtained from the National Climatic Data Center (NCDC); the National Oceanic and Atmospheric Administration (NOAA); the USDA, Risk Management Agency; and Foster County Emergency Management. A detailed hazard history for Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment.

National Climatic Data Center/National Oceanic and Atmospheric Administration

Table 4.11.1 summarizes the history of severe summer weather in Foster County between January 1, 1950, to December 31, 2020. The following are key points.

- Foster County experienced 193 occurrences of severe summer weather resulting in approximately three storms of significance annually.
- Approximately \$13,846,560.00 in property damage and \$1,580,000.00 in crop damage was reported.
- Two injuries and no fatalities were reported.

Table 4.11.1 – 1950 to 2020 Foster County Severe Summer Weather Hazard History Summary

Severe Summer Weather				
Occurrences	Injuries	Fatalities	Property Damage	Crop Damage
193	2	0	\$13,846,530.00	\$1,580,000.00

Source(s): National Climatic Data Center (NCDC); National Oceanic and Atmospheric Administration (NOAA)

U.S. Dept. of Agriculture, Risk Management Agency

- Crop loss from severe summer weather is tracked by the U.S. Dept. of Agriculture, Risk Management Agency (RMA). The RMA provides data on the crop type affected, damage cause description, determined acres and indemnity amount. The damage description identifies the cause of damage, determines acres identifies the number of acres lost due to damage, and the indemnity amount identifies the total amount of the loss for the designated peril. Cause of Loss categories included in severe summer weather include cold wet weather, excess moisture/precip/rain, hail, heat, hot wind, tornado, and wind/excess wind. **Between January 1, 2001, and December 31,**

2020, Foster County experienced 1,265 incidents of crop loss due to severe summer weather impacting approximately 980,068.80 acres of crops totaling \$110,721,224.45 in losses.

There have been nine disaster declarations and emergencies pertaining to a severe summer weather in Foster County.

Probability

The probability of a hazard or threat is how likely it is it will happen. Profile meeting participants and the Steering Committee indicated the probability of severe summer weather in Foster County is highly likely, meaning that there is a 100 percent probability in the next year of an occurrence.

National Climatic Data Center/National Oceanic and Atmospheric Administration

Per Table 4.11.1, the following statistics on the probability of severe summer weather in Foster County is as follows.

- The probability of severe summer weather is 100 percent based on 193 occurrences between January 1, 1950, and December 31, 2020, or three severe summer weather events of significance annually.
- Foster County experiences approximately \$195,021.55 in property damage and \$22,253.52 in crop damage annually between January 1, 1950, and December 31, 2020.
- Approximately two injuries and no fatalities have been reported between January 1, 1950, and December 31, 2020.

U.S. Dept. of Agriculture, Risk Management Agency

- According to information obtained from the U.S. Dept. of Agriculture, Risk Management Agency (RMA), crop loss due to severe summer weather totals \$5,536,061.22 annually in Foster County between January 1, 2001, and December 31, 2020.

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount and/or number of damages or losses either actualized in a community or estimated based on known assets and levels of risk. The extent/magnitude of the severe summer weather ranges from large tornados and hail causing massive property and crop damage, power outages, and loss of critical facilities and infrastructure to localized flooding and fallen tree branches. Figures 4.11.1 to 4.11.3 illustrate the history of significant hail, tornado, and wind speed occurrences recorded between 1950 and 2018 in Foster County. Profile meeting participants and the Steering Committee indicated the magnitude or impact of severe summer weather as catastrophic meaning as an estimated 50 percent or more of Foster County could be affected.

2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)

- According to the 2018 N.D. Enhanced Mitigation MAOP, FEMA recognizes four wind zones in the United States. Winds speeds can reach up to 160 miles per hour in Zone II and 200 miles per

hour in Zone III. No special wind regions are identified in North Dakota. Foster County is split in half longitudinally between Zones II and III.

National Climatic Data Center (NCDC)

- **July 29, 1972.** An F2 Tornado occurred in the county causing \$25,000 in property damage.
- **August 18, 1994.** A hailstorm impacting the city of Carrington produced hail 2.75 inches in diameter resulting in \$25,000 in property damage and \$30,000 in crop damage. **According to meeting participants, the size of the hail was around a softball. Every single-family home in the city had to be reshingled, in addition to replacement of siding, windows, damage to vehicles, etc. Estimated damages is in the millions of dollars.**
- **June 25, 1999.** A Thunderstorm Wind event produced winds of 87 m.p.h. resulting in \$10,000,000.00 in property damage near unincorporated Melville. **According to meeting participants, the storm resulted in toppling over of steel bins and farm structures, and damage to farm equipment. A large amount of cottonwood trees were destroyed.**
- **July 21, 2014.** A Thunderstorm Wind event produced winds of 91 m.p.h. impacting unincorporated Bordulac resulting in \$2,000,000.00 in property damage and \$1,000,000.00 in crop damage. **According to meeting participants, the storm resulted in toppling over of steel bins and the elevator in Bordulac had extensive damage.**

Risk Assessment

Table 4.11.2 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for severe summer weather. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.11.2 represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

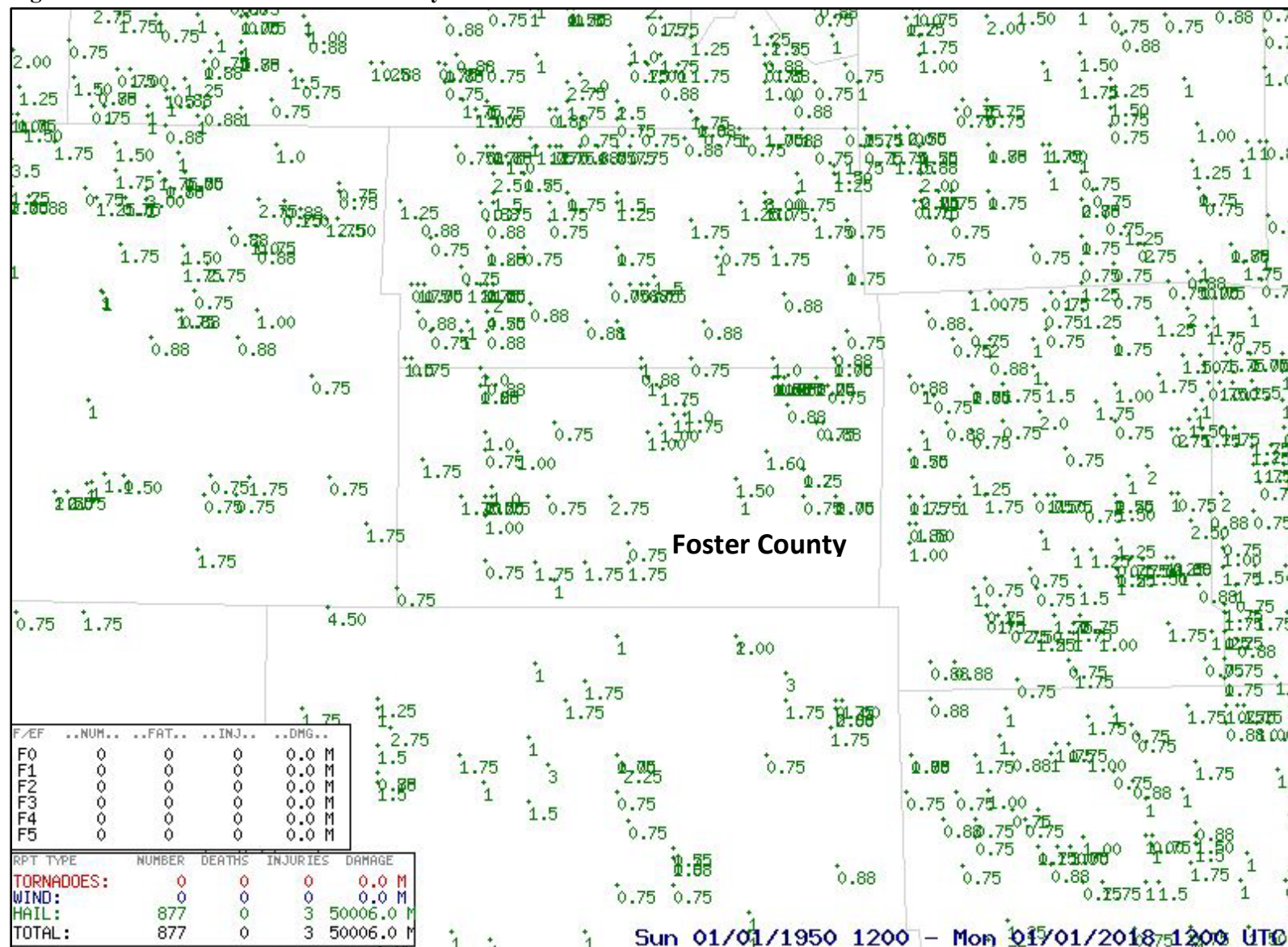
Table 4.11.2 – Foster County Severe Summer Weather Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	4	4	2	3	11
City of Carrington	4	4	4	2	3	11
City of Glenfield	4	4	4	3	1	13
City of Grace City	4	4	4	3	1	13
City of McHenry	4	4	4	3	1	13

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

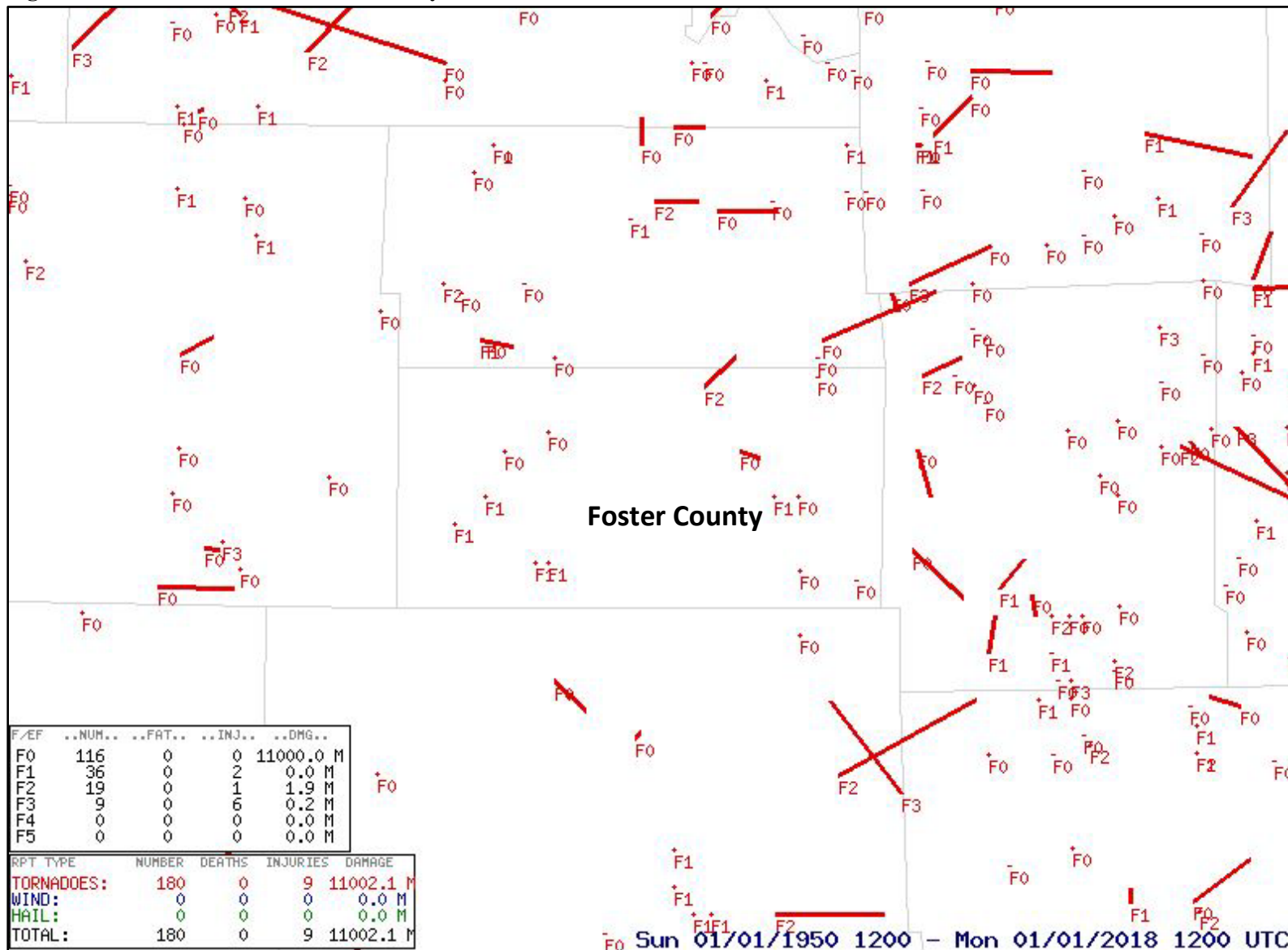
Table 4.11.3 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of severe summer weather in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Figure 4.11.1 – 1950 to 2018 Foster County Recorded Hail Occurrences



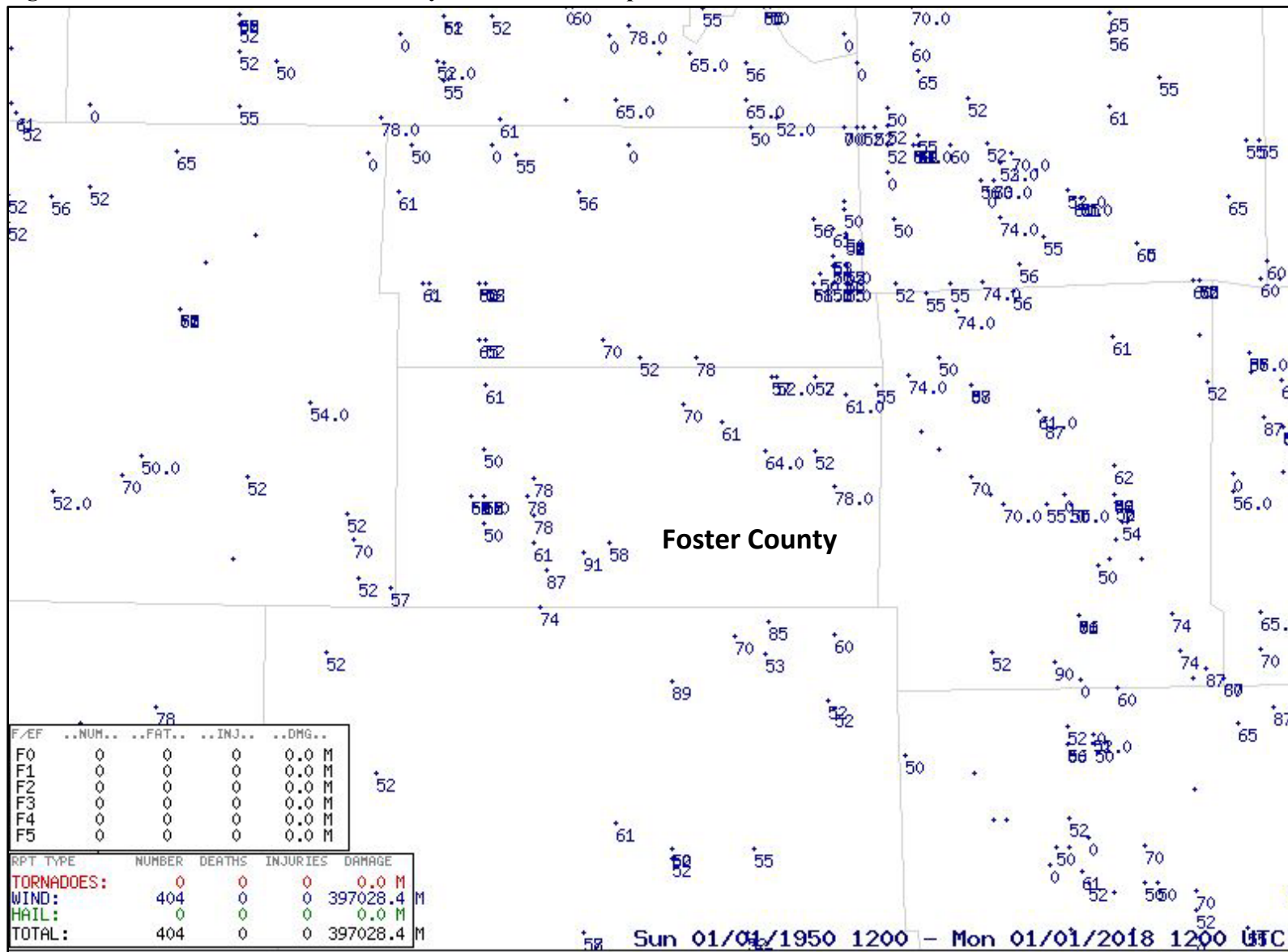
Source(s): National Oceanic and Atmospheric Administration (NOAA), Storm Prediction Center

Figure 4.11.2 – 1950 to 2018 Foster County Recorded Tornado Occurrences



Source(s): National Oceanic and Atmospheric Administration (NOAA), Storm Prediction Center

Figure 4.11.3 – 1950 to 2018 Foster County Recorded Wind Speed Occurrences



Source(s): National Oceanic and Atmospheric Administration (NOAA), Storm Prediction Center

Table 4.11.3 – Foster County Severe Summer Weather Risk Assessment

<p>Impact</p>	<p>Blocked Roads: Dover Dam Road, 4th St. South in Longview Township along the Pipestem Creek, Clarkhart Road in the James River Valley near Arrowwood WPA.</p> <ul style="list-style-type: none"> • Evacuation (Localized) • Human Injury/Death – heat exhaustion or from flying debris • Loss of Livestock • Loss of Crops • Loss of Power/Downed Power Lines • Property/Vehicle Damage – repair of roofing, siding, and drainage systems for homes, windows and paint for cars • Sewer Backup • Shelter-in-place • Strain to emergency services and responders if damage is widespread • Overland flooding in incorporated jurisdictions due to improper drainage in some areas • Unpaved streets in small jurisdictions can become damaged from rainfall and moisture • Direct hit from a tornado would be catastrophic 	<ul style="list-style-type: none"> • \$13,846,530.00 in property damage and \$1,580,000.00 in crop damage between January 1, 1950, and December 31, 2020, according to NCDC. • Two injuries reported between January 1, 1950, and December 31, 2020. • Temporary economic boost due to rebuilding/repairs of homes, businesses and other structures. • June 25, 1999. A Thunderstorm Wind event produced winds of 87 m.p.h. resulting in \$10,000,00.00 in property damage. • July 21, 2014. A Thunderstorm Wind event produced winds of 91 m.p.h. impacting unincorporated Bordulac resulting in \$2,000,000.00 in property damage and \$1,000,000.00 in crop damage
<p>Frequency</p>	<ul style="list-style-type: none"> • Annual occurrences of power loss from storms • Property damage from tornados/straight-line winds in summer 2017 • Windstorms occurring annually • Two or three significant storms producing damage to trees and property annually • July 29, 1972. An F2 Tornado occurred in the county causing \$25,000 in property damage. 	<ul style="list-style-type: none"> • 193 occurrences between January 1, 1950, and December 31, 2020, or three severe summer weather events of significance annually • Foster County experiences \$195,021.55 in property damage and \$22,253.52 in crop damage annually between January 1, 1950, and December 31, 2020. • 4th St. South (the Gross Road) was blocked for 5 months in 2011 due to heavy precipitation. • 4th St. South (the Gross Road) was blocked in 2019 due to heavy precipitation
<p>Likelihood</p>	<ul style="list-style-type: none"> • Climatic patterns will result in numerous annual occurrences of the hazard 	

Table 4.11.3 – Foster County Severe Summer Weather Risk Assessment - Continued

<p>Vulnerability</p>	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Lack of permanent generators at critical facilities and infrastructure • Aging infrastructure (roads, water, electrical systems) • Small communities have experienced prolonged response from emergency services due to location and blocked roads occasionally • Lack of funding to improve previously low-traffic roads as traffic volumes increase due to economic activity • Increase in permanent and temporary populations, and economic activity, will increase amount of people and community assets exposed to severe summer weather events • Presence of pipelines, rail, and truck traffic carrying hazardous materials through the county • Lack of 24-hour storm shelters in smaller communities and rural areas of the county • Structural integrity of temporary housing • Staff limitations during events of significance • Lack of storm water systems in small cities and rural areas • Lightning strikes causing fires and damage to structures • Removal of shelterbelts leaves little to no protection to structures from severe summer weather • Critical facilities: Foster County Courthouse, Carrington City Hall, CHI St. Alexius Health Carrington Medical Center, all fire halls and ambulance buildings county-wide • Undersized culverts for drainage • Older bridges are not large enough to allow for adequate drainage of runoff/do not meet current standards 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Building codes and enforcement • Advanced warning/notification such as internet and TV • Switching of overhead power lines to underground – change to fiber-optic lines • Instant communication capabilities through cell phones • Increase in technological capabilities of tractors and farm equipment to warn farmers of severe storms • Emergency sirens are in place throughout the county • Education in schools has increased • Better predictions from the National Weather Service • Switch to no-till farming reduces blowing of soil • Increased awareness through Foster County Nixle-Everbridge • Presence of social media alerting to the public • Advancements in public works equipment to use for responding to significant events
	<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address severe summer weather.

Vulnerabilities to Publicly-Owned Buildings and Property

Publicly-owned buildings and property are susceptible to severe summer weather in many forms. Buildings are often constructed to withstand impacts from severe summer weather, but may not sustain high wind speeds, tornadoes, or large hail. Large hail can damage building roofs, break windows, injure people and/or result in fatalities. Depending on the size of the building and the role it plays in day-to-day operations, the vulnerability to severe summer weather can vary from nominal for larger structures such as the Foster County Courthouse to severe for county shops in smaller cities, which are considerably less sturdy. The lack of stormwater management in smaller incorporated jurisdictions contributes to the vulnerability of publicly-owned buildings and property from flash flooding due to severe summer weather.

A summary of publicly- owned buildings is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Critical facilities such as Foster County Courthouse, CHI St. Alexius Health Carrington Medical Center, schools, water towers, roadways, publicly-owned buildings and other specialty facilities such as nursing homes and assisted living facilities are vulnerable to severe summer weather in a similar fashion to publicly-owned buildings and property. In terms of infrastructure, overhead power lines are susceptible to wind and debris, which can disrupt electricity and cause power outages. Disruptions in water service can be caused by physical damage to water towers or lift stations, or a loss of power. Roadways can become blocked due to flash flooding and overland flooding or from windblown debris, which limits access for emergency services and disrupts economic activity. The lack of stormwater management in smaller incorporated jurisdictions contributes to the vulnerability of critical facilities and infrastructure to severe summer weather.

Vulnerabilities to New and Future Development

Building codes ensure buildings and structures are built adequately to better withstand severe summer weather. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have adopted buildings codes, but only the city of Carrington has enforcement. Similarly, incorporated jurisdictions with a high number of trailer and mobile homes, which are more susceptible to severe weather, may experience more impacts from the hazard. An inventory of the household units by type in jurisdictions in Foster County is shown in Chapter 3, Profile and Inventory. As populations grow, more people are at risk of injury and potential death from tornadoes, large hail, and windblown debris such as tree branches. Strengthening and enforcement of buildings codes would mitigate impacts from the hazard. This mitigation project for the county can be found in Chapter 6, Mitigation Strategy.

Data Limitations

Residents often experience impacts from severe summer weather, such as broken windows on homes or damage to vehicles, they do not report. Weather data provided by NCDC, NOAA, and other agencies can be incomplete and reported damages can vary significantly from local sources. Fewer active storm spotters reduce the amount of reported weather information available to county emergency management.

National Climatic Data Center/National Oceanic and Atmospheric Administration

The hazard history provided through the National Climatic Data Center/National Oceanic Atmospheric Administration's Storm Events Database contains data as entered by NOAA's National Weather Service (NWS). Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The following timelines show the different time spans for each period of unique data collection and processing procedures. **All types of severe summer weather were not recorded cohesively until 1996.**

- 1. Tornado:** From 1950 through 1954, only tornado events were recorded.
- 2. Tornado, Thunderstorm Wind and Hail:** From 1955 through 1992, only tornado, thunderstorm wind and hail events were keyed from the paper publications into digital data. From 1993 to 1995, only tornado, thunderstorm wind and hail events have been extracted from the Unformatted Text Files.
- 3. All Event Types (48 from Directive 10-1605):** From 1996 to present, 48 event types are recorded as defined in NWS Directive 10-1605.

U.S. Dept. of Agriculture, Farm Services Agency

The Livestock Indemnity Program (LIP) provides financial assistance to local producers that experience livestock losses. The program does not provide the cause of loss and, therefore, an accurate description of livestock loss from severe summer weather cannot be identified.

U.S. Dept. of Agriculture, Risk Management Agency

One of the Cause of Loss categories for crop loss data from the USDA, RMA is titled Other (snow, lightning, etc.) combines elements of severe summer weather and severe winter weather. Therefore, crop loss data for any given jurisdiction is incomplete.

Other Key Documents

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- Building Codes
- Foster County Local Emergency Operations Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Dept. of Transportation Design Manual
- North Dakota Drought Mitigation Plan
- North Dakota Emergency Operations Plan, Severe Summer Weather Annex
- North Dakota League of Cities: Planning and Zoning Handbook
- North Dakota State Building Code
- North Dakota State Disaster Recovery Plan

- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

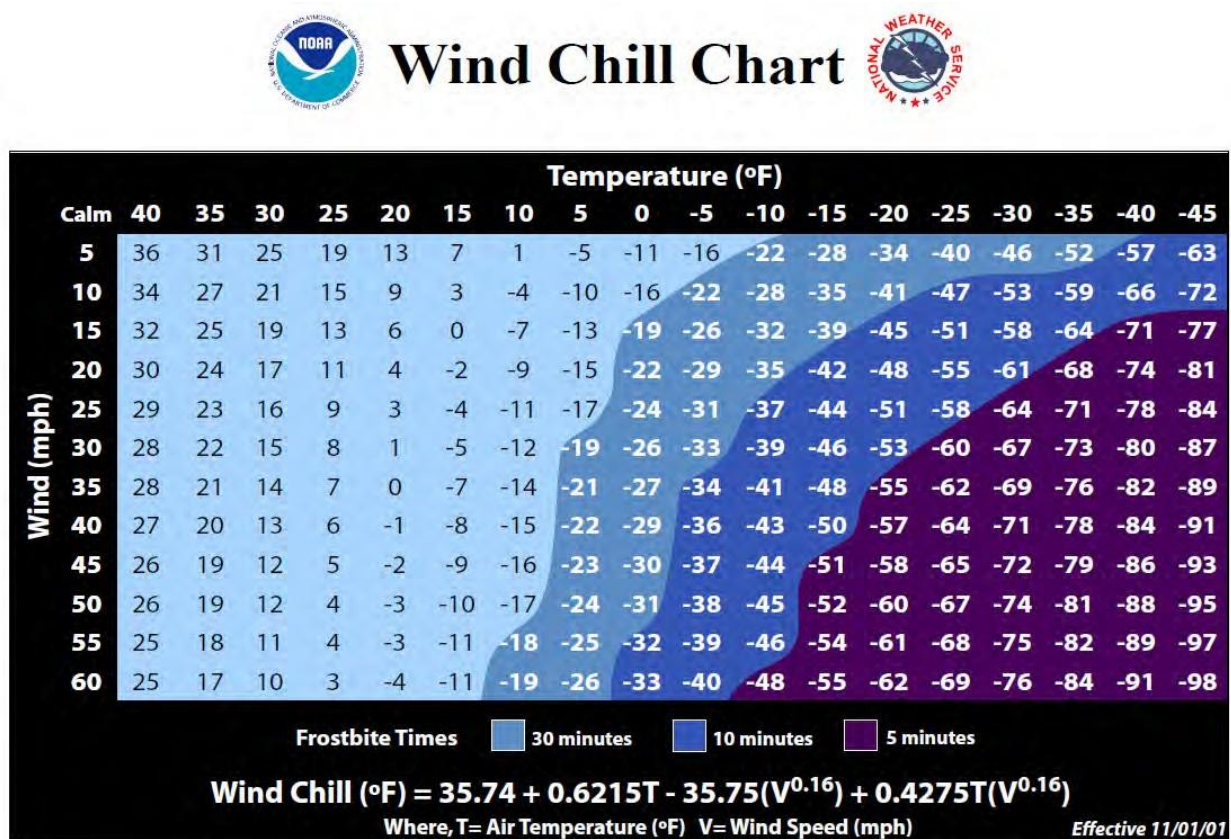
4.12 Severe Winter Weather

Including blizzards, extreme cold, heavy snow, ice storms, recycled snow, structure collapse, and secondary hazards.

Characteristics

Winter storms have the capability to completely immobilize large areas of a state or several states simultaneously. Winter storms occur in several forms, such as heavy snowstorms, blizzards, and ice storms. Each in its own way is a potential killer of hundreds of people, livestock and wildlife, whenever the storm strikes. A brief explanation of each follows Figure 4.12.1.

Figure 4.12.1 – Wind Chill Chart



Source: National Weather Service

Blizzards are the most dramatic and dangerous winter storms. A blizzard has winds of 35 mph or more with snow and blowing snow reducing visibility to less than ¼ mile for at least 3 hours. Blizzards are usually characterized by low temperatures and by strong winds bearing substantial amounts of snow. Snowfall is usually present during the preliminary stages of the blizzard. However, most of the snow in a blizzard is in the form of fine, powdery particles of snow which are whipped up from the surface in such great density that at times the visibility is only a few yards, creating a blinding condition.

Extreme Cold includes prolonged periods of cold temperatures throughout the winter months. People are forced to limit time spent outdoors in extreme frigid conditions. When cold temperatures combine

with wind, dangerous wind chill occurs. Wind chill describes how cold it feels and is based on heat loss on exposed skin from wind and cold. The wind chill makes it feel much colder than the actual temperature.

Heavy Snow is probably the most significant winter weather phenomenon. Snow can be continuous, intermittent, flurries or if showery in nature, snow squalls. Snow squalls are brief and intense for short durations and are comparable to summer rain showers. Blowing and drifting snow often occur together, due to strong winds and falling or loose snow on the ground.

Ice Storms are freezing rain or drizzle that occurs when surface temperatures are below freezing. The moisture falls in liquid form freezing upon impact, resulting in ice or glaze on exposed surfaces and is called an ice storm. Sleet sometimes incorrectly referred to as an ice storm; is frozen rain drops and ice pellets, which bounce when hitting the ground. Sleet does not stick to trees but enough can cause hazardous driving conditions. Heavy accumulations of ice can bring down trees, topple utility poles/power lines and communication towers; and can disrupt communications and power for days while utility companies repair extensive damage. Small accumulations of ice can be extremely dangerous to motorists and pedestrians because bridges and overpasses freeze before other surfaces.

Recycled Snow is the ongoing blowing and drifting of already accumulated snow from one or more snow events that continues to blow and drift for days and weeks. The blowing snow is raised above the surface and blows in quantities that reduce visibility, continuously form new drifts, and fills in plowed roads up to three or four times per day. It is the most significant winter weather phenomenon in the county.

Structure collapse occurs when the forces of gravity or other external forces overcome the structural integrity of a building. A severe winter weather event, accompanied by ice and heavy snow, can lead to structure failure due to overwhelming ice and snow loads. Power lines and communications towers also topple during winter storms, disrupting supplies to residents, businesses, and agricultural producers.

Secondary hazards are often associated with severe winter weather. The most common hazards during winter weather events are transportation incidents. Roadways become hazardous quickly during snow, blowing snow, and ice events. Most incidents involve passenger vehicles; however, an incident involving a commercial vehicle transporting hazardous chemicals is always possible.

Seasonal Pattern	October to April – will occur in May in rare instances
Duration	Hours/days/up to a week in severe cases
Speed of Onset	12 to 24 hours warning
Location	Total geographic extent of Foster County

For more information regarding severe winter weather please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

<https://www.des.nd.gov/planning>

History

Information on the history of severe winter weather in Foster County was obtained from the National Climatic Data Center (NCDC); the National Oceanic and Atmospheric Administration (NOAA); the USDA, Risk Management Agency; and Foster County Emergency Management. A detailed hazard history for Foster County can be found on a disc located at the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment.

National Climatic Data Center/National Oceanic and Atmospheric Administration

Table 4.12.1 summarizes the history of severe winter weather in Foster County between January 1, 1996, and December 31, 2020. Data was not available between January 1, 1950, to December 31, 1995, as only occurrences of tornado, thunderstorm wind and hail were recorded. Starting January 1, 1996, all event types (48) are recorded. The following are key points.

- Foster County experienced 101 occurrences of severe winter weather resulting in approximately four storms of significance annually.
- Approximately \$4,470,000.00 in property damage was reported.
- One injury and one fatality was reported.

Table 4.12.1 – 1996 to 2020 Foster County Severe Winter Weather Hazard History Summary

Severe Winter Weather				
Occurrences	Injuries	Fatalities	Property Damage	Crop Damage
101	1	1	\$4,470,000.00	\$0.00

Source(s): National Climatic Data Center (NCDC), National Oceanic and Atmospheric Administration (NOAA)

U.S. Dept. of Agriculture, Risk Management Agency

- Crop loss from severe winter weather is tracked by the U.S. Dept. of Agriculture, Risk Management Agency (RMA). The RMA provides data on the crop type affected, damage cause description, determined acres and indemnity amount. The damage cause description identifies the cause of damage, determines acres identifies the number of acres lost due to damage, and the indemnity amount identifies the total amount of the loss for the designated peril. Cause of Loss categories included in severe winter weather include cold winter, freeze, and frost. **Between January 1, 2001, and December 31, 2020, Foster County experienced 114 incidents of crop loss due to severe winter weather impacting approximately 73,273.54 acres of crops totaling \$6,268,347.25.**

2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)

- Foster County experienced no property damage from 89 severe winter weather events between 2000 and 2018.
- Claims paid for collapse on state facilities and other critical facilities insured by the North Dakota Tornado and Fire Fund, 2013, between 1989 and 2013 included \$735 to local governments. No claims were paid to state agencies, adjutant general, state universities, or school districts.

There have been disaster declarations and emergencies pertaining to a severe winter weather in Foster County.

Probability

The probability of a hazard or threat is how likely it is it will happen. Profile meeting participants and the Steering Committee indicated the probability of severe winter weather in Foster County is highly likely, meaning that there is a 100 percent probability in the next year the hazard will occur to some extent.

National Climatic Data Center/National Oceanic and Atmospheric Administration

Per Table 4.12.1, the following statistics on the probability of severe winter weather in Foster County is as follows:

- The probability of severe winter weather in Foster County is 100 percent based on 101 occurrences between January 1, 1996, to December 31, 2020, resulting in approximately four incidents of significance annually. Foster County experiences approximately \$178,800.00 in property damage and no crop damage annually.
- One injury and one fatality was reported between January 1, 1996, and December 31, 2020.

U.S. Dept. of Agriculture, Risk Management Agency

- According to information obtained from the U.S. Dept. of Agriculture, Risk Management Agency (RMA), crop loss due to severe winter weather totals \$313,417.36 annually in Foster County between January 1, 2001, and December 31, 2020.

Extent/Magnitude

The extent/magnitude of a hazard or threat is expressed in the amount and/or number of damages or losses either actualized in a community or estimated based on known assets and levels of risk. The extent/magnitude of the severe winter weather ranges from large blizzard with prolonged sub-zero temperatures causing widespread power outages and loss of critical facilities and infrastructure to localized icy road conditions with minor traffic accidents.

- Several major blizzards and severe winter weather events occurred in Foster County resulting in an estimated 120 inches of snow. The events occurred on January 4, 9, 15, and 21 of 1997, and resulted in 3,470,000.00 in property damage.
- The 1997 Ice Storm occurred on April 4, 1997, resulting in \$1,000,000.00 in property damage.

Profile meeting participants and the Steering Committee indicated the magnitude or impact of severe winter weather as catastrophic meaning 50 percent or more of Foster County and its people could be affected.

Risk Assessment

Table 4.12.2 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for severe winter weather. The risk assessment

methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.12.2 represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

Table 4.12.2 – Foster County Severe Winter Weather Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	4	4	2	3	11
City of Carrington	4	4	4	2	3	11
City of Glenfield	4	4	4	3	1	13
City of Grace City	4	4	4	3	1	13
City of McHenry	4	4	4	3	1	13

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.12.3 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of severe winter weather in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown in Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Vulnerabilities to Publicly-Owned Buildings and Property

Most publicly-owned buildings and property remain unaffected by impacts from severe winter weather. Damage occurs from heavy snow, frozen pipes, power outages or potential damage to structural foundations from freezing and thawing of soil. Roof collapses are the biggest single-event on property resulting from heavy snow loads that can result in the loss of life. Heavy snow can also block sewer vents on single-family homes which can cause fatalities.

A summary of publicly-owned buildings is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

The greatest issues for critical facilities and infrastructure resulting from severe winter weather impacts are inaccessibility due to blocked roads, and utility and power outages. The Foster County Courthouse, CHI St. Alexius Health Carrington Medical Center, schools, lift stations and numerous critical facilities and infrastructure in Foster County should upgrade existing generators or install new generators to maintain power, if not done so already. See Chapter 6, Mitigation Strategy for a list of generators needed throughout the county.

Power. Critical facilities with backup generators are better equipped to handle impacts from severe winter weather if loss of power does occur. Suspended power lines are highly susceptible to high winds and subsequent fallen tree branches, other debris or accumulation of ice, leading to power outages. Restoration of power can take several days or a week. All jurisdictions in the county have experienced power outages during severe winter weather to varying degrees of severity.

Road. The greatest issue for critical facilities and infrastructure is maintenance of the road system during severe winter weather. Emergency services can have trouble responding during power outages and are limited in responding to emergencies when roads are blocked from snow drifts. During blizzards or

snowstorms, cars and trucks can become stranded if roads are blocked with heavy snow and ice. When Interstate 94 is closed, smart phone technology redirects interstate traffic to state highways and county roads resulting in stranded motorists. Response times for emergency services can also be prolonged and prevent access to communities. Prolonged closures of roads can threaten propane, fuel and food supplies, and medical supplies.

Sanitary Sewer. Sanitary sewer systems can fail causing sewer backup resulting in property damage if prolonged power loss occurs and lift stations fail.

Water. Disruptions in drinking/potable water service can be caused by physical damage to water towers or lift stations, or a loss of power. Delivery of water to jurisdictions can be interrupted by water main breakage resulting from freeze and thaw cycles.

Vulnerabilities to New and Future Development

New and future development could be seriously impacted by severe winter weather in jurisdictions that lack building codes and/or enforcement. Homes and businesses lacking the capability of supporting heavy snow loads could experience roof collapse. Jurisdictions without building codes and/or enforcement should have improved construction methods to better withstand severe winter weather.

Street design also plays an important role in vulnerability to severe winter weather. New and future development developed in a “suburban style” manner containing curvilinear roads and cul-de-sacs are more susceptible to severe winter weather impacts. Snow removal on these roadways has proven difficult and raises the potential for blocked roads and limits access for emergency services. Maintaining a high level of connectivity, which is defined as how often streets or roadways intersect, can increase the ease of snow removal and lessen the impact of blocked roads and maintain access for emergency services.

Increases in population further complicate matters when dealing with severe winter weather. An example of this would be higher numbers of people susceptible to vehicle accidents on icy or blocked roads, health hazards due to wind chill and extreme cold, etc. Conversely, increases in populations in existing jurisdictions may lessen the risk to impacts from severe winter weather as it leads to less isolated populations and increases the number of people reachable by emergency services during an emergency.

Table 4.12.3 – Foster County Severe Winter Weather Risk Assessment

<p>Impact</p>	<p>Blocked Roads: Four miles south of Carrington on 66th Ave, N.D. Highway 200 on all sections, Murphy Highway (county highway that is six miles long and blocked on three miles), Peavey Road (70th Ave from 3rd St. to 5th St.), N.D. Highway 200 to Murphy Highway</p> <ul style="list-style-type: none"> • Saturation of roadways annually due to inadequate/blocked drainage of snow melt • Restricted access for emergency services from snow blocking roads • Loss of Economy • Increased isolation of rural residents/small communities • Severe low temperatures may increase utility costs • Increased cost for fuel for snow removal during large snow events • Highways can become icy reducing mobility speeds • Heavy snow causing spring melting and potential flooding • Disruption in economic activity and transportation routes moving goods and people, and provided services • Increased difficulty in mobility of general population may result in missed work or school • May contribute to shortage or outage of critical materials and infrastructure due to limited mobility from blocked roads and restrict delivery of commodities and products to the marketplace 	<ul style="list-style-type: none"> • Delayed Emergency Response • Human Injury/Death • Livestock Loss • Loss of Power/Downed Power lines • Limited mobility of local employers and employees/general population • Additional calls for emergency services may strain resources • Sheltering stranded people • All county and city roads are impacted by severe winter weather, depending on wind direction and quantity of snow received and duration of the incident • Foster County experiences approximately \$178,800.00 in property damage and no crop damage annually from NCDC/NOAA. • Per crop loss information obtained from the U.S. Dept. of Agriculture, Risk Management Agency (RMA), crop loss due to severe winter weather totals \$313,417.36 annually in Foster County. • Temporary economic boost due to rebuilding/repairs of homes, businesses and other structures.
<p>Frequency</p>	<ul style="list-style-type: none"> • Multiple occurrences of blizzard, extreme cold, and heavy snow annually • Annual occurrences of power loss from ice storms • March 2017 snowstorm resulted in blocked roads all over the county and in city limits • Blizzard conditions, heavy snow, extreme wind chill occur each year 	<ul style="list-style-type: none"> • Strong winds are commonplace • Occurrences of blocked roads from heavy snow occurs frequently • 101 occurrences between January 1, 1996, and December 31, 2020, resulting in a probability of 100 percent.

Table 4.12.3 – Foster County Severe Winter Weather Risk Assessment – Continued

Likelihood	<ul style="list-style-type: none"> • Climatic patterns will result in numerous annual occurrences of the hazard 	
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Lack of permanent generators at critical facilities and infrastructure • Aging infrastructure (roads, water, electrical systems) • Short staffing of local employers and employees/general population • Townships do not have equipment to clear roads and rely on farmers, the county, and private contractors • Low-lying roads shut down from snow accumulation • Longer response times from emergency services • Stranded motorists • Some township roads lack signage for navigation • County lacks time required to adequately respond to above average snow precipitation and accumulation • Increased removal of shelterbelts allows more ground blizzard conditions • Some township roads lack signage for navigation for emergency services and first responders in rural areas • Improper placement of existing shelter belts adjacent to roadways contributes to blockage • Lack of storm water systems in some communities may contribute to overland flooding during spring thaw • Critical facilities: CHI St. Alexius Health Carrington Medical Center, Foster County Courthouse, Carrington City Hall, all fire halls and ambulance buildings county-wide 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Building Codes • Advanced warning and notification such as internet and TV • Switching of overhead power lines to underground – change to fiber-optic lines • Independent work ethic of local populations • County has adequate equipment for clearing roads during typical winter storm events • Better weather alerts and education of residents through internet, TV and cable • Increased awareness through Foster County Nixle-Everbridge • Presence of social media alerting to the public • County highway department and NDDOT will assist ambulances to calls in rural areas during incidents of severe winter weather • Foster County Highway Department is on-call during blizzard warnings • Appropriately positioned living snow fences

Data Limitations

Residents often experience impacts from severe winter weather, such as minor structural damage, increased utilities, loss of livestock, frozen water lines, but do not report.

National Climatic Data Center/National Oceanic and Atmospheric Administration

The hazard history provided through the National Climatic Data Center/National Oceanic Atmospheric Administration's Storm Events Database contains data as entered by NOAA's National Weather Service (NWS). Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The following timelines show the different time spans for each period of unique data collection and processing procedures. **Severe winter weather was not recorded as a separate incident until 1996.**

- 1. Tornado:** From 1950 through 1954, only tornado events were recorded.
- 2. Tornado, Thunderstorm Wind and Hail:** From 1955 through 1992, only tornado, thunderstorm wind and hail events were keyed from the paper publications into digital data. From 1993 to 1995, only tornado, thunderstorm wind and hail events have been extracted from the Unformatted Text Files.
- 3. All Event Types (48 from Directive 10-1605):** From 1996 to present, 48 event types are recorded as defined in NWS Directive 10-1605.

U.S. Dept. of Agriculture, Farm Services Agency

The Livestock Indemnity Program (LIP) provides financial assistance to local producers that experience livestock losses. The program does not provide the cause of loss and, therefore, an accurate description of livestock loss from severe winter weather cannot be identified.

U.S. Dept. of Agriculture, Risk Management Agency

One of the Cause of Loss categories for crop loss data from the U.S.D.A., RMA is titled Other (snow, lightning, etc.) combines elements of severe summer weather and severe winter weather. Therefore, crop loss data for any given jurisdiction is incomplete.

Other Key Documents

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation MAOP
- Building Codes
- Foster County Local Emergency Operations Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Dept. of Transportation Design Manual
- North Dakota Emergency Operations Plan, Severe Winter Weather Annex

Chapter 4

- North Dakota League of Cities: Planning and Zoning Handbook
- North Dakota State Building Code
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.13 Space Weather

Conditions in space that affects Earth and its technological and infrastructure systems.

Characteristics

Space Weather is a consequence of activity on the sun, the Earth's magnetic field and atmosphere, and the Earth's location in the solar system. These storms originate from the sun and occur in space near Earth or its atmosphere. Disruptions are primarily categorized into three types of events: geomagnetic storm, solar flares, and solar radiation storms. The storms can affect critical facilities and infrastructure, and technology in many ways, including blackouts, high-frequency radio disruptions, and interference with satellite navigation.

Geomagnetic Storm is a major disturbance of Earth's magnetosphere that occurs when there is a very efficient exchange of energy from the solar wind into the space environment surrounding Earth.

Solar Flares are large eruptions of electromagnetic radiation from the sun lasting from minutes to hours. The sudden outburst of electromagnetic energy travels at the speed of light, therefore, any effect upon the sunlit side of Earth's exposed outer atmosphere occurs at the same time the event is observed.

Solar Radiation Storms occur when a large-scale magnetic eruption, often causing a coronal mass ejection (CME) and associated solar flare, accelerates charged particles in the solar atmosphere to very high velocities.

Seasonal Pattern	None.
Duration	Minutes. Secondary impacts could last hours, days, weeks, months or even years.
Speed of Onset	Immediate identification from NOAA Space Weather Prediction Center; 8 minutes to reach the Earth.
Location	Total geographic extent of Foster County.

For more information regarding space weather please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The plan can be accessed by following the link:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

History

According to the 2018 N.D. Enhanced Mission Area Operations Plan (MAOP), there are no recorded catastrophic space weather events impacting North Dakota. However, the following events from other locations provide insight.

- The nearest recorded event affected Montreal, Quebec, Canada on March 13, 1989, when a geomagnetic storm took out their commercial electric power for nine hours. The storm impacted six million people.
- The largest geomagnetic storm in modern recorded history is named the Carrington Event. The solar super storm occurred on September 1st and 2nd, 1859, and impacted telegraph systems across Europe and North America. Auroras were recorded as far south as the Caribbean in the northern hemisphere.

There have been no declared disasters or emergencies pertaining to a space weather in Foster County.

Probability

The probability of space weather is 100 percent as the hazard is a natural phenomenon uncontrollable by humans and will occur at some point in the future. The 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP) documented six occurrences impacting Earth.

Profile meeting participants indicated the probability of space weather as possible, meaning that there is between a one and 10 percent chance of an occurrence in the next year.

Extent/Magnitude

The extent/magnitude of space weather can range from minimal to catastrophic. The National Oceanic and Atmospheric Administration Space Weather Prediction Center has created scales to communicate impacts on people and technologies from the hazard to the public. The scales have numbered levels of one to five, like other measurement scales for natural hazards like tornadoes and hurricanes. The scales rate the severity of possible effects of space weather. The magnitude of a space weather event can range from extreme (radio blackout on the entire sunlit side of the earth or outages in maritime and aviation systems) to minor (slight degradation of radio communication or navigation signals).

Profile meeting participants indicated the magnitude or impact of space weather as catastrophic meaning 50 percent or more of Foster County and its people could be affected.

Risk Assessment

Table 4.13.1 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for space weather. The risk assessment methodology can be found in the beginning of Chapter 5, Threat and Hazard Identification Risk Assessment. The total in Table 4.13.1 represents the sum of each jurisdiction’s impact, frequency, likelihood, and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

Table 4.13.1 – Foster County Space Weather Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	1	2	4	2	9
City of Carrington	4	1	2	4	2	9
City of Glenfield	4	1	2	4	2	9
City of Grace City	4	1	2	4	2	9
City of McHenry	4	1	2	4	2	9

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.13.2 provides information on the specific impact, frequency, likelihood, vulnerability, and capability of space weather in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats is shown in Chapter 4.

Table 4.13.2 – Foster County Space Weather Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Business Interruptions • Delayed Emergency Response • Explosion • Financial Hardship (Private and Public) • Government Interruptions • HAZMAT Release • Human Injury/Death • Increased Fire Potential • Increased Public Safety Runs • Infrastructure Degradation • Labor Shortages • Loss of Communications • Loss of Economy • Loss/Overcrowded Medical Facilities • Loss/Overcrowded Veterinarian Facilities • Loss of Potable Water 	<ul style="list-style-type: none"> • Loss of Power/Electricity Outage • Loss of Transportation Accessibility • Mass Casualties/Fatalities • Property Damage (Structure, Equipment & Vehicle) • Public Distress/Social Discord • School Closure • Sewer Backup • Sheltering of Displaced Populations • Utility Outage/Shortage • Loss of digital infrastructure at Carrington City Hall, Foster County Courthouse, correctional centers, hospitals, public schools, and other specialty facilities such as nursing homes and senior housing facilities
<p>Frequency</p>	<ul style="list-style-type: none"> • Never a recorded occurrence in Foster County or North Dakota 	<ul style="list-style-type: none"> • The nearest recorded event affected Montreal, Quebec, Canada on March 13, 1989, when a geomagnetic storm took out their commercial electric power for nine hours. The storm impacted six million people.
<p>Likelihood</p>	<ul style="list-style-type: none"> • Dependent on solar activity and the 11-year solar cycle 	<ul style="list-style-type: none"> • Likely to occur once every 500 years per the 2018 N.D. Enhanced Mitigation MAOP
<p>Vulnerability</p>	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV – over-reliance on these systems to support society • Increasing dependency of digital/technological systems in agriculture, private and public sectors • Gas-powered backup generators for critical facilities and infrastructure – the availability of fuel sources may be impacted and/or not available to replenish systems 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet & TV • Local food production/households with gardens • Gas-powered backup generators for critical facilities and infrastructure • The fallout shelter at the Carrington Armory was constructed to act as a Faraday Cage
<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address space weather. 	

Vulnerabilities to Publicly-Owned Buildings and Property

The physical integrity of publicly-owned buildings would not be impacted directly from space weather, but secondary impacts such as loss of electric power or digital/technological systems could affect operations. Secondary impacts resulting from loss of power include loss of heat during severe winter weather, which could result in frozen and burst water pipes causing widespread interior damage, sewer backups, and subsequent flooding, or loss of digital assets from damaged servers and other telecommunications infrastructure. Conversely, loss of power from a space weather event could compromise cooling systems during severe summer weather, which could result in server rooms overheating and shutting down either temporarily or permanently. The interdependency of electricity with the operation of publicly-owned buildings and property can lead to more complex issues and prolonged outages.

A summary of publicly-owned buildings and property in Foster County is provided in Chapter 3, Profile and Inventory.

Vulnerabilities of Critical Facilities and Infrastructure

Critical facilities such as the Foster County Courthouse, CHI-St. Alexius Health Carrington Medical Center, public schools, and other specialty facilities such as nursing homes/assisted living facilities are vulnerable to space weather in a similar fashion to publicly-owned buildings and property. The Foster County Courthouse has a specific vulnerability to space weather as prolonged outages of power and data/technological systems could compromise security and lead to a potential breakdown of order within the facility and endanger the overall functionality city of Carrington and greater Foster County. Communication and utility infrastructure would also be disrupted from loss of power from space weather compromising the capabilities of emergency services and public and private sectors. The interdependency of electricity with the operation of critical facilities and infrastructure can lead to more complex issues and prolonged outages.

The fallout shelter below the basement of the Carrington Armory was constructed to act as a faraday cage.

Vulnerabilities to New and Future Development

As populations grow, more people are at risk to impacts from space weather such as those described in vulnerabilities to publicly-owned buildings and property, and critical facilities and infrastructure. A breakdown of population trends and projections by jurisdiction in Foster County is shown in Chapter 3, Profile and Inventory, and Chapter 8, Jurisdictions.

Installation of faraday cages/shields at specific locations and/or equipment such as technological/digital systems for buildings (both public and private) and sewer backup valves at critical facilities and infrastructure should be considered for new and future development, but also for existing publicly-owned buildings and property, and critical facilities and infrastructure. Investment in power grid system redundancies can also mitigate the impacts of space weather.

Data Limitations and Other Key Documents

Power and digital/technological system outages, whether brief or prolonged, occur on a regular basis across North Dakota and Foster County. Since these events are not considered normal for critical facilities and infrastructure and are caused by other hazards such as severe summer or winter weather, identification of the role space weather is limited. An analysis of each critical facility and infrastructure would be needed to identify specific vulnerabilities from space weather.

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation MAOP
- Foster County Local Emergency Operations Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Space Weather Annex
- North Dakota State Disaster Recovery Plan
- North Dakota State Preparedness Report (SPR)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)

4.14 Transportation Incident

Including aircraft, bicycle, boat, bus, motorcycle, pedestrian, railway, truck, automobile vehicle, and recreational vehicle (ATV, side-by-side, etc.) incidents.

Characteristics

A transportation incident is any small or large-scale aircraft, bicycle, boat, bus, motorcycle, pedestrian, railway, truck, automobile vehicle, and recreational vehicle (ATV, side-by-side, etc.) involving mass casualties. Mass casualties can be defined as an incident resulting in many deaths and/or injuries that reach a magnitude that overtaxes the response abilities of local resources. In most disasters, death and injury represent one of the hazard impacts. In transportation incidents, mass casualties and/or resulting evacuations or hazardous material releases are often the primary impact and focus of the event.

Transportation incidents occur with little or no warning. They involve many people and require special types of equipment and emergency medical personnel. Such incidents not only affect people with significant numbers of deaths/injuries, but also cause traffic problems, property damage, or even a hazardous material release and/or explosion. The probability is increased during winter storms, periods of poor visibility from snow, smoke, or dust; festivities with more opportunities for drinking and driving; and times of increased traffic volume. The agricultural and energy economy of the region also increases the opportunity for the release of hazardous materials in a transportation incident.

Seasonal Pattern	None. Prevalent with the agriculture and energy sectors. Incidents in rural areas of the county are more prevalent during severe winter weather/winter conditions.
Duration	Minutes/hours/days/weeks – depending on extent of the incident
Speed of Onset	Little to no warning
Location	Total geographic extent of the Foster County with a focus on U.S. Highway 52/281, N.D. Highways 9, 20, and 200; railroads, county and township roads, the Carrington Airport, and boating/recreational traffic.

For more information regarding transportation incident please reference the **2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)**. The state plan can be accessed by following the electronic hyperlink or link to the N.D. Dept. of Emergency Services website:

[2018 North Dakota Enhanced Mitigation Mission Area Operations Plan](#)

<https://www.des.nd.gov/planning>

History

Per the profile meeting participants, traffic incidents with minor damage or injuries occur almost weekly in Foster County (primarily in and around the city of Carrington). Incidents involving cars and farm equipment occur annually. History on transportation incidents in Foster County was provided by Foster County Emergency Management and the N.D. Dept. of Transportation.

Foster County Emergency Management

Foster County Emergency Management provided the following information regarding aircraft incidents in Foster County.

Aircraft

- **July 8, 2014.** The Carrington Fire Department responded to a plane crash at the Carrington Airport just before 9 p.m. A crop duster had damaged landing gear and crashed while attempting to land on the runway. No serious injuries were reported. The pilot was taken to Carrington Health Center. Authorities say the fixed landing gear on the crop duster may have been damaged while in the air, but it's uncertain. The cause of the crash was investigated by the National Transportation Safety Board and the Federal Aviation Administration.
- **July 3, 2017.** State Radio notified NDDDES Duty Officer (Hanson) of a downed Aircraft SE of Carrington. The nearest intersection is 74th Ave NE & Main Street East on the east side of Lake George. A Foster County Deputy Sheriff is on scene and NDHP supervisor has been notified by State Radio. Reporting party stated there were no injuries and no hazmat concerns. The plane is a crop duster (tail number 2249B). NDDDES Duty Officer notified Foster County EM (Earle) who spoke with the Sheriff and confirmed that there were no injuries or hazmat concerns. The pilot had just finished spraying and had to make an emergency landing.

Rail

- **March 3, 2019.** A Canadian Pacific train derailed east of the city of Carrington around 8 a.m. Approximately 35 cars derailed with some containing anhydrous ammonia and propane. A small amount of anhydrous was released. Local firefighters, law enforcement, and emergency medical technicians responded and were on the scene throughout cleanup. CP Railway said the line was reopened to rail traffic on Monday at 8 a.m. One family was evacuated and was cleared to return to their home on Monday.
- **April 26, 2020.** A Canadian Pacific (CP) train hauling grain derailed Sunday morning at the city of Carrington. The last 15 to 20 cars of an eastbound 100-car train derailed under the N.D. Highway 200/52 overpass. A spokesperson for CP said the grain train derailed at 7 a.m. and no hazardous materials were involved and no public safety issues were present. CP dispatched teams to the site. U.S. Highway 52 was closed and traffic was detoured for about 90 minutes while CP and the N.D. Dept. of Transportation inspected the bridge. No damage was found. The derailment was believed to be weather related. No injuries were reported.

Figure 4.14.1 – April 26, 2020, Train Derailment at the City of Carrington



Source(s): N.D. Dept. of Transportation

N.D. Dept. of Transportation

Table 4.14.1 shows crash data provided by the N.D. Dept. of Transportation and is for crashes occurring on state highways in Foster County between 2005 and 2020.

The following are key points from Table 4.14.1.

- Between 2005 and 2020, Foster County experienced 1,029 total crashes of which 887 were property damage only crashes, 136 were injury crashes resulting in 169 injuries, and six were fatal crashes resulting in seven fatalities. Approximately 86.2 percent of crashes were property-damage only.
- Foster County experiences 55 property-damage only crashes, nine injury crashes resulting in 11 injuries, and no fatalities on average between 2005 and 2020, or 64 crashes annually.
- The last fatal crash in Foster County occurred in 2011.

Table 4.14.1 – 2005 to 2020 Foster County, N.D. Crash Summary

Year	Property Damage Only (PDO)	Injury Crashes	Total Injuries	Fatal Crashes	Total Fatalities	Total Crashes
2005	84	4	--	0	--	88
2006	97	4	5	1	1	102
2007	108	8	12	2	2	118
2008	99	12	20	1	1	112
2009	89	6	6	0	0	95
2010	72	18	21	1	2	91
2011	109	10	11	1	1	120
2012	52	10	15	0	0	62
2013	43	10	12	0	0	53
2014	24	7	10	0	0	31
2015	24	9	11	0	0	33
2016	22	4	6	0	0	26
2017	27	14	18	0	0	41
2018	13	4	4	0	0	17
2019	14	5	7	0	0	19
2020	10	11	11	0	0	21
TOTAL	887	136	169	6	7	1,029

Source(s): N.D. Dept. of Transportation

Probability

The probability of a hazard or threat is how likely it is it will happen. Per the N.D. Dept. of Transportation, Foster County experiences 55 property-damage only crashes, nine injury crashes resulting in 11 injuries, and no fatalities on average between 2005 and 2020, or 64 crashes annually.

The profile meeting participants indicated the probability of a vehicular transportation incident for Foster County is highly likely, meaning that there is a 100 percent probability in the next year of an incident. Transportation incidents involving aircraft, trains, and other modes of transportation are occasional.

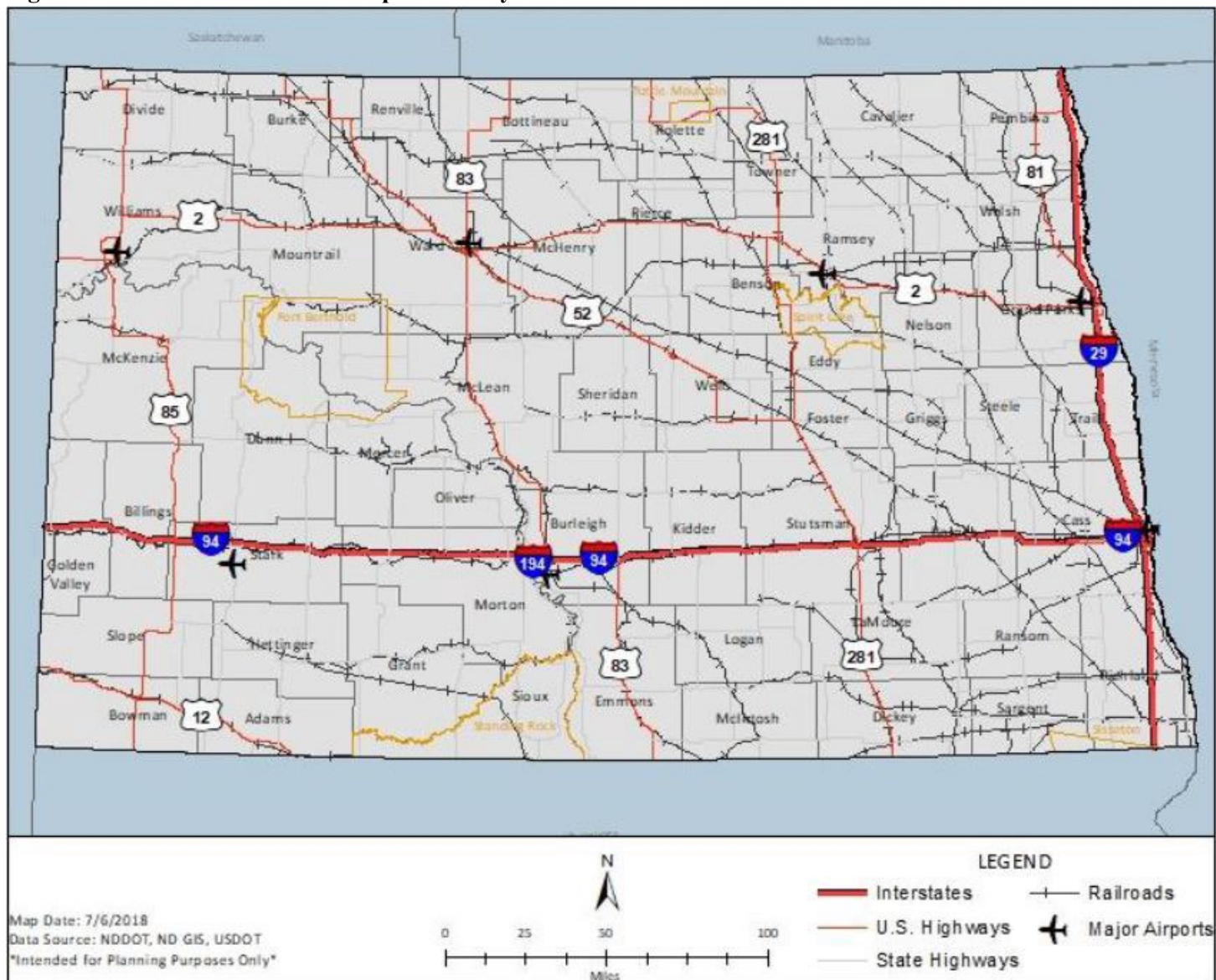
Extent/Magnitude

The magnitude of a hazard or threat is the expressed in the amount of damage or losses either caused or could occur in a community. Meeting participants at the profile meeting indicated the magnitude of a transportation incident for Foster County would be critical, meaning an incident would result in noticeable damage to people, buildings, and property. According to the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP), Foster County has a moderate vulnerability to transportation incidents due to the county having an airport, state highways, U.S. Highways, and railroad infrastructure.

According to 2016 N.D. Dept. of Transportation Crash Summary, approximately 10 percent of fatal crashes in the state occurred in urban locations and 90 percent of the fatal crashes occurred on rural roads. Foster County was not among the top 10 counties with estimated injury and fatality costs for motor vehicle crashes in 2016.

Figure 4.14.2 illustrates transportation system in North Dakota.

Figure 4.14.2 – North Dakota Transportation System



Source(s): N.D. Dept. of Transportation

Risk Assessment

Table 4.14.2 shows the risk assessment as determined by individual jurisdictions, the Steering Committee, and meeting participants at the profile meeting for transportation incident. The risk assessment methodology can be found in the beginning of Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA). The total in Table 4.14.2 represents the sum of each jurisdiction’s impact, frequency, likelihood and vulnerability to a hazard/threat less the jurisdiction’s capabilities to respond to the hazard/threat.

Table 4.14.2 – Foster County Transportation Incident Risk Assessment Scored Chart Summary

Jurisdiction	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
Foster County	4	2	3	2	2	9
City of Carrington	4	3	3	4	2	12
City of Glenfield	4	2	3	3	1	11
City of Grace City	4	2	3	3	1	11
City of McHenry	4	2	3	2	1	10

(Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 4.14.3 provides information on the specific impact, frequency, likelihood, vulnerability and capability of transportation incident in Foster County. A list of impacts identified as commonplace for natural hazards and man-made threats regardless of the jurisdiction is shown in Chapter 4, Threat and Hazard Identification Risk Assessment (THIRA).

Vulnerabilities to Publicly Owned Buildings and Property

Publicly-owned buildings and property should not be affected by transportation incidents except in an instance where a train derails or a vehicle crash into a building. However, any truck incident involving hazardous materials, train derailments, or aircraft incidents occurring in proximity of a publicly owned building or property could result in property damage, mass casualties/fatalities, or large-scale evacuations. Should an incident of this nature occur, damage could exceed hundreds of thousands or millions of dollars, depending on the structure impacted. Buildings supporting key functions to daily county and incorporated jurisdiction operations most vulnerable include but are not limited to Foster County Courthouse, public schools and buildings supporting emergency services such as fire stations and ambulance halls. A transportation incident can result in power outages if occurring near and impacting power infrastructure. Power losses could result in the prolonged loss of service of publicly owned buildings and property.

A summary of city and county-owned buildings and property in Foster County is provided in Chapter 3, Profile and Inventory.

Table 4.14.3 – Foster County Transportation Incident Risk Assessment

<p>Impact</p>	<ul style="list-style-type: none"> • Blocked roads from severe weather and at-grade railroad crossing with roads and highways • Explosion • HAZMAT Release • Human Injury/Death / Mass Casualties/Fatalities • Increased Fire Potential • Increased Public Safety Runs • Loss of Transportation/Accessibility 	<ul style="list-style-type: none"> • 2,211 injuries and 56 fatalities from vehicular crashes between 2005 and 2019 • Decrease in economic regional activity if impacting a major transportation artery for an extended period
<p>Frequency</p>	<ul style="list-style-type: none"> • Annual occurrences of car crashes, truck-related incidents, etc. • Incidents involving the railroad occurs every two to five years • Aircraft accidents in 2014 and 2017 • Trail derailments in 2010 and 2020 	<ul style="list-style-type: none"> • Foster County experiences 55 property-damage only crashes, nine injury crashes resulting in 11 injuries, and no fatalities on average between 2005 and 2020, or 64 crashes annually.
<p>Likelihood</p>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • U.S. Highways 52/281, N.D. Highways 9, 20, and 200, railroads, county and township roads, and the Carrington Airport • High truck traffic with chemicals and fuel from Dakota Growers • High truck traffic from farm and agriculture related industry • DAPL pipeline court ruling could cause rail traffic to increase • Heliport near the city of Kensal (neighboring Stutsman County) • Heliport at CHI-St. Alexius Health Carrington Medical Center • CP Railway establishing more un-mechanized railroad crossings 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Construction of the roundabout at the intersection of U.S. Highways 52/281 and N.D. Highway 200
<p>Vulnerability</p>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • U.S. Highways 52/281, N.D. Highways 9, 20, and 200, railroads, county and township roads, and the Carrington Airport • High truck traffic with chemicals and fuel from Dakota Growers • High truck traffic from farm and agriculture related industry • DAPL pipeline court ruling could cause rail traffic to increase • Carrington Municipal Airport • Heliport near the city of Kensal (neighboring Stutsman County) • Heliport at CHI-St. Alexius Health Carrington Medical Center • CP Railway establishing more un-mechanized railroad crossings 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Construction of the roundabout at the intersection of U.S. Highways 52/281 and N.D. Highway 200
<p>Capability</p>	<ul style="list-style-type: none"> • See Chapter 7 for a list of capabilities to address transportation incident. 	

Vulnerabilities of Critical Facilities and Infrastructure

Critical facilities such as the CHI-St. Alexius Health Carrington Medical Center, the Carrington Ambulance Services Ambulance Hall, and infrastructure such as water/wastewater treatment facilities and power grid infrastructure should not be affected by transportation incidents, except in rare occurrences.

Railroads or roads would be affected as this is where transportation incidents are likely to occur. Vulnerabilities could include a closure of a major transportation artery such as U.S. Highways or railroad due to an incident, which can block access for emergency services, disrupt economic activity, and add strain onto other arteries in the overall transportation system. A transportation incident can result in power outages if occurring near and impacting power infrastructure. Power losses could result in the loss of critical facilities such as lift stations or water treatment plants.

Vulnerabilities to New and Future Development

New and future development could result in increased traffic related to commercial, industrial or residential development. Any additional traffic will increase the probability of minor, moderate, or major transportation incidents. The location of new and future development will determine the probability of future transportation incidents and should be conducive to nearby transportation infrastructure – i.e., industrial development near major highways or railroads, or commercial development near existing commercial corridors or transportation infrastructure with high visibility. Locations of new and future residential development conducive to transportation infrastructure is dependent on the local zoning code and proposed density of each respective development.

Data Limitations and Other Key Documents

This plan incorporates data from the following documents and information from this plan will be incorporated in the update of the following documents.

- 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP)
- 2018 North Dakota Highway Safety Plan
- 2020 N.D. Dept. of Transportation Urban High Crash Locations Report
- Foster County Comprehensive Plan
- Foster County Local Emergency Operations Plan
- Foster County Threat and Hazard Identification and Risk Assessment (THIRA)
- North Dakota Continuity of Operations Plan
- North Dakota Emergency Operations Plan, Transportation Incident Annex
- North Dakota State Disaster Recovery Plan
- North Dakota Statewide Transportation Improvement Plan (STIP)
- North Dakota Threat and Hazard Identification and Risk Assessment (THIRA)
- TransAction III, North Dakota's Statewide Strategic Transportation Plan

5. Future Conditions

The Federal Emergency Management Agency (FEMA) is now requiring inclusion of information on the long-term effects of climate change on identified hazards in state hazard mitigation plans. The 2021 Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan is incorporating this requirement at the local level to remain in line with state leadership.

National Climate Assessment (NCA)

Developed by the U.S. Global Change Research Program (USGCRP) is a synthesis of climate knowledge, impacts, and trends across regions of the United States and various sectors to inform decision-making with respect to a changing climate. This synthesis also identifies resilience-building activities that can be incorporated at the local level through mitigation planning.

Changes in North Dakota Weather and Climate

According to the NCA information included in the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP), the state of North Dakota will experience the following changes in climate patterns across the state:

- More days with precipitation over a half-inch
- Longer dry spells (consecutive days without precipitation)
- Summer days with maximum temperatures over 95 degrees Fahrenheit will increase as well as summer nights with minimum temperatures over 65 degrees Fahrenheit
- Increase in winter and spring precipitation
- Warming winters

North Dakota's annual temperature increase over the previous 130 years is the fastest in the contiguous United States and is driven primarily by warming winters.

Anticipated Future Impacts

According to the NCA information included in the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP), the following impacts for the state of North Dakota will influence the long-term vulnerability to natural hazards and will be realized if predictions on future conditions come to fruition:

- Increases in winter and spring precipitation may heighten chances of spring flooding leading to wetter soils to start growing season
- Longer growing seasons but continued risk for late spring and early fall freezing
- More days over 95 degrees Fahrenheit during the summer adding stress to livestock and increasing evaporation with subsequent drying of soils and degradation of plant life
- Increase in demand for energy during the summer (air conditioning)
- Decrease in demand for energy during the winter (heating)
- Potential increase in invasive species including animals, fungi, insects, plants, and viruses
- Decrease in culturally significant animal and plant life in tribal communities

Anticipated Future Impacts of Natural Hazards and Man-Made Threats

A changing climate will affect more than just temperatures and precipitation levels. An increase in frequency and severity of extreme heat events and severe summer weather which will adversely affect public health, water resources, and the production of agriculture (crops and livestock). A changing climate will simultaneously increase the frequency and severity of extreme cold and severe winter weather which will also adversely impact public health and water resources, in addition to essential services. The average length of the growing seasons will increase by 12 days per century in North Dakota.

According to the 2018 N.D. Enhanced Mitigation Mission Area Operations Plan (MAOP), the expected impact of climate change on the 14 natural hazards and man-made threats detailed in this plan are outlined below.

- **Civil Disturbance.** Increased risk to civil disturbances targeted toward the oil and gas industry in North Dakota from growing public concern over impacts from climate change.
- **Criminal, Terrorist, or Nation-State Attack.** No expected impact.
- **Cyberattack.** No expected impact.
- **Dam Failure.** The expected increase in intensity and severity of precipitation events may put more dams at risk to scenarios that exceed original design criteria of each respective dam. Aging dams are most at risk to this expected impact.
- **Drought.** According to the 2014 NCA, the “Northern Plains, including North Dakota, will remain vulnerable to periodic drought because of the projected increase in precipitation is expected to occur in the cooler months while increase temperatures will result in addition evapotranspiration during the summer months. The warming trend observed in North Dakota is expected to continue, which may contribute to an increase in the frequency and intensity of drought in the state.” Drought impacts on vulnerable water users such as the agriculture industry and municipal systems will be exacerbated. Overall, droughts are expected to be more frequency and intense, which will result in increased losses.
- **Fire (Urban Structure/Collapse).** No expected impact. However, water supplies use for fire suppression may be compromised and occurrences may increase as North Dakota expects an increase in wildland fires.
- **Fire (Wildland).** The top 10 years with the largest area burned have all occurred since 2000 in the state of North Dakota. The frequency of wildland fires will increase as will the risk due to increasing rural residential development in the Wildland-Urban Interface. In addition, as of October 4, 2017, 96% of fire departments in North Dakota are staffed with volunteers. As the frequency and intensity of wildfires increase, these volunteer firefighters may become stressed for resources and time to respond to these fires. Volunteer fire departments are losing personnel strength when firefighters retire and, in many cases, move to larger towns where medical care is more readily available.

- **Flood.** According to the 2014 NCA, winter and spring precipitation is projected to increase in the northern Great Plains region relative to a 1971 to 2000 average. This increase in precipitation may exacerbate flooding in North Dakota due to the increased amount, but also due to precipitation falling when the ground is frozen and unable to absorb moisture. The number of days with heavy precipitation is also likely to increase by mid-century. Overall, climate change is projected to increase precipitation in North Dakota.
- **Geologic Hazard.** Increased development pressure and the impacts of climate change may increase risk to state assets if they are constructed on areas prone to geologic hazards. Expansive soils and landslides are likely to increase due to the projected increase in precipitation.
- **Hazardous Material Release.** Although largely human-caused, climate change indirectly impacts this hazard. The frequency of hazardous material releases may coincide with increased occurrences of natural hazards such as wildland fires and floods due to the vulnerability of fixed facilities that store hazardous materials or waste.
- **Infectious Disease.** The state of North Dakota should expect an increased risk to infectious disease and pest infestations in the future. The two largest factors influencing future risk relate to how and where population growth (or withdrawal) and development occurs.
- **Severe Summer Weather.** Uncertainty regarding changes in severe storms exists as the localized nature of the hazard is difficult to capture in climate models. However, it is expected that downpours will be exacerbated by climate change leading to an increase in flash flooding.
- **Severe Winter Weather.** Winter storms have increased in frequency and intensity since the 1950s. The tracks of storms has shifted northward over the United States. Winter and spring precipitation is expected to increase in North Dakota due to climate change. Liquid winter precipitation (indicated by ice storms) are more frequent. Increasing occurrences of winter storms that bring blizzard conditions, heavy snow, and ice will impact people and the local and state economy and will have an impact on critical facilities and infrastructure.
- **Space Weather.** No expected impact.
- **Transportation Incident.** Natural hazards can and do influence the probability and extent/magnitude of transportation incidents. Therefore, the changing nature of severe summer weather and severe winter weather from climate change will have an indirect impact on transportation incidents, primarily through hazardous road conditions. These conditions may put strain on existing emergency medical services and require an increase in sheltering capacities.

6. Foster County, North Dakota Mitigation Strategy

Mitigation Purpose, Goals, and Projects

The Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan includes a mitigation strategy consisting of seven goals and specific mitigation projects for each incorporated jurisdiction based on the risk assessment developed at Steering Committee and jurisdictional meetings.

The following are the seven goals that were reviewed, updated, and approved:

Goal 1: Improve and expand education and outreach programs to improve public awareness of hazards.

Goal 2: Improve and expand administrative and technical capability to mitigate hazards.

Goal 3: Improve and expand financial capability to mitigate hazards.

Goal 4: Improve and expand planning and regulatory capability to mitigate hazards.

Goal 5: Reduce impacts of hazards.

Goal 6: Improve resiliency of critical facilities and infrastructure.

Goal 7: Provide places of refuge and early warnings for the public and vulnerable populations to take protective action during hazard events.

The mitigation strategy for Foster County consists of 33 mitigation projects.

All-natural hazards and man-made threats were considered, and mitigation projects were formulated based on the potential or previous effects of hazards, the high probability of hazard or threat occurrences, the vulnerability of jurisdictions to hazards, and hazards each project can mitigate. The problem statement for Foster County, which assisted in formulating specific mitigation actions to reduce the impacts of hazards, is shown before the mitigation actions.

Mitigation Project Development

The Steering Committee identified the following characteristics of each mitigation project and is included in each project profile:

- Description/benefit
- Hazard(s) addressed
- Affected jurisdiction
- Project status
- Priority
- Responsible agency
- Partners
- Timeframe for completion
- Cost
- Funding sources

Scoring and Prioritization

The Steering Committee also scored and ranked projects based on a FEMA process – STAPLEE – that allows a community to understand the support for a project; the potential costs in dollars, time and expertise; environmental impact; and the benefit of the project. The specific words in the acronym STAPLEE are social, technical, administrative, political, legal, economic, and environmental. Each project was scored using a one to five (1 to 5) scoring.

- A score of one (1) indicated a project is ineffective, not feasible and/or too costly;
- A score of three (3) was neutral, and
- A score of five (5) indicated the project was highly effective, feasible and/or a higher benefit compared to cost.

Each mitigation project included in the plan is valuable as it addresses needs specific to Foster County and its jurisdictions. Due to a variety of constraints, not all projects can be implemented simultaneously and must be prioritized with the most critical projects being emphasized for implementation in the near term. However, the prioritization of each project can change over time to respond to changes in a community and to take advantage of resources that become available.

The Steering Committee prioritized each mitigation project on a very high, high, medium, and low designation based on scoring of the documentation, past experiences and professional judgement, and what projects are technically feasible to accomplish based on the capabilities of all jurisdictions. Table 6.1 summarizes the projects by priority by jurisdiction.

Table 6.1 – Prioritization of Mitigation Projects by Jurisdiction

Jurisdiction	Project Number by Prioritization			
	Low	Medium	High	Very High
Foster County	--	AT: 2, 3 EO: 5 PR: 5, 6 I: 3	AT: 1, 4, 7, 8, 10 EO: 2, 3, 4, 6, 7, 8 PR: 1, 2, 4, 8	AT: 5, 6, 9 EO: 1, 9, 10 F: 1 PR: 3, 7 I: 1, 2, 4
City of Carrington	--	5	2	1, 3, 4
City of Glenfield	--	3, 4		1, 2, 5
City of Grace City	--	3		1, 2
City of McHenry	--	4		1, 2, 3

Projects with affected jurisdictions identified as ‘Foster County and incorporated jurisdictions’ are shown in the table under Foster County as these projects are assumed to be a county effort. Mitigation projects with jurisdictions specifically identified are represented in the respective jurisdiction profile located in Chapter 8, Jurisdictions.

Mitigation Project Titles

The title of each mitigation project corresponds with the category of mitigation capability it addresses: Administrative & Technical (AT), Education & Outreach (EO), Financial (F), and Planning and Regulatory (PR). A fifth category, Infrastructure (I), was created to identify projects involving construction activities and physical building efforts.

Acronyms and Definitions

The acronyms and definitions used in the responsible agency and partners section of each mitigation projects profile are described in Table 6.2.

Table 6.2 – Acronyms and Definitions of Responsible Agencies and Partners for Mitigation Projects

Acronym/Definition	Entity
ARS	U.S. Dept. of Agriculture, Agriculture Research Station
BOR	Bureau of Reclamation
CDBG	Community Development Block Grant
City Council(s)	Cities of Carrington, Glenfield, Grace City, McHenry
County Commission	Foster County Commission
Emergency Management	Foster County Office of Emergency Management
Emergency Services	Ambulance, fire, law enforcement, specialty units (local, regional, state)
Engineering	Municipal engineering department or private engineering firms
EPA	Environmental Protection Agency
Extension	NDSU/Foster County Extension Service
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FRA	U.S. Dept. of Transportation, Federal Railroad Administration
FSA	U.S.D.A. - Farm Service Agency
Historical Society	State Historical Society of North Dakota
HUD	U.S. Dept. of Housing and Urban Development
Media	<u>Newsletter:</u> Midkota Messenger, Chamber Chatter <u>Newspaper:</u> Foster County Independent <u>Social Media:</u> Facebook pages for Foster County Emergency Management, Foster County Sheriff's Office, Foster County Public Health, Carrington Medical Center, Carrington Fire Department, Carrington Economic Development, Midkota Public School, Carrington Public Schools, City of Carrington, City of McHenry, Carrington Chamber of Commerce, Carrington Police Department <u>Websites:</u> Foster County, City of Carrington, Carrington Public Schools, Midkota Public School
Medical Service Providers	<u>Hospitals:</u> CHI-St. Alexius Health Carrington Medical Center <u>Medical Clinics:</u> CHI-St. Alexius Health Carrington Medical Center Urgent Care Clinic
NCDC	National Climatic Data Center
NDACo	N.D. Association of Counties
NDDA	N.D. Dept. of Agriculture
NDDC	N.D. Dept. of Commerce
NDDEQ	N.D. Dept. of Environmental Quality
NDDes	N.D. Dept. of Emergency Services
NDDH	N.D. Dept. of Health
NDDOT	N.D. Dept. of Transportation
NDGF	N.D. Game & Fish
NDGS	N.D. Geological Survey
NDIT/NRG	N.D. Information Technology/NRG Technology Services
NDLC	N.D. League of Cities
NDTOA	N.D. Townships Officers Association

**Table 6.2 – Acronyms and Definitions of Responsible Agencies and Partners for Mitigation Projects
– Continued**

Acronym/Definition	Entity
NOAA	National Oceanic and Atmospheric Administration
NRCS	U.S.D.A. Natural Resources Conservation Service
NWS	National Weather Service
PHMSA	Pipeline and Hazardous Materials Safety Administration
Planning & Zoning	Planning and Zoning Board or Commission, or County Commission & City Council(s)
Public Health	Foster County Public Health
PSC	Public Service Commission
Public Utilities	<u>Cable:</u> Daktel, Dish Network/DirecTV/Satellite, Moore Liberty Griggs Telephone Company <u>Electricity:</u> Northern Plains Electric Cooperative, Otter Tail Power Company <u>Internet:</u> Daktel, Dish Network/DirecTV/Satellite, Moore Liberty Griggs Telephone Company <u>Natural Gas:</u> Montana-Dakota Utilities <u>Phone (cellular):</u> AT&T, Smart Talk/Trac Phones, Verizon <u>Phone (landlines):</u> Daktel, Dish Network/DirecTV/Satellite, Moore Liberty Griggs Telephone Company <u>Waste (solid and water):</u> Brager Disposal, municipal services <u>Water:</u> Greater Ramsey Water District, individual wells, municipal wells, private irrigation systems, Stutsman Rural Water District
Public Schools	Carrington Public School, Midkota Public School
Public Works	Foster County Road Department, Carrington Public Works, city public works, county and city park boards/districts
Red Cross	American Red Cross
Regional Council	South Central Dakota Regional Council (SCDRC)
RD	U.S. Dept. of Agriculture – Rural Development
Social Services	Central Prairie Social Services District
SWC	N.D. State Water Commission
U.S.A.C.E.	U.S. Army Corps. of Engineers
USFS	United States Forest Service
VOAD (Voluntary Organizations Active in Disaster)	Adventist Community Services, American Red Cross, Catholic Charities, Church of Jesus Christ of Latter Day Saints, Citizen Corps, Civil Air Patrol, FirstLink, Legal Services of North Dakota, Lutheran Social Services Disaster Response, Mental Health American of ND, N.D. Emergency Management Association (NDEMA), MECHAMA – Jewish Response to Disaster, Presbytery of Northern Plains, Psychological Association, Radio Amateurs, RSVP+, The Salvation Army, Team Rubicon, Inc., United Church of Christ – Northern Plains Conference, United Methodist Disaster Response – Dakotas Conference, World Renew
Water Resource District	Foster County Water Resource District
Weed Board	Foster County Weed Control Board

Problem Statements

Problem statements provide a concise description of the vulnerabilities of the jurisdiction to threats and hazards that should be addressed through mitigation actions. The specific mitigation actions to reduce the impacts of hazards are identified for each jurisdiction and are found after the problem statement. The problem statements and jurisdiction-specific mitigation projects can be found in Chapter 8, Jurisdictions.

Foster County

Foster County can be impacted by civil disturbance; criminal, terrorist or nation-state attack; cyberattack; dam failure; drought; fire (urban and wildland); flood (overland and riverine); geologic hazard; hazardous material release, infectious disease, severe summer weather, severe winter weather, space weather and transportation incidents. Economic loss to the agriculture and livestock industry, and hunting/recreational industry from natural hazards impacts the county's economy. Poor drainage in rural areas causes overland flooding resulting in blocking of roads and highways limiting access for emergency services and economic activity. Critical facilities and infrastructure lack sources of backup power. Small jurisdictions lack outdoor emergency sirens and storm shelters. The county is enrolled in the National Flood Insurance Program. Severe summer weather and severe winter weather are frequent and impose property damage. The county has existing mitigation capabilities that need to be expanded and upgraded. The county has integrated small-scale mitigation measures into its existing departments but relies on outside sources for funding and to accomplish large-scale mitigation projects.

Improvement and expansion of existing mitigation capabilities; upgrading of existing and installation of new outdoor emergency sirens, equipment, and communications; installation of generators at critical facilities and infrastructure; conducting of engineering studies to identify and implement improved drainage and drainage maintenance measures; construction of storm shelters; and upgrading/expansion of administrative and technical, education and outreach, financial, and planning and regulatory capabilities are a priority for the county.

Foster County Project AT-1: Expand administrative and technical mitigation capabilities.

Description/Benefit		Expand administrative and technical mitigation capabilities to improve county readiness and preparedness.					
		<u>Administration:</u> Update mutual aid agreements on a continuous basis. Convert verbal to written.					
		<u>Staff:</u> Conduct Floodplain Administrator education in Foster County. Research options for relinquishing incorporated jurisdiction administration to Foster County. Educate staff to enforce building codes.					
		<u>Technical</u>					
		<ul style="list-style-type: none"> • Install solar-powered electronic fire index sign in the city of Carrington at the roundabout at U.S. 281/52 and N.D. Highway 200. Complete installation of the fire index sign the city of Carrington already owns. • Install permanent generators – See Foster County Project AT-5. • Install and/or expand directional signage for emergency services, and for truck/hazmat routes wherever missing or needed – ordinances may be necessary • Install faraday cages/shields at technological/digital infrastructure systems at critical facilities and infrastructure • Install enhanced cybersecurity countermeasures (i.e., PA Traps/malware, multi-factor authentication, etc.) - specific attention should be paid to the recommendations made in N.D. Cybersecurity Maturity Assessment. 					
Hazards Addressed		All (Space Weather)					
Affected Jurisdictions		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		High					
Responsible Agency		City Council(s), County Commission, Emergency Services, NDIT, Public Schools, Public Works, Public Utilities					
Partners		Emergency Management, Extension, Planning & Zoning					
Completion Timeframe		1 to 3 years	Cost	Project-specific			
Funding Source		Local, state, federal grants. FEMA, Public Utilities, Regional Council, RD.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
4	4	4	4	5	4	5	30
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Solicit project scope of work. Pursue grant funding or use local funds.		

Foster County Project AT-2: Upgrade and expand early warning system(s).

Description/Benefit	<p>Foster County Coverage of current outdoor early warning system/sirens does not provide coverage to an adequate geographic expanse of the county. Upgrade existing manually activated sirens to dispatch-activated sirens. There are no existing outdoor early warning sirens for the county outside incorporated cities. Additional investment should be made into NOAA Weather Radios.</p> <p>Upgrade sirens: City of Carrington (armory)</p> <p>New sirens: City Glenfield, City of Grace City, City of McHenry</p> <p>NOAA Weather Radios: To any city or county residents, upon request</p>						
Hazards Addressed	Flood, Hazardous Material Release, Severe Summer Weather, Fire (Wildland)						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New						
Priority	Medium/High						
Responsible Agency	Emergency Management, Emergency Services						
Partners	County Commission, City Council(s), FEMA, NDDES, NWS, Public Works						
Completion Timeframe	2 to 3 years	Cost	Siren: Up to \$20,000 per siren Reverse 9-1-1/CodeRED: \$4,500 annually				
Funding Source	9-1-1 funding. State Homeland Security Grant Program.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Develop specifications. Received EHP approval. Pursue grant funding. Approval by county commission/city councils.		

Foster County Project AT-3: Maintain Foster County Emergency Alerting System and conduct user training.

Description/Benefit		Foster County currently has a subscription to Nixel – a software alerting system. Foster County should continue participating in the required monthly testing schedule.					
		User training should be conducted with local first responders on a regular basis. A recurring schedule should be created to follow the monthly testing required by Nixel.					
Hazards Addressed		All					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		Medium/High					
Responsible Agency		Emergency Management, Emergency Services					
Partners		County Commission, City Council(s), Emergency Services, Public Works					
Completion Timeframe		2 to 3 years			Cost	Siren: Up to \$20,000 per siren Reverse 9-1-1/CodeRED: \$4,500 annually	
Funding Source		9-1-1 funding. State Homeland Security Grant Program.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Develop schedule and incorporated into existing plans.		

Foster County Project AT-4: Upgrade existing or purchase new equipment and infrastructure for emergency services and incorporated jurisdictions.

Description/Benefit		Purchase and/or install upgraded equipment for ambulance, fire and law enforcement. Improve administrative and technical capabilities of emergency services to mitigate the impact of hazards. A focus of emergency services should be to upgrade equipment to be GIS/GPS capable.					
		<p>Carrington, City of: New snow-go snowblower Carrington Ambulance: 800 Mhz trunking radios (SIRN 2020) Carrington City and Rural Fire Dept: 800 Mhz trunking radios (SIRN 2020), rescue vehicle, 1,500 gpm foam capability fire truck, level B hazardous material suits, 3,000-gallon self-fill tanker. Foster County Sheriff's Office: 800 Mhz trunking radios (SIRN 2020), portable surveillance cameras Glenfield Fire Department: 800 Mhz trunking radios (SIRN 2020), turnout gear, air packs with spare bottles, level B hazardous material suits, high pressure extrication tools McHenry Fire Department: 800 Mhz trunking radios (SIRN 2020), turnout gear, air packs with spare bottles, level B hazardous material suits, high pressure extrication tools, jaws of life</p>					
Hazards Addressed		All hazards					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		High					
Responsible Agency		Emergency Management, Emergency Services					
Partners		City Council(s), County Commission					
Completion Timeframe		1 to 3 years		Cost	Project-specific		
Funding Source		Local, state, federal grants. CDBG, Emergency Services, FEMA, HUD, Public Utilities, RD, USFS.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	4	4	4	5	32
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Review by emergency services, cities, or county Budget or apply for grant funding. Approval by board, county commission, or city councils.		

Foster County Project AT-5: Install permanent generators and/or upgrade existing permanent or portable generators at critical facilities and infrastructure.

Description/Benefit		Upgrade existing generators or install new generators to establish permanent source of backup power to maintain continued operation of the following critical facilities and infrastructure: <u>Upgrade (permanent):</u> CHI-St. Alexius Health Carrington Medical Center, Foster County Courthouse, Foster County Public Health, Northern Plains Electric Cooperative Headquarters in the city of Carrington (serves as the emergency operations center for the cooperative) <u>New (permanent):</u> Carrington Ambulance Bay, Carrington Armory (Emergency Operations Shelter), Carrington City Hall, Carrington Fire Hall, Carrington Police Department, Carrington Public School, Golden Acres Manor/Estates, master lift station, City of Glenfield Community Center, lift stations (all cities), and Midkota Public School. <u>New portable:</u> Carrington Fire Hall, Carrington Police Department, lift stations, Cities of Grace City and McHenry - miscellaneous wherever possible for city water systems, equipment, etc.					
Hazards Addressed		All hazards					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		Ongoing and Continue					
Priority		Very High					
Responsible Agency		County Commission, City Council(s), Emergency Management, Emergency Services					
Partners		Medical Services Providers, Public Utilities, Public Works					
Completion Timeframe		3 to 5		Cost	Project-specific		
Funding Source		Public Utilities, Regional Council, RD. FEMA Building Resilient Infrastructure and Communities (BRIC). State Homeland Security Grant Program.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	4	5	5	5	5	34
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Procure scope of work for project. Received EHP Approval. Apply for grant funding.		

Foster County Project AT-6/City of McHenry Project 3: Conduct engineering study for Alkali Lake to eliminate impacts of flooding to the City of McHenry.

Description/Benefit		High water on Alkali Lake, which receives water from an adjacent unnamed lake also experiencing high water, causes flooding impacts to roadways to the City of McHenry, McHenry Township, and the ND Dept. of Transportation. The city's sanitary sewer lagoon system is located adjacent to the lake and would be completely inundated before Alkali Lake reaches its natural outlet elevation. A preliminary engineering study has been completed by Foster County Water Board in conjunction with Moore Engineering, Inc. The preliminary study identified installation of a two-mile pipeline to eliminate impacts of overland flooding. See Figure 6.1 for an aerial image of the McHenry Sanitary Sewer Lagoons and Alkali Lake.					
Hazards Addressed		Flood (Overland), Infectious Disease, Severe Summer Weather, Severe Winter Weather					
Affected Jurisdiction(s)		Foster County and City of McHenry					
Project Status		New					
Priority		Very High					
Responsible Agency		City Council(s), County Commission, Emergency Management					
Partners		Emergency Services, FEMA, Public Works, SWC, engineering firms					
Completion Timeframe		End of 2022	Cost	TBD			
Funding Source		Local budgets. FEMA's Building Resilient Infrastructure and Communities (BRIC). DWR Cost Share. Clean Water State Revolving Fund. RD.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	5	3	1	3	25
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Alkali Lake High Water Outlet Feasibility Study (preliminary) Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Procure bids and evaluate options. Select firm to complete the study. Consider options. Approval and adoption by city councils and/or county commission.		

Figure 6.1 – City of McHenry Sanitary Sewer Lagoons



Source(s): City of McHenry

Foster County Project AT-7: Establish permanent maintenance system for storm water systems/drainage ditches to reduce and/or eliminate occurrences of overland flooding.

Description/Benefit	Create drainage ditch/storm water maintenance system to control flow of runoff to eliminate blocked roads, maintain access for city/county residents and emergency services, and maintain continuous operation of public infrastructure. Establishment of a system will assist in reimbursement from state and federal sources for expenses incurred during emergency events.						
Hazards Addressed	Drought, Flood (Overland), Infectious Disease, Severe Summer Weather, Severe Winter Weather, Wildland Fire						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New						
Priority	High						
Responsible Agency	City Council(s), County Commission, Public Works						
Partners	Emergency Management, Emergency Services, NRCS, SWC, Water Resource District						
Completion Timeframe	End of 2020	Cost	Staff-time				
Funding Source	Local budgets.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Development of system by county public works. Approval and adoption by county commission and water resource district.		

Foster County Project AT-8: Establish a “Safe Send” site/Drop-Off Point for Disposal of Hazardous Materials.

Description/Benefit		<p>Surplus hazardous materials need to be disposed of properly to mitigate a release of hazardous materials and subsequent fires or infectious diseases. Establishment of a “Safe Send” will provide county residents to a place</p> <p>Foster County should work with Jamestown Landfill to include procedures for disposal in the county’s hazardous materials response plan.</p> <p>A “Safe Send” site is available for fungicides, herbicides, and pesticides through the N.D. Dept. of Agriculture.</p>					
Hazards Addressed		Drought, Fire, Hazardous Material Release, Infectious Disease (All)					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New/Ongoing and Continue					
Priority		High					
Responsible Agency		City Council(s), County Commission, Public Works					
Partners		Emergency Management, Emergency Services, NRCS, SWC, Water Resource District					
Completion Timeframe		End of 2022	Cost	Staff-time			
Funding Source		Local budgets.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	4	5	5	5	5	34
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>			<u>Plan Element Utilized</u>			<u>Process for Integration</u>	
Foster County LEOP Foster County Mitigation Plan Foster County THIRA			Capability Assessment, Hazard History, Risk Assessment			Work with local emergency services to identify development of site.	

Foster County Project AT-9: Install homeland security measures at critical facilities and infrastructure.

Description/Benefit		<p>The Foster County Courthouse, emergency services buildings, CHI-St. Alexius Health Carrington Medical Center, public schools are critical facilities, and utility infrastructure, are vulnerable to adversarial threats.</p> <p>Installation of (but not limited to) access control measures, cybersecurity enhancements, door alarms, door locks, enhanced lighting, security fencing, motion-detecting systems, and security camera surveillance systems are needed to mitigate adversarial threats.</p> <ul style="list-style-type: none"> • Install a door access control system and a security camera surveillance system at the Foster County Public Health building. • Install an outdoor security camera surveillance system at the Foster County Courthouse. • Installation of exterior building to store portable generator and other medical equipment at CHI-St. Alexius Health Carrington Medical Center 					
Hazard/Threat Addressed		Civil Disturbance; Criminal, Terrorist, or Nation/State Attack, Fire (Urban), Transportation Incident					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		Very High					
Responsible Agency		City Council(s), County Commission, Emergency Services, Public Works					
Partners		Emergency Management, Dept. Homeland Security, NDDDES, private contractors					
Completion Timeframe		3 to 5 years		Cost		Project-specific	
Funding Source		Local budgets and department staff and resources. State Homeland Security Grants.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	4	4	5	3	5	31
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Develop scope of work and procure bids/quotes. Select contractor. Apply for grant funding to execute.		

Foster County Project AT-10: Conduct joint hydrology study for Birtsell, Wyard, and Longview Townships, and the City of Glenfield, to evaluate local drainage systems.

Description/Benefit	<p>Conduct a hydrology study to evaluate drainage ditch/storm water systems and culvert sizes to control flow of runoff to eliminate blocked roads, maintain access for city/county residents and emergency services, and maintain continuous operation of public infrastructure. Establishment of a permanent drainage maintenance system based on the study will assist in reimbursement from state and federal sources for expenses incurred during emergency events.</p> <p>Birtsell, Wyard, and Longview Townships: Evaluate current drainage systems and culver sizing.</p> <p>City of Glenfield: Evaluate street issues and take appropriate action to improve city drainage.</p>						
Hazards Addressed	Drought, Flood (Overland), Infectious Disease, Severe Summer Weather, Severe Winter Weather, Wildland Fire						
Affected Jurisdiction(s)	Foster County and the City of Glenfield						
Project Status	New						
Priority	High						
Responsible Agency	City Council(s), County Commission, Public Works						
Partners	Emergency Management, Emergency Services, NRCS, SWC, Water Resource District						
Completion Timeframe	End of 2022	Cost	Staff-time				
Funding Source	Local budgets.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Procure bids and evaluate options. Select firm to complete the study. Consider options. Approval and adoption by city councils, county commission, township boards, etc.		

Foster County Project EO-1: Conduct education and outreach to improve household disaster preparedness.

Description/Benefit	Continued education and outreach to keep households and vulnerable populations ready in case of a disaster using websites, social media, local media, utility inserts, mailings, etc. Develop new websites or communication outlets where necessary. Special attention paid to maintaining and further developing severe weather awareness campaign, are you prepared information, shelter-in-place pamphlets, fire prevention, school safety, storm spotters' program, among others. Specific attention should be given to flooding, hazardous materials, severe weather, fire, and on truck routes and safe routes to school. Outreach and attention should be given to mass notification systems. Existing: Foster County, City of Carrington, Carrington Public Schools, Midkota Public School, City of Glenfield (needs activation and maintenance) Develop new: Pursue additional social media platforms.						
Hazards Addressed	All hazards						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New/Ongoing and Continue						
Priority	Very High						
Responsible Agency	City Council(s), County Commission, Emergency Management, Public Schools						
Partners	Emergency Services, Extension, Media, Public Health, Public Utilities						
Completion Timeframe	Ongoing	Cost	\$1,000 to 2,000 annually				
Funding Source	Local resources. State and federal grants.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Develop and review by appropriate jurisdictions or agencies. Review by state's attorney. Distribute.		

Foster County Project EO-2: Increase awareness of methods for prevention of infectious disease.

Description/Benefit	<p>Make public aware of risk of infectious diseases and methods for prevention in people, animals and crops for economic impact. Methods should focus on young and elderly populations, handwashing, influenza preparedness, and strategies used in agriculture-based economies such as pesticides, fungicides, herbicides and insecticides.</p> <p>New and future awareness should include social distancing and other measures to prevent the spread of coronaviruses.</p>						
Hazards Addressed	Infectious Disease (All)						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New						
Priority	High						
Responsible Agency	Extension, Public Health, Weed Board, public information officers						
Partners	Emergency Management, Emergency Services, Dept. of Natural Resources, FSA, NDDA/State Veterinarian, NDDH, Medical Services Providers, RD, Stockmen’s Association, USDA						
Completion Timeframe	Ongoing	Cost	Project-specific				
Funding Source	Extension. Public Health. Local, state and federal budgets or grants.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Public Health (all plans) Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Development by respective agency. Approval by county commission, city councils and emergency management. Distribute.		

Foster County Project EO-3: Update Foster County Public Health Strategic Plan annually.

Description/Benefit	The strategic plan for Foster County Public Health is required to be updated on an annual basis.						
Hazards Addressed	Infectious Disease (All)						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New						
Priority	High						
Responsible Agency	Public Health						
Partners	Emergency Management, Emergency Services, Medical Services Providers						
Completion Timeframe	Ongoing	Cost	Staff time and printing				
Funding Source	Public Health. Local, state, and federal grants.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Public Health (all plans) Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Development by Public Health. Approval by board. Distribute.		

Foster County Project EO-4: Develop and implement Livestock Outreach Program.

Description/Benefit	Water and Feed Quality Program. Test the safety of water and feed for livestock to reduce the loss of livestock due to poor and/or inadequate quality. Program should focus on stock dams, well water, streams, rivers and watersheds. Crop should be checked for nitrates.						
Hazards Addressed	Dam Failure, Drought, Flood, Infectious Disease, Severe Summer Weather, Severe Winter Weather						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	Ongoing and Continue/New						
Priority	High						
Responsible Agency	Extension						
Partners	County Commission, City Council(s), Producers, N.D. Stockmen’s Association (NDSA), Weed Board						
Completion Timeframe	1 year.	Cost	\$3,000.00				
Funding Source	NDSU/Foster County Extension. County budget. Grants (pay for water and feed test equipment)						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Bovine Emergency Response Plan (BERP) Drought Management Plan (State of North Dakota) Foster County LEOP		Capability Assessment, Hazard History, Risk Assessment			Development by NDSU/Foster County Extension. Review and approval by county commission. Updating of local plans.		

Foster County Project EO-5: Increase awareness of drought tolerant practices and soil conservation methods in farming and ranching, and municipalities.

Description/Benefit	Make public aware of crop programs, and drought tolerant practices and soil conversation methods in farming and ranching. Educating the public on rationing/restrictions on livestock feed and water usage. Prevent loss of crops and livestock during drought. Information for municipalities should focus on water conservation practices. A public awareness campaign for water conservation can increase awareness of drought.						
Hazards Addressed	Drought, Severe Summer Weather, Severe Winter Weather, Wildland Fire						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	Ongoing and Continue/New						
Priority	Medium						
Responsible Agency	Extension						
Partners	Emergency Management, FSA, Media, NRCS, USDA, Weed Board						
Completion Timeframe	Ongoing	Cost	Contact Extension Office				
Funding Source	Rural Development. NRCS. Local resources. State and federal grants. North Dakota State University.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Bovine Emergency Response Plan (BERP) Drought Management Plan (State of North Dakota) Foster County LEOP Foster County Mitigation Plan		Capability Assessment, Hazard History, Risk Assessment			Development by Extension. Approval by county commission, city councils and emergency management. Distribute.		

Foster County Project EO-6: Conduct continuous preventative education to increase awareness of cyberattack threats.

Description/Benefit	<p>Make public aware of risk of cyberattacks such as Advanced Persistent Threats, Distributed Denial of Service, Doxing, Media Threats, Password Phishing Attacks, Socially Engineered Malware and Unpatched Software. Specific attention should be paid to the framework developed and included in the K20W Initiative. Specific attention information should be developed for incorporated cities to protect utility infrastructure (i.e., Carrington Water treatment Plant).</p> <p>Specific education opportunities should be made available to IT staff at Carrington Public School and Midkota Public School.</p>						
Hazard/Threat Addressed	Cyberattack						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New						
Priority	High						
Responsible Agency	Emergency Management and Foster County PIO in partnership with Computer Express and NDIT						
Partners	City Council(s), County Commission, Emergency Services, Public Schools						
Completion Timeframe	Ongoing	Cost		Project-specific			
Funding Source	Local, state and federal grants. Local budgets.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	3	5	5	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Development by Foster County Office of Emergency Management, NDIT and Computer Express. Approval by county commission, city councils and emergency management. Distribute.		


Foster County Project EO-7: Make public aware of risk of shortage or outage of critical materials or infrastructure and encourage citizens to be proactive and self-sufficient.

Description/Benefit	<p>Make public aware of risk of shortage of critical materials and/or infrastructure and encourage citizens to be self-sufficient. Use ‘Are You Prepared?’ brochure from Logan and Stutsman Counties as an example.</p> <p>Educate residents on the importance of shelter-in-place, stocking of food, water, and medical supplies, fuel for heating, backup power generation, etc.</p>						
Hazards Addressed	All						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New						
Priority	High						
Responsible Agency	Emergency Management, Emergency Services, Public Schools, Social Services						
Partners	County Commission, City Councils, Extension, Food Pantries, Media, NDDDES, NDDH, Public Health, Public Utilities, Volunteer Organizations Aiding in Disaster (VOAD)						
Completion Timeframe	Ongoing	Cost	TBD				
Funding Source	Local budgets. State and federal grants. Private sector.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County Public Health (all plans) Foster County THIRA State Vulnerable Populations Plan		Capability Assessment, Hazard History, Risk Assessment			Development by Emergency Management, Public Health, Public Schools, and Public Utilities. Approval by county commission, city councils, school boards. Distribute.		

Foster County Project EO-8: Update Foster County Vaccination Outreach Plan annually and perform outreach.

Description/Benefit		<p>The influenza vaccination rate for school-aged children in Foster County needs to be increased. Develop outreach with the goal of increasing this rate to 100 percent. Recent immunization funding from the N.D. of Health will assist public health in increasing immunizations, creating a written outreach plan, and identify strategies to improve vaccine confidence in the community.</p> <p>It should be noted that the overall goal of 100 percent influenza vaccination for school-aged children is an objective/goal of Foster County. However, the rights of individual medical freedom and parent’s rights for the health of their children supersedes any local government objective/goal.</p> <p>All public schools in Foster County follow the immunization requirements set forth by the N.D. Dept. of Health, found on the following page. Exemptions are available to any parent or student who wishes to obtain one.</p>					
Hazard/Threat Addressed		Infectious Disease (only those that are vaccine preventable)					
Affected Jurisdiction(s)		Foster County, incorporated jurisdictions and unincorporated jurisdictions. Specific attention paid to communities with schools, care centers/nursing homes, higher education, and institutionalized populations.					
Project Status		New/Ongoing and Continue (new to the mitigation plan, but has always been executed by public health)					
Priority		High					
Responsible Agency		Public Health					
Partners		City Council(s), Emergency Management, Emergency Services, Medical Services Providers, Public Schools, Social Services, faith-based organizations. Local businesses and community champions.					
Completion Timeframe		Ongoing	Cost	Staff time and printing			
Funding Source		Public Health. N.D. Dept. of Health Immunization grant funding.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	4	5	5	5	34
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County Public Health (all plans) Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Develop by Foster County Public Health. Approval by board, public schools and emergency management. Distribute.		

Figure 6.2 – N.D. Dept. of Health School Immunization Requirements



2021-2022 School Immunization Requirements

Vaccine Type	Number of Required Doses		
	Kindergarten-6	Grades 7-10	Grade 11-12
DTaP/DTP/DT/Tdap/Td*	5	5	5
Hepatitis B	3	3	3
IPV/OPV^{†‡}	4	4	4
MMR	2	2	2
Varicella (Chickenpox)	2	2	2
Meningococcal[†]	0	1	2
Tdap[⊖]	0	1	1

* One dose of DTaP (pediatric diphtheria, tetanus, and acellular pertussis) vaccine must have been given on or after the fourth birthday. Only four doses are necessary if the fourth dose was administered on or after the fourth birthday. Three doses of Tdap (adolescent/adult tetanus, diphtheria, and acellular pertussis)/Td are required for children ages seven or older who were not previously vaccinated. Tdap should be used as the first dose followed by two doses of Td for children age seven or older not previously vaccinated.

† For polio vaccination, in an all-IPV or all-OPV schedule: one dose must have been given on or after the fourth birthday. The final dose in the series should be administered on or after the fourth birthday and at least six months after the previous dose. If four doses are administered prior to age four, a fifth dose should be administered on or after age four. Only three doses of IPV are required if the third dose is given on or after the fourth birthday. Children born before August 2005 only need four doses separated by at least four weeks. These children do not need a dose after the age of four.

‡ Any doses of OPV administered after April 1, 2016, should not be counted as valid, because it was bivalent or monovalent vaccine, rather than trivalent. The child should be revaccinated with IPV vaccine, accordingly.

† One dose of meningococcal conjugate vaccine (MCV4) must have been given on or after the tenth birthday. The second dose of MCV4 must be given on or after the sixteenth birthday. If the first dose of MCV4 is given after the sixteenth birthday, then only one dose of MCV4 is required for eleventh and twelfth grade.

⊖ One dose of Tdap must have been given on or after the eleventh birthday.

Exemptions

Students may be exempt from immunization requirements for the following reasons:

- **Medical Exemption:** Requires a certificate signed by a licensed physician stating that the physical condition of the child is such that immunization would endanger the life or health of the child.
- **Personal Belief or Religious Belief Exemption:** Requires a certificate signed by the parent or guardian whose sincerely held philosophical, moral or religious belief is opposed to such immunization.
- **History of Disease Exemption:** Requires a certificate signed by a physician stating that the child has a reliable history of disease. History of disease exemptions may only be claimed for hepatitis B, varicella, measles, mumps, or rubella.

Exclusion

All children must be up-to-date according to the school immunization requirements or have claimed an exemption by **October 1st** of each school year or they must be excluded from school. Children enrolling in school after October 1st have 30 days to be up-to-date or claim an exemption or they must be excluded from school.

Source(s): Foster County Public Health, N.D. Dept. of Health

Foster County Project EO-9: Update CHI-St. Alexius Carrington Medical Center plans and policies annually.

Description/Benefit	The hospital is mandated to have the following plans and policies and are required to be updated on an annual basis: mass vaccination, mass casualty, airlift, hazardous materials disposable, communications/incident command, hazardous material response, diversion, utilities, severe weather, fire safety, weapons, missing person, assaultive person/manpower/womanpower, adversarial threats, water management, bomb threat, shelter-in-place, hostage, evacuation, vaccine storage, lock-down,						
Hazard/Threat Addressed	Infectious Disease (all)						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New						
Priority	Very High						
Responsible Agency	CHI-St. Alexius Carrington Medical Center						
Partners	Emergency Management, Emergency Services, Public Health						
Completion Timeframe	Ongoing	Cost	Staff-time				
Funding Source	Local budgets. State and federal grants.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
CHI/St. Alexius Health Carrington Medical Center – all plans Foster County Public Health – all plans Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Develop new and/or update by hospital staff. Distribute to public health and emergency management for continuity purposes.		

Foster County Project EO-10: Conduct education and outreach on fire safety and prevention, burn bans, state fire indexes, and regional/state burning regulations and bans.

Description/Benefit	Make the public aware of methods to remain safe from risk of urban fire and wildland fire and potential prevention methods. Keep areas around buildings and structures clear of grass, overgrown vegetation and debris. Specific attention should be paid to property owners in city limits with substantial vegetation to reduce fuels for wildland fires. Education the public on burn bans and state fire indexes. Reduce risk of fire hazard from outdoor burning by residents and providing means of communication. Explore surface water access options for fire suppression.						
Hazard/Threat Addressed	Drought, Fire (Wildland), Hazard Material Release, Severe Summer Weather, Severe Winter Weather						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	Ongoing and continue						
Priority	High. Primarily summer but can occur in spring and fall.						
Responsible Agency	Emergency Management, Emergency Services						
Partners	Foster County Commission, Extension, fire departments/districts, NDDDES, NRCS, NWS, SCD						
Completion Timeframe	Ongoing	Cost	\$0 for a local PSA; \$1,000 to \$3,000/week for substantial outreach				
Funding Source	Local budgets. State and federal grants.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Development by Emergency Management and Emergency Services. Approval by county commission. Distribute.		

Foster County F-1: Expand and improve existing or implement new financial mitigation capabilities.

Description/Benefit		Expand financial mitigation capabilities to generate funds for completion of mitigation projects. To reflect changes in development and mitigate areas impacted by hazards through impact fees.					
		<ul style="list-style-type: none"> • Create and implement impact fees for new development. • Restructure and improve building permit fees to be a percent of project cost. • Establish Capital Improvement Fund. • Restructure and increase utility fees (water, sewer) based on projected future infrastructure maintenance costs and necessary capital improvements. • Research additional revenue generators such as an electricity utility fee, wheel tax, etc. 					
Hazards Addressed		All					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		Very High					
Responsible Agency		County Commission and City Council(s)					
Partners		Emergency Management, Emergency Services, NDAC, NDLC, Planning & Zoning, Public Utilities					
Completion Timeframe		Ongoing		Cost	Staff-time		
Funding Source		Local budgets and staff time.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
3	4	4	1	5	5	5	27
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
City Councils and County Commission Planning Commission		Capability Assessment, Hazard History, Risk Assessment			Research effectiveness. Approval and adoption by county commission and city councils.		

Foster County Project PR-1: Assure Foster County, North Dakota has FEMA-Approved Mitigation Plan.

Description/Benefit		Continuous assessment of vulnerabilities to the county and incorporated jurisdiction, and update of hazards and impacts, monitoring of mitigation project implementation and progress.					
		Update plan on a continuing basis between plan update grant applications. See Chapter 10 and Appendix 8 of this plan.					
Hazards Addressed		All					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		High					
Responsible Agency		County Commission, Emergency Management					
Partners		Emergency Services, Extension, Planning & Zoning, Public Health, Public Works, SWC, Water Resource District					
Completion Timeframe		4 to 5 years	Cost	\$25,000 to \$50,000 (update of plan)			
Funding Source		Local budgets. FEMA’s HMGP or PDM Grant program.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Hazard Mitigation Plan (all other existing mechanisms)		All elements			Adoption by county commission and city councils. Approval NDDDES and FEMA.		

Foster County PR-2: Update/expand existing and/or create new planning and regulatory capabilities to address existing and new development.

Description/Benefit		Build the planning and regulatory capability of Foster County and incorporated jurisdictions by updating existing and/or expand and create new plans, policies, and ordinances. To ensure new and existing structures adhere to building standards to withstand impacts from hazards. Energy development (oil and gas) in the western portions of the state may lead to economic and population growth in the future. Specific research should be conducted to address community fire/wildfire protection, cybersecurity, drought management, flood ordinances and management, grain bins, hazardous materials, impact fees, man camps, mitigation, rodent control, site plan review requirements, storm water management, and water conservation. Additional consideration should be given to prioritize sewer backup valves when upgrading existing or building new development. Redundancies in the power grid systems should be encouraged. Specific attention should be paid to tie-down procedures for temporary buildings. Develop and implement a county-wide computer security system/policy.					
		A list of plans, policies, codes and ordinances needing to be updated or created for Foster County and incorporated jurisdictions are bolded in text narratives and are found in Chapter 7, Capability Assessment.					
Hazards Addressed		All					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		High					
Responsible Agency		City Council(s), County Commission, Planning & Zoning					
Partners		Emergency Management, Emergency Services, NDACo, NDDES, NDLC, Public Works, RD					
Completion Timeframe		Ongoing	Cost		\$0 to \$100,000 / Staff-time		
Funding Source		Local budgets. Local, state and federal grants. Private sector.					
Values: 1 is low (negative impact and/or too costly) – Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	3	3	3	4	28
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
All		Capability Assessment, Hazard History, Risk Assessment			Development of specifications. Approval and adoption by county commission and city councils.		

Foster County PR-3: Encourage jurisdictional participation in the National Flood Insurance Program (NFIP).

Description/Benefit	Ensure economic resiliency. Residents with property at risk would be insured. Ensure continuous review and updating or implementation of flood ordinances and flood control measures.						
Hazards Addressed	Flood (overland and riverine), Severe Summer Weather, Severe Winter Weather						
Affected Jurisdiction(s)	Foster County and the City of Carrington. The Cities of Glenfield, Grace City, and McHenry are not enrolled.						
Project Status	Ongoing and Continue						
Priority	Very High						
Responsible Agency	County Commission, City Council(s), Emergency Management						
Partners	Planning & Zoning, SWC, Water Resource Board						
Completion Timeframe	Ongoing	Cost	\$0 to \$1,000 / staff time				
Funding Source	Local staff-time. FEMA. SWC.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Flood Ordinances Foster County LEOP, Flood Annex Foster County Mitigation Plan Foster County THIRA National Flood Insurance Program		Capability Assessment, Hazard History, Risk Assessment			Approval and adoption by county commission and city councils		

Foster County PR-4: Encourage jurisdictions to review local flood ordinances to meet or exceed minimum federal and state requirements, comply with the NFIP (once enrolled) and enroll in the Community Rating System.

Description/Benefit	To ensure Foster County and incorporated jurisdictions meet or exceed the NFIP and/or to prepare for enrollment in the NFIP.						
Hazards Addressed	Flood (overland and riverine), Severe Summer Weather, Severe Winter Weather						
Affected Jurisdiction(s)	Foster County and the City of Carrington. The Cities of Glenfield, Grace City, and McHenry are not enrolled.						
Project Status	Ongoing and continue						
Priority	High						
Responsible Agency	County Commission, City Councils, Emergency Management, Planning & Zoning						
Partners	Emergency Services, NDACo, NDDes, NDLC, SWC						
Completion Timeframe	Ongoing	Cost	\$0 to \$1,000 / staff time				
Funding Source	Local staff-time. FEMA. SWC.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	3	5	5	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Flood Ordinances Foster County LEOP, Flood Annex Foster County Mitigation Plan Foster County THIRA National Flood Insurance Program		Capability Assessment, Hazard History, Risk Assessment			Approval and adoption by county commission and city councils.		

Foster County PR-5: Create post-disaster debris management plan and update on an annual basis.

Description/Benefit		Provide temporary staging site for disposal of waste from structures to improve resiliency and recovery efforts and maintain quality of life.					
		Establishment of a management plan increases disaster reimbursement from FEMA by five percent.					
Hazards Addressed		All					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		Ongoing and Continue					
Priority		Medium					
Responsible Agency		Emergency Management, Planning & Zoning, Public Works					
Partners		City Councils, County Commission, NDACo, NDDDES, NDLC, Public Health, Public Utilities, Water Resource Board					
Completion Timeframe		1 year. Annual review.			Cost	Staff time	
Funding Source		Local budgets.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	3	3	5	5	29
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP (Appendix) Foster County Mitigation Plan Foster County THIRA Planning Commission		Capability Assessment, Hazard History, Risk Assessment			Organize planning committee and create plan. Approval and adoption by county commission and city councils. Update annually.		

Foster County PR-6: Create Bovine Emergency Response Plan (BERP).

Description/Benefit	Gives first responders a standard operating procedure on how to mitigate issues pertaining bovine losses from natural hazards or man-made threats. The plan also assures public safety first and foremost, first responder safety, and animal well-being.						
Hazards Addressed	Civil Disturbance, Dam Failure, Drought, Fire (Wildland), Flood, Hazardous Material Release, Infectious Disease, Severe Summer Weather, Severe Summer Weather, Transportation Incident						
Affected Jurisdiction(s)	Foster County and incorporated jurisdictions						
Project Status	New						
Priority	Medium/Low						
Responsible Agency	Emergency Management, Emergency Services						
Partners	Extension, N.D. State Vet Office, local producers and/or veterinarians, Weed Board, wrecker services						
Completion Timeframe	1 year	Cost	\$75 to \$100 per person				
Funding Source	Central Grasslands Research Extension Center. N.D. Beef Commission. Local budgets.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	4	5	5	5	5	34
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Schedule training and education event with Central Grasslands Research Extension Center. Develop draft plan and formally adopt by county commission. Integrate into local emergency services response protocols.		

Foster County PR-7: Update Flood Operations/Management Annex in the Foster County Local Emergency Operations Plan on an annual basis.

Description/Benefit		Flooding impacts Foster County on an annual basis to varying degrees of severity. The Flood Operations/Management Annex in the Foster County Local Emergency Operations Plan should be updated annually based on the flooding event of the preceding year.					
Hazards Addressed		Dam Failure, Flood, Severe Summer Weather, Severe Winter Weather					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		Very High					
Responsible Agency		County Commission, Emergency Management, Emergency Services, Planning & Zoning, Public Works					
Partners		City Council(s), NDDES, Public Health, Public Utilities, SWC, Water Resource Board					
Completion Timeframe		Annually	Cost	Staff time			
Funding Source		Local budgets.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP, Flood Annex Foster County Mitigation Plan Planning Commission		Capability Assessment, Hazard History, Risk Assessment			Utilize the Foster County LEPC or Mitigation Plan Steering Committee to update annually. Approval and adoption by county commission and city councils.		

Foster County PR-8: Create Community Wildfire Protection Plan (CWPP).

Description/Benefit		<p>Foster County, incorporated jurisdictions, and unincorporated jurisdictions are becoming increasingly vulnerable to wildland fire due to an increase in the frequency and severity in drought and severe summer weather, and a growing interaction with its rural residential populations and the Wildland-Urban Interface.</p> <p>A Community Wildfire Protection Plan (CWPP) identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment on Federal and non-Federal land that will protect one or more at-risk communities and essential infrastructure. The CWPP recommends measures to reduce structural ignitability throughout the at-risk community, and may also address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection - or all the above. The plan is developed in a collaborative framework between local government, local fire department(s), other stakeholders, and federal land management agencies that manage land in the planning area.</p> <p>The plan should place emphasis on achieving Firewise Certification for appropriate communities - https://rb.gy/uav9w5</p>					
Hazards Addressed		Drought, Wildland Fire, Severe Summer Weather, Transportation Incident					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		High					
Responsible Agency		County Commission, Emergency Management, Emergency Services, Planning & Zoning, Public Works					
Partners		City Council(s), NDDES, Public Health, Public Utilities, SWC, Water Resource Board					
Completion Timeframe		2 to 3 years	Cost	\$25,000 to \$35,000			
Funding Source		Local budgets. State and federal grants. FEMA’s Building Resilient Infrastructure and Communities (BRIC)/Pre-Disaster Mitigation (PDM) Grant Program.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	4	3	5	5	5	32
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Budget for the plan locally or obtain grant funding. Identify Steering Committee to direct the planning process. Adoption by city councils, county commission and fire departments.		

Foster County Project I-1: Assure continued monitoring and maintenance of Dover Dam and Tollefson Dam and conduct necessary maintenance/repair work.

Description/Benefit		To protect human life and property from dam failures. <u>EAPs and contact information should be updated on an annual basis for each respective dam.</u> See Chapter 4.4 Dam Failure for additional information on high and medium hazard dams in Foster County. A full list of dams in Foster County can be found in the hazard history for the county on a disc at the beginning of this plan.					
Hazards Addressed		Dam Failure, Flood, Severe Summer Weather, Severe Winter Weather					
Affected Jurisdictions		Foster County and incorporated jurisdictions					
Project Status		Ongoing and continue					
Priority		Very High					
Responsible Agency		Emergency Management					
Partners		City Councils, County Commission, Engineering, Public Works					
Completion Timeframe		Ongoing.			Cost	To be determined. Project specific.	
Funding Source		Local, state and federal budgets, grants, and resources. Private dam owners.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	5	5	1	5	29
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Hazard Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment, dam failure statistics			Work with state agencies to incorporate monitoring and maintenance schedules into local planning mechanisms.		

Foster County Project I-2: Retrofit and/or upgrade bridges, culverts, railroads, roads and/or grade raises, stormwater pipes, and underpasses to withstand natural hazards and prevent blockage to maintain access for emergency services.

Description/Benefit		Increase resiliency of bridges, culverts and railroads, roads, and stormwater pipes to maintain transportation to assure economic vitality and access for emergency services. A detailed description of each bridge, culvert, railroads, roads, and stormwater pipes is shown on the following page and in Chapter 4.4, Flood.					
Hazards Addressed		Drought, Fire (Wildland), Flood (overland and riverine), Hazardous Material Release, Severe Summer Weather, Severe Winter Weather					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		Ongoing and Continue/New					
Priority		Very High					
Responsible Agency		County Commission, FHWA, FRA, NDDOT, Public Works, Water Resource Board					
Partners		Emergency Management, Emergency Services, Planning & Zoning					
Completion Timeframe		Ongoing	Cost		Project-specific		
Funding Source		FHWA, FRA and NDDOT. FEMA Hazard Mitigation, Section 406. State and federal grants.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	4	5	5	2	5	31
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan N.D. Dept. of Transportation State Transportation Improvement Plan (STIP)		Capability Assessment, Hazard History, Risk Assessment			Develop engineering specifications. Secure funding. Approval and adoption by county commission, township boards, and city councils.		

Foster County Project I-2: Retrofit and/or upgrade bridges, culverts, railroads, roads and/or grade raises, stormwater pipes, and underpasses to withstand natural hazards and prevent blockage to maintain access for emergency services.

Bridges: Wing walls on Hofmann Bridge: one-mile west and two miles south of Grace City. Close old Hofmann bridge (one-mile south and one-mile west of Grace City) and build a new access road to the west side of the James River.

Culverts: Add new/resized culverts on Kelly Creek.

Pipes (stormwater):

Railroads:

Road Retrofits and/or Grade Raises: Grade raise and re-place McHenry Road 3.5 miles east of McHenry due to rising water from Alkali Lake.

Underpasses:

Foster County Project I-3: Construct new storm shelters/community safe rooms or retrofit existing structures to reduce and/or eliminate the risk to vulnerable populations and the public.

Description/Benefit		Provide safe area of refuge for permanent residents, temporary populations, and seasonal/recreational populations from severe weather. Reduce/eliminate loss of life from hazards and man-made threats. Upgrade existing shelters to be fully ADA compliant and pet friendly. Construct new storm shelters/community safe room in jurisdictions currently lacking a storm shelter/safe room. Procure shelter supplies where necessary. More information on community shelters can be found through the following link: https://www.fema.gov/media-library/assets/documents/5090					
		Cots were purchased and stored in the basement of the Carrington Armory. Cots are still needed for all remaining shelters.					
		Upgrade: Carrington Armory, Carrington High School, Midkota Public School, Schoolhouse Café in Grace City, McHenry Fire Hall					
		New: City of Carrington, City of Glenfield, City of Grace City, City of McHenry					
Hazards Addressed		All					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New/Ongoing and Continue					
Priority		Medium					
Responsible Agency		Emergency Management, Emergency Services, Public Health					
Partners		County Commission, City Council(s), NDDES, Red Cross, Social Services, private housing/community owners,					
Completion Timeframe		3 to 5 years		Cost	\$75,000.00 to \$150,000.00 per shelter		
Funding Source		Local, state and federal grants. FEMA Pre-Disaster Mitigation Grant Program (PDM).					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	3	5	3	4	28
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Approval by county commission, city councils, and private house/community owners		

Foster County Project I-4: Retrofit and/or upgrade the Foster County Courthouse substructure to mitigation impacts from flooding (ground seepage) and geologic hazards.

Description/Benefit		<p>Ground seepage causes interior flooding in the basement of the Foster County Courthouse during high precipitation years. When the fill underneath the concrete that comprises the basement floor is saturated it expands causing the flooring to heave. When the fill dries out it causes the concrete to contract which in turn causes voids in the floor. The basement is the location of social services, housing authority, veterans’ affairs office, and the maintenance supervisor office. The floor currently poses a tripping hazard to county employees and the public. Also, the electrical infrastructure/panels, fiberoptic infrastructure, and drinking/potable water and sanitary sewer infrastructure connect to the building in the basement. The basement also is the location of vaults containing historical archives for the county.</p> <p>Drain tile was installed spring 2021 to draw excess moisture away from the building. The effectiveness of the drain tile is not known until the existing substructure is removed.</p> <p>See Figures 6.3, 6.4, and 6.5 on the following pages.</p>					
Hazards Addressed		Cyberattack, Drought, Flood, Geologic Hazard, Infectious Disease, Severe Summer Weather, Severe Winter Weather					
Affected Jurisdiction(s)		Foster County and incorporated jurisdictions					
Project Status		New					
Priority		Very High					
Responsible Agency		County Commission, Foster County Auditor, EAPC Architects					
Partners		Emergency Management, Emergency Services, Public Health, Social Services					
Completion Timeframe		2 to 3 years	Cost		TBD		
Funding Source		Local, state, and federal grants. FEMA’s Building Resilient Infrastructure and Communities (BRIC) Grant.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	3	5	1	1	23
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County Courthouse General/Improvement Fund Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Approval of scope of work by county commission. Apply for grant funding. Execute.		

Figure 6.3 – Foster County Courthouse Substructure Heaving #1



Source(s): Foster County

Figure 6.4 – Foster County Courthouse Substructure Heaving #2



Source(s): Foster County

Figure 6.5 – Foster County Courthouse Substructure Heaving #3



Source(s): Foster County

7. Mitigation Capability

Capability for mitigation is divided into four categories: Administrative and Technical, Education and Outreach, Financial, and Planning and Regulatory. Chapter 7.1 provides an assessment of the mitigation capabilities of Foster County and incorporated jurisdictions.

- Table 7.1.1 highlights **administrative and technical** capabilities.
- Table 7.1.2 highlights **education and outreach** capabilities.
- Table 7.1.3 highlights **financial** capabilities.
- Table 7.1.4 highlights **planning and regulatory** capabilities.
- Table 7.1.5 shows the **utilization of planning mechanisms** in Foster County by natural hazard/man-made threat and mitigation project.

Sources for mitigation funding are shown in Chapter 7.2, Mitigation Funding Sources.

Current planning mechanisms, and the process for integration of the mitigation plan into planning mechanisms, are discussed after Table 7.1.4 and before Table 7.1.5. The process to integrate the mitigation plan into existing planning mechanisms for each jurisdiction is shown in the respective jurisdiction profile in Chapter 8, Jurisdictions following the mitigation capability assessment.

Information in the tables is outlined as follows:

1. Boxes checked with an “X” indicate the jurisdiction possesses the capability; while boxes left blank indicate the jurisdiction is lacking the capability.
2. An asterisk (*) indicates a capability that can be obtained through the county, contracted services, or an outside entity.
3. A ^ denotes a mitigation capability in progress.

Narratives following each table detail the capabilities of Foster County and incorporated jurisdictions are found in Chapter 7.1, Mitigation Capability Assessment. Information on the capabilities of each jurisdiction was gathered at committee meetings, and jurisdictional workshops, and interviews during the planning process. **Bolded narratives identify mitigation projects.**

Each identified resource in the four mitigation capability categories can be used to implement mitigation strategies and access funding for projects. A definition of each mitigation capability category is provided.

- **Administrative and Technical:** Identification of administrative and technical capabilities, which includes staff and their skills and tools for mitigation planning to implement specific mitigation actions.
- **Education and Outreach:** Identification of education and outreach programs, and methods already in place to implement mitigation activities and communicate hazard-related information.
- **Financial:** Identification of access to or eligibility to use funding resources for hazard mitigation for jurisdictions.
- **Planning and Regulatory:** Jurisdictional plans, policies, codes, and ordinances adopted and in place that prevent and reduce the impacts of hazards.

7.1 County/City Jurisdiction Mitigation Capability Assessment

Capability for mitigation is divided into four categories: administrative and technical, education and outreach, financial, and planning and regulatory.

- Table 7.1.1 highlights **administrative and technical** capabilities.
- Table 7.1.2 highlights **education and outreach** capabilities.
- Table 7.1.3 highlights **financial** capabilities.
- Table 7.1.4 highlights **planning and regulatory** capabilities.
- Table 7.1.5 shows the **utilization of planning mechanisms** in Foster County by hazard and mitigation project.

Sources for mitigation funding are shown in Chapter 7.2, Mitigation Funding Sources.

Current planning mechanisms, and the process for integration of the mitigation plan into planning mechanisms, are discussed after Table 7.1.4 and before Table 7.1.5. The process to integrate the mitigation plan into existing planning mechanisms for each jurisdiction is shown in the respective jurisdiction profile in Chapter 8, Jurisdictions following the mitigation capability assessment. Information in the tables is outlined as follows:

1. Boxes checked with an “X” indicate the jurisdiction possesses the capability; while boxes left blank indicate the jurisdiction is lacking the capability.
2. An asterisk (*) indicates a capability that can be obtained through the county, contracted services, or an outside entity.
3. A ^ denotes a mitigation capability in progress.

Narratives following each table detail the capabilities of Foster County. Narratives for incorporated jurisdictions are found in Chapter 8, Jurisdictions. Information on the capabilities of each jurisdiction was gathered at committee meetings and interviews during the planning process. **Bolded narratives identify mitigation projects.**

Each identified resource in the four mitigation capability categories can be used to implement mitigation strategies and access funding for projects. A definition of each mitigation capability category is provided.

- **Administrative and Technical:** Identification of administrative and technical capabilities, which includes staff and their skills and tools for mitigation planning to implement specific mitigation actions.
- **Education and Outreach:** Identification of education and outreach programs, and methods already in place to implement mitigation activities and communicate hazard-related information.
- **Financial:** Identification of access to or eligibility to use funding resources for hazard mitigation for jurisdictions.
- **Planning and Regulatory:** Jurisdictional plans, policies, codes, and ordinances adopted and in place that prevent and reduce the impacts of hazards.

Table 7.1.1 shows the administrative and technical capabilities of the Foster County and incorporated jurisdictions. A box marked with an “X” indicates the jurisdiction has or has access to the administrative or technical capability for mitigation. An asterisk (*) denotes an administrative and technical capability that can be obtained through the county for incorporated jurisdictions, or contracted services or an outside entity for the county. A ^ denotes an administrative and technical capability in progress.

Administration

1. Foster County has an active county commission. The cities of Carrington, Glenfield, Grace City, and McHenry have active city councils.
2. **Foster County has an active local emergency planning committee (LEPC). The cities of Carrington, Glenfield, Grace City, and McHenry are represented by the local emergency planning committee (LEPC).**
3. **Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have an active mitigation planning committee through the county LEPC.**
4. Foster County and the cities of Carrington, Glenfield, Grace City and McHenry have joint powers agreements (mutual aid) with emergency services in the county, incorporated jurisdictions, and neighboring counties. **The mutual aid agreements between emergency services (ambulance, fire, and law enforcement) need to be updated.**
5. **Foster County has staff capable of mitigation activities. County staff includes the extension office, auditor's office, tax equalization, emergency management, sheriff's office, and public health. The auditors and emergency services personnel for the cities of Carrington, Glenfield, Grace City, and McHenry are capable of mitigation activities. Additional staff capable of mitigation activities in the city of Carrington include the public works director, chief of police, city librarian, medical center administrator, and economic development director.**
6. Foster County has a park board through the Foster County Commission. The cities of Carrington and Grace City have park boards separate from their city council. The city councils of Glenfield and McHenry serve as the park board.
7. Foster County has a planning commission separate from the Foster County Commission. The city of Carrington has planning commission separate from the city council. The cities of Glenfield, Grace City, and McHenry have planning commissions through their city councils.
8. Foster County and the city of Carrington have a zoning administrator. The cities of Glenfield, Grace City, McHenry zoning administrators through their city councils.
9. Foster County and the city of Carrington have a planning and zoning board. The cities of Glenfield, Grace City, and McHenry have a planning and zoning board through their city councils.
10. The Foster County Public Health Board serves Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry.
11. Foster County has a water resource board. The cities of Carrington, Glenfield, Grace City, and McHenry have a water resource board through Foster County.
12. Foster County has a weed board. The cities of Carrington, Glenfield, Grace City, and McHenry have a weed board through Foster County.

Staff

1. Foster County has a part-time 9-1-1 coordinator. The cities of Carrington, Glenfield, Grace City, and McHenry receive 9-1-1 coordination through Foster County.

2. **Foster County and the cities of Glenfield, Grace City, and McHenry do not have a building official/inspector/board. The city of Carrington has a building inspector.**
3. Community planner/planning services are available to Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry through the regional council or other contracted services.
4. Foster County has a part-time emergency manager. The cities of Carrington, Glenfield, Grace City, and McHenry receive emergency management services through Foster County.
5. Foster County has law enforcement services through the Foster County Sheriff's Office. Ambulance protection is provided to Foster County and the cities of Carrington and Grace City through Carrington Ambulance Services. The cities of Glenfield and McHenry receive ambulance services through McHenry Ambulance. The city of Carrington has its own police department. The cities of Carrington, Glenfield and McHenry have their own fire department. The city of Grace City does not have its own fire department and receive fire services from Carrington Fire Dept. and McHenry Fire Dept.
6. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have a full-time engineer on-staff. Engineering services are provided by contract and/or on as-needed basis.
7. Foster County has a floodplain administrator. The auditor serves as the floodplain administrator for the cities of Carrington, Glenfield, Grace City, and McHenry.
8. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry can obtain GIS services through their respective engineering contract or another private entity.
9. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have staff with grant writing and administration capability through their respective auditor and/or other city/county staff.
10. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry receive public health services through Foster County Public Health.
11. The Foster County Road Department serves as the public works department for Foster County. The cities of Carrington, Glenfield, Grace City, and McHenry each have its own public works employee(s).
12. Foster County has a full-time Sheriff and two deputies. The Foster County Sheriff's Office provides law enforcement services through mutual aid to the cities of Carrington, Glenfield, Grace City, and McHenry.

Technical

1. **Emergency services in Foster County and the city of Carrington have GIS/GPS capabilities through the Computer Aided Dispatch (CAD) system administered through state radio. Emergency services in the cities of Glenfield, Grace City, and McHenry are not GIS/GPS capable. Emergency services personnel use app-based services on their mobile devices.**
2. Foster County does not have any manually-activated emergency sirens outside of incorporated city jurisdictions. The siren at the armory in the city of Carrington is manually-activated and radio-activated. The cities of Glenfield, Grace City, and McHenry do not have manually-activated sirens.
3. Foster County has a radio-activated emergency siren at Juanita Lake. The city of Carrington has three radio-activated sirens. These sirens can also be activated by the Z-Tron at the Carrington Fire Hall. The cities of Glenfield, Grace City, and McHenry do not have radio-activated sirens.
4. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not maintain municipal fire breaks.

Table 7.1.1 – Administrative and Technical Capabilities – Foster County, ND

Administrative and Technical Mitigation Capability		Foster County	City of Carrington	City of Glenfield	City of Grace City	City of McHenry
Administration						
1	County/City Council or Commission	X	X	X	X	X
2	Local Emergency Planning Committee (LEPC)	X	*	*	*	*
3	Mitigation Planning Committee	X	*	*	*	*
4	Mutual Aid Agreements	X	X	X	X	X
5	Other Staff for Administration	X	X	X	X	X
6	Park Board	X	X	X	X	X
7	Planning Commission	X	X	X	X	X
8	Planning and Zoning Administrator	X	X	X	X	X
9	Planning and Zoning Board	X	X	X	X	X
10	Public Health Board	X	*	*	*	*
11	Water Resource Board	X	*	*	*	*
11	Weed Board	X	*	*	*	*
Staff						
1	911 Coordinator/Director and User Board	X	*	*	*	*
2	Chief Building Official/Inspector/Board		X			
3	Community Planner/Planning Services	*	*	*	*	*
4	Emergency Management/Local Coordinators	X	*	*	*	*
5	Emergency Services (ambulance, fire, law enforcement)	X	X	X	*	X
6	Engineering Services	*	*	*	*	*
7	Floodplain Administrator	X	X	X	X	X
8	GIS Coordinator	*	*	*	*	*
9	Grant Writing & Administration Staff	X	X	X	X	X
10	Public Health	X	*	*	*	*
11	Public Works and/or Road Department	X	X	X	X	X
12	Sheriff	X	*	*	*	*
Technical						
1	Emergency Services GIS/GPS capable					
2	Emergency Siren (manually-activated)		1			
3	Emergency Siren (radio-activated)	1	3			
4	Fire Break					
5	Fire Index Sign	X	X^			
6	Fire ISO Rating		5/5B			
7	Firewise Certification					
8	Generator (permanent)	1	1			
9	Generator (portable)	3	2	1		
10	HAZUS Analysis					
11	Infrastructure Maintenance Programs	X	X	X	X	X
12	Navigation Signs for Emergency Services	X	X	X	X	X
13	Reporting of Data to Emergency Manager	X	X	X	X	X
14	StormReady Certification	X	X	*	*	*
15	Warning Systems/Services	X*	X*	*	*	*

5. Foster County does not have a fire index sign. **Carrington Fire Dept. owns a fire index sign, but it still needs to be installed.** The cities of Glenfield, Grace City, and McHenry do not have fire index signs.
6. Foster County does not have a county-wide fire department and therefore does not have a fire ISO rating. The fire ISO rating for Carrington Fire Dept. is 5 and for Carrington Rural Fire Dept. is 5B. The fire ISO ratings for Glenfield and McHenry fire department was unknown at the time of this plan.
7. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have Firewise Certification.
8. Foster County has a permanent generator at the Foster County Courthouse. The county needs an upgraded permanent generator for Foster County Public Health. The city of Carrington has a permanent generator at the city’s water treatment plant. The city of Carrington needs permanent generators for its city hall, fire hall, and police station. The cities of Carrington, Glenfield, Grace City, McHenry do not have portable generators. The public school in Glenfield needs a permanent generator. Meeting participants during the planning process of this plan update indicated all permanent generators in Foster County and incorporated jurisdictions need to be upgraded.

See Chapter 6, Mitigation Strategy project AT-4 or Chapter 8, Jurisdictions for a list of generators needed for each incorporated jurisdiction.

9. Foster County has one portable generator stored at the Carrington City Shop. The Sheriff’s Office has two portable generators. **The generator is nearing its end of useful life and an upgraded portable generator is needed.** The city of Carrington has two portable generators used specifically for its six lift stations. **Therefore, the city of Carrington could use four additional portable generators.** The city of Glenfield also has a portable generator. **The cities of Grace City and McHenry need portable generators.**
10. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have a HAZUS Analysis.
11. The Foster County Road Department and the respective public works department in the cities of Carrington, Glenfield, Grace City, and McHenry conduct infrastructure maintenance on an as-needed basis and/or as-requested.
12. **Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have navigation signs for emergency services. However, any sign that faces the south needs to be monitored routinely for replacement due to impacts from severe weather, sun bleaching, etc.**
13. N.D. State Radio, city councils, and emergency services (ambulance, fire, law enforcement) report hazard data to county emergency management.
14. Foster County has StormReady Certification that covers the cities of Glenfield, Grace City, and McHenry. The city of Carrington has StormReady Certification.
15. **Foster County has an early warning system called Nixel. The system allows county personnel to create emergency alerts and disseminate them to county residents who are signed up for the service. Foster County residents in the cities of Carrington, Glenfield, Grace City, and McHenry are covered by Nixel.**

Table 7.1.2 shows the education and outreach capabilities of the Foster County and incorporated jurisdictions. A box marked with an “X” indicates the jurisdiction has or has access to the education and

outreach capability for mitigation. An asterisk (*) denotes an education and outreach capability that can be obtained through the county for incorporated jurisdictions, or contracted services or an outside entity for the county.

1. Events in the Foster County where education and outreach can be conducted include Foster County Fair, Junk Fest, the NDSU Extension/Foster County Field Day. Events in the city of Carrington include the Community Picnic hosted by the Carrington Chamber of Commerce, National Night Out, events through the convention and visitor's bureau, the Carrington Farmer's Market, 4th of July parade, Carrington Public School all-school reunion every 5 years. There are no city-hosted events where education and outreach can be conducted in the cities of Glenfield, Grace City, and McHenry.
2. Foster County conducts continuous education and outreach through its social media presence, local newspaper and radio stations to county residents and the cities of Carrington, Glenfield, Grace City, and McHenry.
3. Non-profit organizations/citizen's groups providing public education and outreach in Foster County include, but are not limited, to emergency services (ambulance, fire, law enforcement), church groups, Carrington Senior Citizen's Center, Carrington Healthy Communities Coalition, and the Carrington Youth Center. The cities of Glenfield, Grace City, and McHenry have senior citizen centers that serve as community centers.
4. Foster County did not identify any 'Other' education and outreach capabilities in addition to those listed in categories 3 and 4.
5. Private entities providing education and outreach to Foster County include Alliance Pipeline, CP Railway, and N.D. Pipeline Alliance, and Dakota Growers Pasta Plant through Tier II. The Eagle's Club, Lion's Club, and Kiwanis provide funding to various entities in Foster County for education and outreach and host events for local youth. Alliance Pipeline and N.D. Pipeline Alliance host an annual pipeline safety awareness training for local emergency services. CP Railway will host safety awareness trainings upon request.
6. Public Entities providing public education include, but are not limited to, incorporated city councils and emergency services, Foster County Emergency Management, Foster County Sheriff's Office, Central Prairie Social Services, Foster County Public Health, and NDSU Extension/Foster County. Foster County receives public information and outreach from the state of North Dakota and the federal government.
7. The Foster County Local Emergency Planning Committee (LEPC) is a public-private partnership providing education and outreach to Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry. Farm Safety Week is hosted by Farm Bureau in conjunction with Carrington Ambulance Services and McHenry Ambulance.
8. Public schools conduct an annual storm and fire awareness program in conjunction with local emergency services. The Foster County Sheriff's Office also provides education and outreach to public schools. The Foster Soil Conservation District conducts education and outreach to adults and youth through Eco-Day. NDSU Extension/Foster County hosts Ag-In-The-Gym event, Foster county 4-H Program, and other healthy eating programs. Fire departments in Foster County conduct Fire Safety Prevention Week. Farm Safety Week is hosted by Farm Bureau in conjunction with Carrington Ambulance Services and McHenry Ambulance. The Carrington Public School Booster Club and Midkota Public School Booster Club conduct education and outreach. TEEN Cert was conducted at Carrington Public School and Midkota Public School in 2019.

9. Facebook pages maintained by Foster County to provide education and outreach to county residents include Foster County Emergency Management, Foster County Public Health, and Foster County Sheriff’s Office. Bordulac Bar & Grill located in the unincorporated city of Bordulac also has a Facebook Page. Facebook pages maintained by entities in the city of Carrington to provide education and outreach include the city of Carrington, Carrington Chamber of Commerce, Carrington Economic Development, Carrington Fire Dept., Carrington City Library, Carrington Healthy Communities Coalition, Carrington News.com, Carrington Police Department, Carrington Public School, and CHI-St. Alexius Health Carrington Medical Center. Facebook pages maintained by entities in the city of Glenfield includes Midkota Public School and Re-Bar & Grill. Facebook pages maintained by entities in the city of McHenry includes the city of McHenry and Bucks n’ Does Bar & Grill. Facebook pages maintained by entities in the city of Grace city includes the Schoolhouse Café.
10. **Foster County and the city of Carrington maintain websites with hazard education and outreach media. The cities of Glenfield, Grace City, and McHenry do not maintain websites with hazard education and outreach media. Carrington Public School and Midkota Public school maintain websites with hazard education and outreach. CarringtonNews.com also maintains a website.**

Table 7.1.2 – Education and Outreach Capabilities – Foster County, ND

Education and Outreach Mitigation Capability		Foster County	City of Carrington	City of Glenfield	City of Grace City	City of McHenry
1	County/City Events	X	X			
2	County Emergency Management	X	*	*	*	*
3	Non-Profit Organizations/Citizen Groups	X	X	X	X	X
4	Other					
5	Private Entities	X	X	*	*	*
6	Public Entities	X	X	X	X	X
7	Public-Private Partnerships	X	*	*	*	*
8	School Programs	*	X	X	*	*
9	Social Media	X	X	X	X	X
10	Website with Hazard Education	X	X	*	*	*

*Denotes education and outreach mitigation capability available to the jurisdiction through the county, contracted services, or an outside entity.

^ Denotes capability in progress.

Table 7.1.3 shows the financial capabilities of the Foster County and incorporated jurisdictions. A box marked with an “X” indicates the jurisdiction has or has access to the financial capability for mitigation. An asterisk (*) denotes a financial capability that can be obtained through the county for incorporated jurisdictions, or contracted services or an outside entity for the county.

1. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have the authority to levy taxes for specific purposes, such as sales tax or special assessments, to raise revenue if warranted. A vote is required to pass any new taxes for specific projects. The city of Carrington has

a one-percent sales tax, of which 75 percent of revenue raised is dedicated Carrington Economic Development.

2. **Foster County issues building permits for non-agriculture related buildings on a flat-fee basis. The city of Carrington issue building permits at a cost based on the overall valuation of each project. The cities of Glenfield, Grace City, and McHenry do not issue building permits.**
3. **Foster County has a capital projects fund used specifically for repairs and/or improvements the Foster County Courthouse. The city of Carrington has a capital projects fund but is currently inactive. The cities of Grace City, and McHenry do not have a capital improvements fund/line items in local budgets. The city of Glenfield has a wish fund that acts as a capital improvements fund.**
4. The Foster County does not qualify for funding through the Community Development Block Grant (CDBG) as it does not meet the low-to-moderate income requirement. Eligibility status of the cities of Carrington, Glenfield, Grace City, and McHenry can be obtained by contacting the South Central Dakota Regional Council in Jamestown.
5. Otter Tail Power Company and Northern Plains Electric Cooperative implements a facility charge on the electric usage bill for customers in Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry.
6. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry qualify for grant funding through FEMA because Foster County has an approved multi-hazard mitigation plan.
7. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry issue general obligation bonds and/or special tax bonds to raise revenue, if warranted.
8. **The Foster County Fair Association has utilized the N.D. Endowment Fund and received a grant to purchase a portable stage. Foster County received grants from BlueCross BlueShield of North Dakota, Carrington Community Endowment Fund, Carrington Kiwanis, Garrison Diversion for funding of projects in the county. The Carrington Fire Dept. has utilized funding through the N.D. Endowment Fund for investments in equipment. Alliance Pipeline and CP Railway have Community Give Back Grants that provides funding to the county and incorporated cities**
9. **Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have impact fees for new development.**
10. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry did not identify any “Other” financial mitigation capabilities such as a road district, street maintenance, or wheel tax.
11. Otto Bremer Trust is a private entity providing financial assistance for mitigation activities in Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry. Dakota Growers provides funding to the Carrington Fire Dept. for training and equipment needs. Northern Plains Electric Cooperative has Operation Roundup, which is where the utility rounds up individual monthly bills to then investment into community capital improvements.
12. Property taxes are the primary source of revenue for Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry.
13. **Foster County does not have sanitary sewer utility fees outside incorporated jurisdictions. Most county residents utilize septic systems. Regulation of these systems is conducted in conjunction with Central Valley Health District in Jamestown and local public health. An on-site sewer treatment system permit. The cities of Carrington, Glenfield, Grace City, and McHenry administer sanitary sewer utility fees to maintain existing systems and current operations.**

14. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have access to state funding programs. The Garrison Diversion Conservancy has grant money available for building or enhancing recreational facilities.
- 15. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have a storm water utility fee.**
- 16. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry and do not assess water utility fees for their respective municipal drinking/potable water systems.**

Table 7.1.3 – Financial Capabilities – Foster County, ND

Financial Mitigation Capability		Foster County	City of Carrington	City of Glenfield	City of Grace City	City of McHenry
1	Authority to Levy Taxes for Specific Purposes (sales tax or special assessments)	X	X	X	X	X
2	Building Permits	X	X			
3	Capital Improvement Fund					
4	Comm. Dev. Block Grant (CDBG)		X	X	X	X
5	Electric Utility Fee	X	X	X	X	X
6	FEMA Grant Programs	X	X	X	X	X
7	General Obligation Bond/Special Tax Bond	X	X	X	X	X
8	Grant Programs (other)	X*	X*	*	*	*
9	Impact Fees for New Development					
10	Other					
11	Private Entities or Activities	X	X	X	X	X
12	Property Tax	X	X	X	X	X
13	Sanitary Sewer Utility Fee					
14	State Funding Programs	X	X	X	X	X
15	Storm Water Utility Fee					
16	Water Utility Fee					

* Denotes financial mitigation capability available to the jurisdiction through the county, contracted services, or an outside entity. ^ Denotes capability in progress.

Table 7.1.4 shows the planning and regulatory capabilities of the Foster County and incorporated jurisdictions. Boxes marked with an “X” indicate the jurisdiction has the planning and regulatory capability. An asterisk (*) indicates a capability that can be obtained through the county, contracted services, or an outside entity.

1. Foster County and the cities of Glenfield, Grace City, and McHenry do not have an abandoned building/nuisance ordinance. The city of Carrington has an abandoned building/nuisance ordinance.
- 2. Foster County and the cities of Glenfield, Grace City, and McHenry have adopted state building codes but lack enforcement. The city of Carrington has adopted state building codes and has enforcement.**

3. **Foster County and the city of Carrington issue building permits. The cost of each permit is project-specific. The cities of Glenfield, Grace City, and McHenry do not issue building permits.**
4. Foster County Emergency Management issues burn bans when necessary. The Foster County Commission manages burn bans and is the decision-maker for lifting bans.
5. **Foster County and the cities of Glenfield, Grace City, and McHenry do not have a capital improvement plan/fund. The city of Carrington has a capital improvement plan/fund.**
6. **Foster County and the cities of Glenfield, Grace City, and McHenry do not have a building official/inspector/board. The city of Carrington has a building inspector.**
7. Foster County has a commercial animal feed operation ordinance. The cities of Carrington, Glenfield, Grace City, and McHenry do not have commercial animal feed operation ordinances.
8. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have a community wildfire protection plan.
9. **Foster County and the city of Carrington have comprehensive plans. The cities of Glenfield, Grace City, and McHenry do not have comprehensive plans.**
10. **Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have continuity of operations plans, but are not in written documents. Foster County Public Health has a continuity of operations plans. The Carrington Fire Dept has bylaws that act as a continuity of operations plan.**
11. **Foster County and the cities of Carrington, Grace City, and McHenry do not have a crew camp ordinance. The city of Glenfield has a camper ordinance that serves as a crew camp ordinance.**
12. **Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have drought management plans.**
13. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have easements.
14. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have economic development plans through their local economic development authority/corporation. The county collects the revenue through mills and disperses it to each individual authority/corporation.
15. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have any dams with emergency action plans.
16. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry are included in the state of North Dakota's emergency operations plan.
17. Foster County Public Health maintains an evacuation and shelter plan. The cities of Carrington, Glenfield, Grace City, and McHenry are included in the county's plan.
18. **Foster County and the city of Carrington have FEMA Flood maps as they are enrolled in the National Flood Insurance Program (NFIP). The cities of Glenfield, Grace City, and McHenry are not enrolled and do not have flood maps.**
19. Foster County and the city Carrington have a flood insurance study. The cities of Glenfield, Grace City, and McHenry do not have a flood insurance study.
20. **Foster County has a flood operations/management plan that is an annex of the county's local emergency operations plan. The county's flood operations/management plan includes the cities of Carrington, Glenfield, Grace City, and McHenry.**
21. **Foster County and the city of Carrington have flood ordinances. The cities of Glenfield, Grace City, and McHenry do not have flood ordinances.**

Table 7.1.4 – Planning and Regulatory Capabilities – Foster County, ND

Planning and Regulatory Mitigation Capability		Foster County	City of Cartgn.	City of Glenfield	City of Grace City	City of McHenry
1	Abandoned Building/Nuisance Ordinance		X			
2	Building Codes	X	X	X	X	X
3	Building Permits	X	X			
4	Burn Bans	X	*	*	*	*
5	Capital Improvement Plan/Fund					
6	Chief Building Official/Inspector/Board		X			
7	Commercial Animal Feed Operation Ordinance	X				
8	Community Fire/Wildfire Protection Plan					
9	Comprehensive Plan	X	X			
10	Continuity of Operations Plan	X				
11	Crew Camp Ordinance			X		
12	Drought Management Plan					
13	Easements		X			
14	Economic Development Plan	X	X	X	X	X
15	Emergency Action Plans (Dams)					
16	Emergency Operations Plan (State)	*	*	*	*	*
17	Evacuation and Shelter Plan	X	*	*	*	*
18	FEMA Flood Map	X	X			
19	Flood Insurance Study	X	X			
20	Flood Operations/Management Plan	X	*	*	*	*
21	Flood Ordinance	X	X			
22	Flood Risk Management Feasibility Study	X	X			
23	Grain Bin Ordinance					
24	Hazard Mitigation Plan	X	*	*	*	*
25	Hazardous Material Flow Study	*	*	*	*	*
26	Impact Fees					
27	Land Use Plan	X	X			
28	Local Emergency Operations Plan	X	*	*	*	*
29	National Flood Insurance Program (NFIP)	X	X			
30	Noise Control Ordinance		X			
31	Pandemic Influenza Response Plan	X	*	*	*	*
32	Planning Commission	X	X	X	X	X
33	Point of Dispensing (POD) Plan	X	*	*	*	*
34	Rural Development Guide					
35	Shelter and Mass Care Plan	X	*	*	*	*
36	Site Plan Review Requirements					
37	Storm Water Management Plan					
38	Strategic Plan	X	X			
39	Subdivision Ordinance					
40	Transportation Plan	*	*	*	*	*
41	Water Conservation Plan					
42	Zoning	X	X			

*Denotes planning and regulatory mitigation capability available through the county, contracted services, or an outside entity. ^ Denotes capability in progress.

22. Foster County and the city of Carrington have a flood risk management feasibility study. The cities of Glenfield, Grace City, and McHenry do not have flood risk management feasibility study.
- 23. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have a grain bin ordinance.**
- 24. Foster County has a multi-jurisdictional multi-hazard mitigation plan that is updated every five years. The cities of Carrington, Glenfield, Grace City, and McHenry are included in this plan.**
25. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have a hazardous materials flow study through the N.D. Dept. of Emergency Services. CP Railway also has a hazardous materials flow study that is available upon request.
- 26. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have impact fees for new development.**
27. Foster County and the city of Carrington have land use plans in their zoning ordinances. The cities of Glenfield, Grace City, and McHenry do not have land use plans.
28. Foster County and the city of Carrington have separate local emergency operations plans. The cities of Glenfield, Grace City, and McHenry are included in the county's plan. Foster County Public Health has a local emergency operation plan.
- 29. Foster County and the city of Carrington are enrolled in the National Flood Insurance Program (NFIP). The cities of Glenfield, Grace City, and McHenry are not enrolled and do not have flood maps.**
30. The city of Carrington has a noise control ordinance and an engine break ordinance. Foster County and the cities of Glenfield, Grace City, and McHenry do not have a noise control ordinance.
- 31. Foster County Public Health maintains a pandemic influenza response plan. The cities of Carrington, Glenfield, Grace City, and McHenry are included in the county's plan.**
32. The Foster County has a planning and zoning commission. The city councils for the cities of Carrington, Glenfield, Grace City, McHenry serve as the planning and zoning commission.
- 33. Foster County Public Health maintains a point of dispensing (POD) plan. The cities of Carrington, Glenfield, Grace City, and McHenry are included in the county's plan.**
34. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have a rural development guide.
- 35. Foster County Public Health maintains a shelter and mass care plan. The cities of Carrington, Glenfield, Grace City, and McHenry are included in the county's plan.**
- 36. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have site plan review requirements.**
- 37. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry do not have storm water management plans.**
- 38. Foster County and the cities Glenfield, Grace City, and McHenry do not have a strategic plan. Foster County Public Health a strategic plan. The City of Carrington has a strategic plan.**
39. Foster County and the city of Carrington do not have subdivision ordinances in its zoning ordinances. The cities of Glenfield, Grace City, and McHenry do not have zoning ordinances.
40. Foster County and the cities of Carrington, Glenfield, Grace City, and McHenry have a transportation plan through the N.D. Dept. of Transportation.
- 41. Foster County and the cities Carrington, Glenfield, Grace City, and McHenry do not have a water conservation plan.**

42. Foster County and the city of Carrington have zoning ordinances. The cities of Glenfield, Grace City, and McHenry do not have zoning ordinances. All townships in Foster County have relinquished zoning authority to the county.

Supplemental Planning and Regulatory Capabilities

Strategic plans for jurisdictions aside from incorporated cities such as townships can be used for mitigation purposes. In addition to strategic plans, townships that have zoning in place, including a zoning commission and a zoning administrator, can use zoning for mitigation purposes.

Integration of Mitigation Plan into Planning Mechanisms

To integrate the requirements of the mitigation plan into jurisdiction-specific planning mechanisms, such as comprehensive or capital improvement plans, incorporated cities will need to identify their current planning mechanisms, which elements of the mitigation plan to incorporate, and the method for doing so. The tables shown above in this chapter identify the current planning mechanisms for each county and incorporated city in the Foster County. Detailed narratives regarding these planning mechanisms are discussed for the counties in this chapter, but are shown in Chapter 8, Jurisdictions for incorporated cities.

The jurisdiction profiles in Chapter 8 will also supplement existing jurisdiction-specific plans for most all incorporated cities. However, all incorporated cities have some type of planning mechanism, such as building codes, ordinances and/or zoning. Those cities without plans (excluding planning mechanisms) will participate in county-wide planning initiatives such as the Foster County Emergency Operations Plan by providing risk assessment data or consider mitigation plan goals and mitigation strategies when updating zoning or implementing subdivision ordinances.

Current planning mechanisms, the mitigation plan elements incorporated and the method for incorporation are discussed after each mitigation project in Chapter 6, Mitigation Strategy and Chapter 8, Jurisdictions.

7.2 Mitigation Funding Sources

Funding sources from mitigation can come from a variety of resources. The following funding sources for the Federal Emergency Management Agency (FEMA) and other outlets are outlined below. These sources can fund and administer mitigation projects in addition to the local capabilities of the county and city jurisdictions. In addition to the financial capabilities of Foster County, the following local, regional, state and federal entities can be used to obtain funding for mitigation.

- Ambulance Districts;
- Electric Cooperatives;
- Extension Service;
- Federal Emergency Management Agency (FEMA);
- Fire Districts;
- N.D. Dept. of Public Health;
- N.D. Dept. of Emergency Services;
- Park Districts;
- School Districts;
- Townships, and
- Utility providers.

FEMA Funding Sources

Hazard Mitigation Grant Program (HMGP). The HMGP is a post-disaster mitigation program. It is made available to states by FEMA after each Federal disaster declaration. The HMGP can provide up to 75 percent funding for hazard mitigation measures. The HMGP can be used to fund cost-effective projects that will protect public or private property in an area covered by a federal disaster declaration or that will reduce the likely damage from future disasters. Examples of projects include acquisition and demolition of structures in hazard prone areas, flood-proofing or elevation upgrades to reduce future damage, minor structural improvements and development of state or local standards. Projects must fit into an overall mitigation strategy for the area identified as part of a local planning effort. All applicants must have a FEMA-approved Multi-Jurisdictional Multi-Hazard Mitigation Plan (this plan).

Applicants who are eligible for the HMGP are state and local governments, certain nonprofit organizations or institutions that perform essential government services, and Indian tribes and authorized tribal organizations. Individuals or homeowners cannot apply directly for the HMGP; a local government must apply on their behalf.

Flood Mitigation Assistance (FMA) Program. The FMA combines the previous Repetitive Flood Claims and Severe Repetitive Loss Grants into one grant program. FMA provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. The FMA is funded annually; no federal disaster declaration is required. Only NFIP insured homes and businesses are eligible for mitigation in this program. Funding for FMA is very limited and, as with the HMGP, individuals cannot apply directly for the program. Applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is 75 percent. At least 25 percent of the total eligible costs must be provided by a non-federal source. Of this 25 percent, no more than half

can be provided as in-kind contributions from third parties. At minimum, a FEMA-approved local flood mitigation plan is required before a project can be approved. FMA funds are distributed from FEMA to the state.

FEMA, Pre-Disaster Mitigation Competitive (PDMC) Grant Program. The PDM program is an annually funded, nationwide, competitive grant program. No disaster declaration is required. Federal funds will cover 75 percent of a project's cost up to \$3 million. As with the HMGP and FMA, a FEMA-approved local Hazard Mitigation Plan is required to be approved for funding under the PDM program.

FEMA, Readiness, Response and Recovery Directorate, Fire Management Assistance Grant Program. This program provides grants to states, tribal governments and local governments for the mitigation, management and control of any fire burning on publicly (non-federal) or privately-owned forest or grassland that threatens such destruction as would constitute a major disaster. The grants are made in the form of cost sharing with the federal share being 75 percent of total eligible costs. Grant approvals are made within 1 to 72 hours from time of request.

Fire Prevention and Safety Grants. The Fire Prevention and Safety Grants (FP&S) are part of the Assistance to Firefighters Grants, and are administered by FEMA. FP&S Grants support projects that enhance the safety of the public and firefighters from fire and related hazards. The primary goal is to target high-risk populations and reduce injury and prevent death. Eligibility includes fire departments, national, regional, state, and local organizations, Native American tribal organizations, and/or community organizations recognized for their experience and expertise in fire prevention and safety programs and activities. Private non-profit and public organizations are also eligible. Interested applicants are advised to check the website periodically for announcements of grant availability. More information:

<https://www.fema.gov/welcome-assistance-firefighters-grant-program>

Other Mitigation Funding Sources

Grant funding is available from a variety of federal and state agencies for training, equipment, and hazard mitigation activities. Several of these programs are described below.

Program 15.228: Wildland Urban Interface Community and Rural Fire Assistance. [This program](#) is designed to implement the National Fire Plan and assist communities at risk from catastrophic wildland fires. The program provides grants, technical assistance, and training for community programs that develop local capability, including: Assessment and planning, mitigation activities, and community and homeowner education and action; hazardous fuels reduction activities, including the training, monitoring or maintenance associated with such hazardous fuels reduction activities, on federal land, or on adjacent nonfederal land for activities that mitigate the threat of catastrophic fire to communities and natural resources in high risk areas; and, enhancement of knowledge and fire protection capability of rural fire districts through assistance in education and training, protective clothing and equipment purchase, and mitigation methods on a cost share basis.

Secure Rural Schools and Community Self-Determination Act - Title III- County Funds. The Self-Determination Act has recently been reauthorized and now includes specific language regarding the Firewise Communities program. Counties seeking funding under Title III must use the funds to perform work under the Firewise Communities program. Counties applying for Title III funds to implement Firewise activities can assist in all aspects of a community's recognition process, including conducting or assisting with community assessments, helping the community create an action plan, assisting with an

annual Firewise Day, assisting with local wildfire mitigation projects, and communicating with the state liaison and the national program to ensure a smooth application process. Counties that previously used Title III funds for other wildfire preparation activities such as the Fire Safe Councils or similar would be able to carry out many of the same activities as they had before. However, with the new language, counties would be required to show that funds used for these activities were carried out under the Firewise Communities program. More information: <https://tinyurl.com/67dthhg>

Community Planning Assistance for Wildfire. Established in 2015 by Headwaters Economics and Wildfire Planning International, Community Planning Assistance for Wildfire (CPAW) works with communities to reduce wildfire risks through improved land use planning. CPAW is a grant-funded program providing communities with professional assistance from foresters, planners, economists and wildfire risk modelers to integrate wildfire mitigation into the development planning process. All services and recommendations are site-specific and come at no cost to the community. More information: <http://planningforwildfire.org/what-we-do/>

Urban and Community Forestry (UCF) Program. A cooperative program of the U.S. Forest Service that focuses on the stewardship of urban natural resources. With 80 percent of the nation's population in urban areas, there are strong environmental, social, and economic cases to be made for the conservation of green spaces to guide growth and revitalize city centers and older suburbs. UCF responds to the needs of urban areas by maintaining, restoring, and improving urban forest ecosystems on more than 70 million acres. Through these efforts the program encourages and promotes the creation of healthier, more livable urban environments across the nation. These grant programs are focused on issues and landscapes of national importance and prioritized through state and regional assessments. More information: <http://www.fs.fed.us/managing-land/urban-forests/ucf>

Western Wildland Urban Interface Grants. The National Fire Plan (NFP) is a long-term strategy for reducing the effects of catastrophic wildfires throughout the nation. The Division of Forestry's NFP Program is implemented within the Division's Fire and Aviation Program through the existing USDA Forest Service, State & Private Forestry, State Fire Assistance Program.

Congress has provided increased funding assistance to states through the U.S. Forest Service State and Private Forestry programs since 2001. The focus of much of this additional funding was mitigating risk in WUI areas. In the West, the State Fire Assistance funding is available and awarded through a competitive process with emphasis on hazard fuel reduction, information and education, and community and homeowner action. This portion of the National Fire Plan was developed to assist interface communities manage the unique hazards they find around them. Long-term solutions to interface challenges require informing and educating people who live in these areas about what they and their local organizations can do to mitigate these hazards.

The 10-Year Comprehensive Strategy focuses on assisting people and communities in the WUI to moderate the threat of catastrophic fire through the four broad goals of improving prevention and suppression, reducing hazardous fuels, restoring fire-adapted ecosystems, and promoting community assistance. The Western States Wildland Urban Interface Grant may be used to apply for financial assistance towards hazardous fuels and educational projects within the four goals of: improved prevention, reduction of hazardous fuels, restoration of fire-adapted ecosystems and promotion of community assistance. Information: <https://www.westernforesters.org/wui-grants>

U.S. Fish & Wildlife Service, Rural Fire Assistance Grants. Each year, the U.S. Fish & Wildlife Service (FWS) provides Rural Fire Assistance (RFA) grants to neighboring community fire departments

to enhance local wildfire protection, purchase equipment, and train volunteer firefighters. Service fire staff also assist directly with community projects. These efforts reduce the risk to human life and better permit FWS firefighters to interact and work with community fire organizations when fighting wildfires. The Department of the Interior (DOI) receives an appropriated budget each year for an RFA grant program. The maximum award per grant is \$20,000. The DOI assistance program targets rural and volunteer fire departments that routinely help fight fire on or near DOI lands. More information: http://www.fws.gov/fire/living_with_fire/rural_fire_assistance.shtml

Fire Management Assistance Program. This program is authorized under Section 420 of the Stafford Act. It allows for the mitigation, management, and control of fires burning on publicly or privately-owned forest or grasslands that threaten destruction that would constitute a major disaster. More information: <http://www.fema.gov/fire-management-assistance-grant-program>

NOAA Office of Education Grants. The Office of Education supports formal, informal and non-formal education projects and programs through competitively awarded grants and cooperative agreements to a variety of educational institutions and organizations in the United States. More information: <http://www.noaa.gov/office-education/grants>

NRCS Environmental Quality Incentives Program (EQUIP). The Environmental Quality Incentives Program, administered through the NRCS, is a cost-share program that provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air and related natural resources on agricultural land and non-industrial private forestland. Owners of land in agricultural or forest production or persons who are engaged in livestock, agricultural or forest production on eligible land and that have a natural resource concern on that land may apply to participate in EQUIP. Eligible land includes cropland, rangeland, pastureland, non-industrial private forestland and other farm or ranch lands. EQUIP is another funding mechanism for landowner fuel reduction projects. More information: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/equip/>

U.S. Department of Agriculture, Community Facilities Loans and Grants. Provides grants (and loans) to cities, counties, states and other public entities to improve community facilities for essential services to rural residents. Projects can include fire and rescue services; funds have been provided to purchase fire-fighting equipment for rural areas. No match is required. More information: http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS_LOANS

General Services Administration, Sale of Federal Surplus Personal Property. This program sells property no longer needed by the federal government. The program provides individuals, businesses and organizations the opportunity to enter competitive bids for purchase of a wide variety of personal property and equipment. Normally, there are no restrictions on the property purchased. More information: <http://www.gsa.gov/portal/category/21045>

Hazardous Materials Emergency Preparedness Grants. Grant funds are passed through to local emergency management offices and HazMat teams having functional and active LEPC groups. More information: <http://www.phmsa.dot.gov/hazmat/grants>

U.S. Department of Homeland Security. Enhances the ability of states, local and tribal jurisdictions, and other regional authorities in the preparation, prevention, and response to terrorist attacks and other disasters, by distributing grant funds. Localities can use grants for planning, equipment, training and exercise needs. These grants include but are not limited to areas of Critical Infrastructure Protection

Equipment and Training for First Responders, and Homeland Security Grants. More information: <http://www.dhs.gov/>

Community Development Block Grants (CDBG). The U.S. Department of Commerce administers the CDBG program which are intended to provide low and moderate-income households with viable communities, including decent housing, as suitable living environment, and expanded economic opportunities. Eligible activities include community facilities and improvements, roads and infrastructure, housing rehabilitation and preservation, development activities, public services, economic development, planning, and administration. Public improvements may include flood and drainage improvements. In limited instances, and during the times of “urgent need” (e.g. post disaster) as defined by the CDBG National Objectives, CDBG funding may be used to acquire a property located in a floodplain that was severely damaged by a recent flood, demolish a structure severely damaged by an earthquake, or repair a public facility severely damaged by a hazard event. CDBG funds can be used to match FEMA grants. More Information:

<http://www.hud.gov/offices/cpd/communitydevelopment/programs/>

Building Blocks for Sustainable Communities. The EPA Office of Sustainable Communities sometimes offers grants to support activities that improve the quality of development and protect human health and the environment. When these grants are offered, they will always be announced on www.grants.gov.

8. Jurisdictions

This chapter serves as a mini “Plan Within the Plan” and includes the following information for each incorporated city jurisdiction in Foster County:

- 1. Profile and Inventory**
 - Location
 - Population & Vulnerable Population
 - Housing Units and Household Size
 - Businesses
 - New and Future Development
- 2. Risk Assessment**
 - Score Summary
 - Hazard Scoring Notes
- 3. Mitigation Strategy**
 - Problem Statement
 - Mitigation Projects
- 4. Mitigation Capabilities**
 - Capability Definitions
- 5. Integration into Planning Mechanisms**
- 6. Plan Maintenance**

This information provides the basis for the risk assessment shown in each jurisdiction profile. Comparative statistics of each jurisdiction in Foster County are shown in Chapter 4, Profile and Inventory.

The incorporated cities in Foster County are shown alphabetically in the following chapter.

- 8.1: City of Carrington
- 8.2: City of Glenfield
- 8.3: City of Grace City
- 8.4: City of McHenry

8.1 City of Carrington, North Dakota

The following profile includes information specific to the city of Carrington for mitigation planning purposes. The information included is as follows:

- Profile and Inventory;
- Risk Assessment;
- Hazard Scoring Notes;
- Mitigation Projects, and
- Capabilities for Mitigation.

Integration into Planning Mechanisms

The process for integration of the mitigation plan into existing planning mechanisms is discussed at the bottom of each mitigation project in section 8.1.3, in section 8.1.4, and in Chapter 6, Mitigation Strategy.

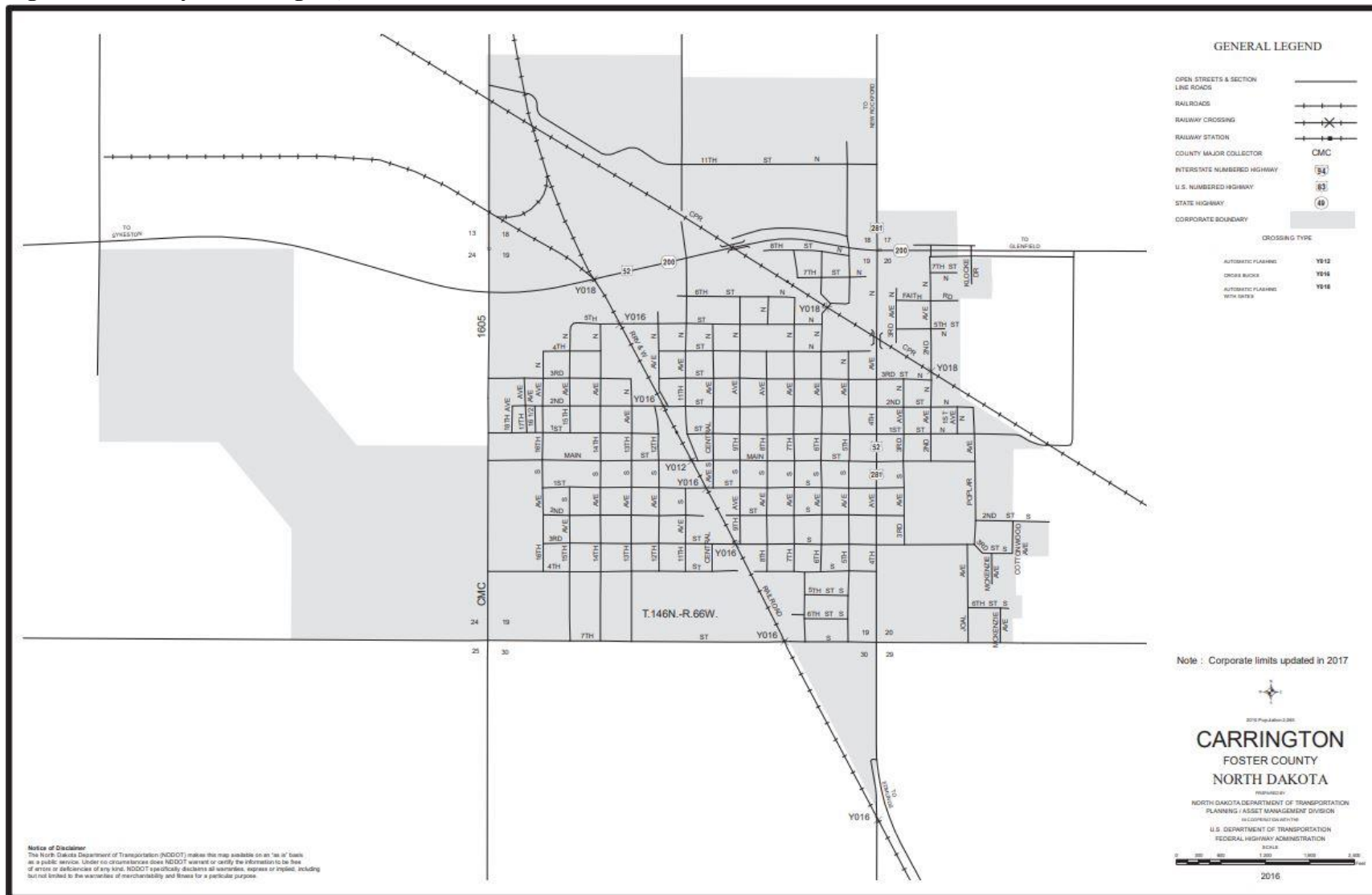
Plan Maintenance

Plan maintenance is shown in section 8.1.6.

Critical Facilities and Infrastructure

Figure 8.1.1 is a map of the city of Carrington provided by N.D. Dept. of Transportation.

Figure 8.1.1 – City of Carrington, North Dakota



Source(s): N.D. Dept. of Transportation

8.1.1 Profile and Inventory

The location, total population, vulnerable populations, housing units and household size, businesses, critical facilities and infrastructure, new and future development, services, jurisdictional buildings, emergency response services and utilities are shown for the city of Carrington. Detailed narratives follow each section heading to profile the city.

Detailed information on public buildings, services provided, emergency response services and utilities can be found can be found in Chapter 3, Profile and Inventory.

Location

The city of Carrington is located at the intersection of U.S. Highways 52/281 and N.D. Highway 200, and the crossroads of the Burlington Northern Santa Fe and Canadian Pacific railroads. The city is located approximately 120 miles northeast of the city of Bismarck, the state capital.

Population

Table 8.1.1 shows population trends for the city of Carrington from 1920 to 2010, with an estimate for 2019.

Per the 2010 U.S. Decennial Census, the city of Carrington has a population of 2,065 people, which is a decrease of 203 people (8.9 percent) from 2,268 people in 2000.

Table 8.1.1 – 1920 to 2010 City of Carrington, North Dakota Population Statistics

1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2019 (est.)
1,420	1,717	1,850	2,101	2,438	2,491	2,641	2,267	2,268	2,065	1,980

Source(s): U.S. Decennial Census; American Community Survey, 5-Year Estimates

Vulnerable Populations

Age. Per the 2015 to 2019 American Community Survey 5-Year Estimate, the population of the city of Carrington consists of 497 individuals under the age of 20 and 504 individuals aged 65 and older.

Daycares. There are three daycares in the city of Carrington – Darline’s Kiddy Corner, Carrington Preschool, and Small Steps.

Poverty. Per the 2015 to 2019 American Community Survey 5-Year Estimate, there are 84 households in the city of Carrington that live below the poverty line.

Public Schools. The Carrington Public School is in the city of Carrington. Children living in the city of Carrington and surrounding area, including rural Foster, Stutsman, and Wells Counties, attend the school.

Senior Housing Developments/Care Centers. Age-restricted and/or senior housing developments in the city of Carrington include Poplar Drive Court Apartments. The Golden Acres Manor is the only care center in the city of Carrington and greater Foster County.

Housing Units and Household Size

The 2015 to 2019 American Community Survey 5-Year Estimate shows there is a total of 1,114 housing units in the city consisting of 892 single-family homes, 16 mobile/RV homes, and 206 multifamily homes.

The 2015 to 2019 American Community Survey 5-Year Estimate shows there are 946 households in the city of Carrington resulting in an average household size of 2.15 people.

Businesses

Major employers in the city of Carrington include Dakota Growers Pasta Company, CHI-St Alexius Health Carrington Medical Center, Dakota Central, Northern Plains Cooperative, Leading Edge Equipment, High Plains Equipment, and Ottertail Power Company. Additional information on businesses and economic development in the city of Carrington or can be obtained by contacting Carrington Economic Development.

New and Future Development

Analyzing development trends is important for mitigation to understand where projects may be needed in the future and funding is best allocated. New development is anything occurring since the 2015 and new and future development is anything planned, pending, and proposed development under construction.

New

New development in the city of Carrington summarized by year, total amount of all projects, and total amount of all fees.

Year	Total Amount of Projects	Total Amount of Fees
2015	\$7,176,293.00	\$25,853.38
2016	\$3,323,182.00	\$16,805.00
2017	\$17,555,510.00	\$19,109.50
2018	\$1,259,060.00	\$6,735.00
2019	\$3,506,820.22	\$16,707.13
2020	\$1,511,741.16	\$6,590.47

Future

Information on future development can be obtained by contacting the city of Carrington.

Critical Facilities. The following facilities were identified as critical in the city of Carrington.

- Carrington Ambulance Services Ambulance Hall
- Carrington City Hall/Community Center
- Carrington Fire Hall
- Carrington Police Station
- CHI-St. Alexius Health Carrington Medical Center
- Foster County Courthouse
- Foster County Public Health Headquarters
- Foster County Shops
- Foster County Sheriff's Office Garage

Infrastructure. The following infrastructure was identified as critical in the city of Carrington.

- The city of Carrington has a sanitary sewer with four lagoon cells and six lift stations.
- The city maintains a water tower and an underground water storage tank for drinking/potable water and fire suppression.
- The city of Carrington has an inert landfill.
- The city of Carrington is located at the intersection of U.S. Highways 52/281 and N.D. Highway 200.
- The city is located at the crossroads of Canadian Pacific (CP) and Red River Valley & Western (RRVW) Railroads.

Emergency Response Services. The following emergency response services were identified in the city of Carrington.

- Foster County Ambulance provides ambulance services to the city of Carrington.
- The Carrington Fire Department provides fire protection services to the city of Carrington and the Carrington Rural Fire Protection District provides fire protection services to surrounding rural areas.
- The Carrington Police Department provides law enforcement services to the city of Carrington. The Foster County Sheriff's Office provides law enforcement services when requested.
- The nearest hospital is the CHI-St. Alexius Health Carrington Medical Center in the city of Carrington.
- Foster County Public Health is in the city of Carrington and provides public health services to the city of Carrington and greater Foster County.

Services and Utilities. The following services are provided in the city of Carrington.

- The city of Carrington provides garbage collection services to its residents.
- The city of Carrington maintains an inert landfill.
- The city of Carrington has its own sanitary sewer system consisting of six lift stations and four lagoon cells. There are no active septic systems in the city limits.
- The city has a storm water system consisting of bricks and mortar.
- The Foster County Independent is the official newspaper of the city of Carrington.

- The city of Carrington provides drinking/potable water to the city of Carrington.
- Electricity is provided by Otter Tail Power and Northern Plains Electric Cooperative.
- Natural gas is provided by Montana-Dakota Utilities in the city of Carrington.
- Fuel oil and propane are used as an alternative heating source and is provided by companies chosen by the individual consumer.
- Daktel provides internet, phone, and TV.

8.1.2 Risk Assessment and Hazard Scoring Notes

Table 8.1.2 summarizes the risk assessment scoring of the city of Carrington. The risk assessment and hazard scoring notes for each hazard specific to the city are shown in Table 8.1.2. Risk assessment notes for impact, frequency, likelihood and vulnerability ubiquitous for jurisdictions in Foster County are found in Chapter 4, Threat and Hazard Identification Assessment in each respective hazard profile.

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment Scoring Summary

Risk Assessment						
Jurisdiction: City of Carrington						
<u>Natural Hazard</u>	<u>Impact</u>	<u>Frequency</u>	<u>Likelihood</u>	<u>Vulnerability</u>	<u>Capabilities</u>	<u>Total</u>
Drought	4	2	4	3	3	10
Fire – Urban/Structure Collapse	4	2	2	2	3	7
Fire – Wildland (Rural)	4	3	4	2	2	11
Flood	4	2	4	3	3	10
Geologic Hazard	1	2	2	2	2	5
Infectious Disease	4	4	4	4	3	13
Severe Summer Weather	4	4	4	2	3	11
Severe Winter Weather	4	4	4	2	3	11
Space Weather	4	1	2	4	2	9
<u>Adversarial Threats</u>						
Civil Disturbance	3	1	2	3	2	7
Criminal, Terrorist or Nation-State Attack	4	2	2	2	2	8
Cyberattack	4	3	4	2	2	11
<u>Technological Threats</u>						
Dam Failure	2	1	2	2	1	6
Hazardous Material Release	4	2	4	4	2	12
Transportation Incident	4	3	3	4	2	12

- (Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment

		Civil Disturbance	
Impact	<ul style="list-style-type: none"> • Blocked Roads • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public and private) • HAZMAT Release – oil trains and natural gas pipeline • Human Injury/Death • Increased Public Safety Runs • Loss/Overcrowded Medical Facilities • Loss of Potable Water • Property Damage (Structure) • Property Damage (Vehicle) • Mass Casualties/Fatalities 	<p>The following impacts were realized to Carrington Police Department through mutual aid during the DAPL protest between September 2016 and February 2017:</p> <ul style="list-style-type: none"> • Personnel Costs: \$4,698.42 • Personnel Costs (Backfill Only): \$3,923.91 • Transportation Costs: \$505.98 • Food/Lodging Costs: \$1,561.00 • Materials Costs: \$0 	
Frequency	<ul style="list-style-type: none"> • Never an occurrence of a major incident 	<ul style="list-style-type: none"> • DAPL protesters were not active in the city 	
Likelihood	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or significant tourist attraction • Presence of city police department and headquarters of county sheriff's office 	
Vulnerability	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or a significant tourist attraction • Presence of city police department and headquarters of county sheriff's office 	

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment - Continued

Criminal, Terrorist, Nation-State Attack			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public and private) • HAZMAT Release – oil trains and natural gas pipeline • Human Injury/Death • Increased Public Safety Runs • Loss/Overcrowded Medical Facilities • Loss of Potable Water • Property Damage (Structure) • Property Damage (Vehicle) • Mass Casualties/Fatalities • Threats to city water supply • Loss of Communication Systems • Disease Outbreak/Mass Infections 		
Frequency	<ul style="list-style-type: none"> • No occurrences • Miscellaneous property damage occurring in the city on an occasional basis 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More likely</u> <ul style="list-style-type: none"> • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) </td> <td style="width: 50%; vertical-align: top;"> <u>Less likely</u> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or significant tourist attraction • Presence of city police department and headquarters of county sheriff’s office </td> </tr> </table>	<u>More likely</u> <ul style="list-style-type: none"> • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) 	<u>Less likely</u> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or significant tourist attraction • Presence of city police department and headquarters of county sheriff’s office
<u>More likely</u> <ul style="list-style-type: none"> • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) 	<u>Less likely</u> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or significant tourist attraction • Presence of city police department and headquarters of county sheriff’s office 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More vulnerable</u> <ul style="list-style-type: none"> • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) </td> <td style="width: 50%; vertical-align: top;"> <u>Less vulnerable</u> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or a significant tourist attraction • Presence of city police department and headquarters of county sheriff’s office </td> </tr> </table>	<u>More vulnerable</u> <ul style="list-style-type: none"> • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) 	<u>Less vulnerable</u> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or a significant tourist attraction • Presence of city police department and headquarters of county sheriff’s office
<u>More vulnerable</u> <ul style="list-style-type: none"> • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) 	<u>Less vulnerable</u> <ul style="list-style-type: none"> • Sparse population • County not located near a major metropolitan population, international airport, stadiums, or a significant tourist attraction • Presence of city police department and headquarters of county sheriff’s office 		

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment - Continued

	Cyberattack	
Impact	<ul style="list-style-type: none"> • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public) • HAZMAT Release 	<ul style="list-style-type: none"> • Human Injury/Death • School Closure • Loss of Communication Systems • Identity Theft – loss of wages and/or assets
Frequency	<ul style="list-style-type: none"> • Never an occurrence of a major attack 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Carrington Public School • Foster County Courthouse • City utilities utilizing SCADA systems • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Lack of major financial institutions or communication infrastructure
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Elderly population relying largely on landlines for communication purposes, remote medical care and equipment monitoring • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Lack of major financial institutions or communication infrastructure

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment - Continued

Dam Failure			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Crop Loss and Loss of Livestock • Delayed Emergency Response • Evacuation (Localized) • Loss of Critical Facilities and Infrastructure • Loss of Potable/Drinking Water • Loss of Power • Loss of Transportation Systems/Accessibility • Loss of Wildlife Habitat • Mass Casualties/Fatalities <ul style="list-style-type: none"> • Loss of recreational activities and summer-time population resulting in economic loss • Possible temporary homeless population due to lack of facilities to shelter large numbers of people 		
Frequency	<ul style="list-style-type: none"> • Never an occurrence 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance </td> </tr> </table>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance
<p><u>More likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents • Dover Dam west of the city of Carrington – may impact U.S. Highway 52 which would disrupt economic activity • Tollefson Dam east of the city of Carrington </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge </td> </tr> </table>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents • Dover Dam west of the city of Carrington – may impact U.S. Highway 52 which would disrupt economic activity • Tollefson Dam east of the city of Carrington 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge
<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents • Dover Dam west of the city of Carrington – may impact U.S. Highway 52 which would disrupt economic activity • Tollefson Dam east of the city of Carrington 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge 		

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment - Continued

Drought	
Impact	<ul style="list-style-type: none"> • Crop Loss • Loss of Economy • Loss of Livestock • Loss of Wildlife Habitat (decreased wildlife populations) • Increase in Wildland Fire Potential <ul style="list-style-type: none"> • Water quality compromised from stock dams • Diminished soil quality – salinity will increase • Negative impact on mental health of producers and fire responders – “community impact” • Local producers forced to sell off herds which can last for several years • Population loss as people moved away due to loss of economy
Frequency	<ul style="list-style-type: none"> • Severe Drought of 1961/1962, 1988/1989 to 1991/1992 • Summer of 2017, local producers forced to sell off portions of their herds <ul style="list-style-type: none"> • End of July through winter of 2016 – county reached severe drought status • Severe drought in summer/fall of 2020
Likelihood	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Likely</u></p> <ul style="list-style-type: none"> • Dry/wet cycle every five to eight years • Climatic patterns will result in an eventual drought of significance • Lack of precipitation </div> <div style="width: 45%;"> <p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Heavy precipitation </div> </div>
Vulnerability	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Wildlife & hunting economy • Agriculture economy • Elderly population • Flat terrain/open topography contributes to conditions • Pastureland adjacent to structures and city limits • City has a fire index sign but it needs to be installed </div> <div style="width: 45%;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Financial assistance programs made available by the state and federal government • Burn Ban by county emergency management • Fire Index monitoring and mapping from NDDDES • Advanced communications such as internet and TV • City has a water tower </div> </div>

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment - Continued

Fire – Urban Fire/Structure Collapse	
Impact	<ul style="list-style-type: none"> • Building Collapse • Delayed Emergency Response • Evacuation (Localized) • Explosion • HAZMAT Release <ul style="list-style-type: none"> • Human Injury/Death • Increase Fire Potential • Property damage on a significant scale if impacting downtown structures
Frequency	<ul style="list-style-type: none"> • Occurrences of structures/vehicles being impacted every other year • September 22, 2012. Residential fire east of the city of Carrington approximately six miles resulting in the death of the owner. The cause of the fire is suspected to be a space heater. The fire required over 18,000-gallons of water to be ferried to the site. <ul style="list-style-type: none"> • Tufte Fire - February 25, 2017. The initial call was received around 5 o'clock. The fire started in the same room where the children were sleeping and was noted most likely due to an electric space heater. There were no working smoke alarms in the home and the fire was found because the father had woken up to a noise. The three children perished and the family also lost their dog in the fire. That weekend six crew members were attending fire school in Minot. All crew members came back to relieve the first responding crew.
Likelihood	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Likely</u></p> <ul style="list-style-type: none"> • Age of structures on main street • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) </div> <div style="width: 45%;"> <p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Well-equipped fire department with trained volunteers </div> </div>
Vulnerability	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Age of structures • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • Fire Hall does not have a permanent or portable generator • Prolonged response times due to limited fire staff during the daytime • Presence of abandoned properties • Presence of Tier II sites • Major industrial development (Dakota Pasta Growers) </div> <div style="width: 45%;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Well-equipped fire department with trained volunteers • City has a water tower • Street signage for emergency services </div> </div>

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

Fire – Rural & Wildland			
Impact	<ul style="list-style-type: none"> • Building Collapse • Crop Loss • Delayed Emergency Response • Evacuation (Localized) • Explosion • Increase Fire Potential • Loss of Power/Downed Power Lines • Mass Casualties • Losses could be on a significant scale if impacting a major producer or farmstead • Loss of farm equipment and assets • Loss of Livestock 		
Frequency	<ul style="list-style-type: none"> • Significant fire once every five years • Approximately four wildland fires occurring annually • Controlled burns becoming out of control approximately 25 percent of the time 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites 	<u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation
<u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites 	<u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Large fire district – strained coverage/resources • Lack of fire breaks around city limits • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • City has a fire index sign but it needs to be installed </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation • MOUs with neighboring fire departments • Burn bans by county emergency management for areas outside city limits </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Large fire district – strained coverage/resources • Lack of fire breaks around city limits • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • City has a fire index sign but it needs to be installed 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation • MOUs with neighboring fire departments • Burn bans by county emergency management for areas outside city limits
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Large fire district – strained coverage/resources • Lack of fire breaks around city limits • Presence of natural gas pipeline • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • City has a fire index sign but it needs to be installed 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation • MOUs with neighboring fire departments • Burn bans by county emergency management for areas outside city limits 		

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

		Flood	
Impact	<p><u>Blocked Roads:</u></p> <ul style="list-style-type: none"> • 5th Avenue South between 2nd St. North and 2nd St. South • 3rd St. North and 9th Avenue by the old grade school – two blocks in any direction • Intersection of Main St. and 12th Avenue • Intersection of 10th Ave and 1st St. North 	<ul style="list-style-type: none"> • Delayed Emergency Response • Flooding (Highway & Structure) • Human Injury/Death • Property Damage / Sewer Backup • Runoff from buildings causes overland flooding 	
Frequency	<ul style="list-style-type: none"> • Bi-annual occurrences of localized flooding of nearby township roads and highways • Annual overland flooding occurrences at blocked roads listed above 	<ul style="list-style-type: none"> • Flash flooding occurs from heavy precipitation 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Dry seasons and low precipitation • City performs storm water maintenance 	
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table • Local topography of the city with closed basins • The city’s sanitary sewer and storm water systems are designed in a “barrel-vault” style with the sanitary sewer lines located directly above the storm water lines. The storm sewer system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence (sinkholes). The system is comprised mostly of clay tile, which allows ground water to infiltrate the system. Sinkholes in the system have resulted in city streets eroding, which has the potential to collapse. 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Alternate routes were identified for townships roads • City performs storm water drainage maintenance • City enrolled in NFIP • City has flood ordinances 	

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

		Geologic Hazard	
Impact	<ul style="list-style-type: none"> • Delayed Emergency Response • Human Injury/Death • Loss of Economy 	<ul style="list-style-type: none"> • Loss of Power • Property Damage 	
Frequency	<ul style="list-style-type: none"> • No incidents involving geologic hazards in or near city limits 		
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done 	
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done • Flat topography - no steep terrain where landslides could occur 	

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

	Hazardous Material Release	
Impact	<ul style="list-style-type: none"> Blocked Roads Delayed Emergency Response / Increased Fire Potential Environmental Degradation Evacuation (localized) Explosion Human Injury/Death 	<ul style="list-style-type: none"> Loss of Economy Loss of Potable Water Loss of Power Property Damage Increased risk of HAZMAT release and/or transportation incidents due to increased oil train traffic and trucks
Frequency	<ul style="list-style-type: none"> Small incidents of leaking anhydrous tanks bi-annually Never any major pipeline spills reported See history section in Chapter 4.9 for a list of spill history in the city of Carrington 	
Likelihood	<u>More Likely</u> <ul style="list-style-type: none"> Transportation of chemicals by truck through city limits U.S. Highways 52/281 and N.D. Highway 200 Storage of chemicals/fertilizers in city limits Presence of natural gas pipeline City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) Presence of Tier II sites 	<u>Less Likely</u> <ul style="list-style-type: none"> Private companies have HAZMAT certifications Fire department has HAZMAT response training
Vulnerability	<u>More Vulnerable</u> <ul style="list-style-type: none"> Transportation of chemicals by truck through city limits U.S. Highways 52/281 and N.D. Highway 200 Storage of chemicals/fertilizers in city limits Presence of natural gas pipeline City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) Presence of Tier II sites 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> Fire departments have some HAZMAT training Foster County Nixle-Everbridge CHI-St. Alexius Health Carrington Medical Center Fire department has HAZMAT response training

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

	Infectious Disease	
Impact	<ul style="list-style-type: none"> • Crop Loss • Human Injury/Death • Livestock Loss • Loss of Economy • Mass Casualties 	<ul style="list-style-type: none"> • Strain on local medical resources (ambulance) • Loss of medical staff due to sickness • Loss of Potable Water • Financial cost to public health resources
Frequency	<ul style="list-style-type: none"> • Annual occurrences of death, primarily among the elderly • Occurrence of disease - 1 in 3 for people annually • Annual occurrences of influenza cases in the local population 	<ul style="list-style-type: none"> • The COVID-19 Pandemic of 2020 resulted in mass quarantine and sheltering of the local population and temporary closure of businesses
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Growing elderly population • Small population of children without immunization • Agriculture economy • Dependent on weather for animals and crops • Presence of abandoned properties and overgrown lots 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Growing elderly population • Small population of children without immunization • Agriculture economy • Presence of abandoned properties and overgrown lots • Golden Acres Manor • Carrington Public School 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities • Immunizations & medications of local population • CHI-St. Alexius Health Carrington Medical Center • Veterinarian services in the city

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

	Severe Summer Weather	
Impact	<p><u>Blocked Roads:</u></p> <ul style="list-style-type: none"> • 5th Avenue South between 2nd St. North and 2nd St. South • 3rd St. North and 9th Avenue by the old grade school – two blocks in any direction • Intersection of Main St. and 12th Avenue • Intersection of 10th Ave and 1st St. North • 3rd St. South and McKenzie Avenue 	<ul style="list-style-type: none"> • Evacuation (Localized) • Human Injury/Death – heat exhaustion • Sewer Backup • Shelter-in-place Vehicle Damage • Loss of Livestock • Loss of Crops • Loss of Power/Downed Power Lines - • Property Damage – repair of roofing, siding and drainage systems for homes
Frequency	<ul style="list-style-type: none"> • Property damage from tornados/straight-line winds in summer 2017 and 2019 • Windstorms occurring annually 	<ul style="list-style-type: none"> • Annual occurrences of hailstorms • Two or three significant storms producing damage to trees and property annually
Likelihood	<ul style="list-style-type: none"> • Climatic patterns will result in numerous annual occurrences of the hazard 	
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Manual-activated emergency siren at Carrington Armory • Lack of permanent generators at critical facilities and infrastructure – See Project 1 • The city’s sanitary sewer and storm water systems are designed in a “barrel-vault” style with the sanitary sewer lines located directly above the storm water lines. The storm sewer system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence (sinkholes). The system is comprised mostly of clay tile, which allows ground water to infiltrate the system. Sinkholes in the system have resulted in city streets eroding, which has the potential to collapse. 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • Adopted building codes and has enforcement • Manual-activated emergency siren at Carrington Armory

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

Severe Winter Weather			
Impact	<p><u>Blocked Roads:</u></p> <ul style="list-style-type: none"> • All of 11th Ave North • Main St. from Golden Acres Manor to 66th Ave on the west side of the city • 16th Ave from Main St. to 3rd St. South • Pasta Ave near Dakota Growers Pasta Plant • 11th St. North • Any curvilinear streets and cul-de-sacs in city limits <ul style="list-style-type: none"> • Evacuation (Localized) • Human Injury/Death – wind chill • Property Damage – repair of roofing, siding and drainage systems for homes, vehicles, sewer backups • Loss of Crops • Loss of Livestock • Loss of Power/Downed Power Lines • Shelter-in-place • Infrastructure Degradation 		
Frequency	<ul style="list-style-type: none"> • March 2017 snowstorm resulted in blocked roads throughout the city • Spring snowstorm of 2019 • Annual occurrences of power loss from storms • Two or three significant blizzards producing damage to trees and property annually 		
Likelihood	<ul style="list-style-type: none"> • Climatic patterns will result in numerous annual occurrences of the hazard 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Manual-activated emergency siren at Armory • Lack of permanent generators at critical facilities and infrastructure – See Project 1 • The city’s sanitary sewer and storm water systems are designed in a “barrel-vault” style with the sanitary sewer lines located directly above the storm water lines. The storm sewer system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence (sinkholes). \Sinkholes in the system have resulted in city streets eroding, which has the potential to collapse. • City’s snow-go snowblower is an outdated model and breaks down frequently. Replacement parts are hard to find resulting in the equipment being out of commission for extended periods of time. </td> <td style="width: 50%; border: none; vertical-align: top;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • Adopted building codes and has enforcement • Manual-activated emergency siren at Carrington Armory </td> </tr> </table>	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Manual-activated emergency siren at Armory • Lack of permanent generators at critical facilities and infrastructure – See Project 1 • The city’s sanitary sewer and storm water systems are designed in a “barrel-vault” style with the sanitary sewer lines located directly above the storm water lines. The storm sewer system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence (sinkholes). \Sinkholes in the system have resulted in city streets eroding, which has the potential to collapse. • City’s snow-go snowblower is an outdated model and breaks down frequently. Replacement parts are hard to find resulting in the equipment being out of commission for extended periods of time. 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • Adopted building codes and has enforcement • Manual-activated emergency siren at Carrington Armory
<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Manual-activated emergency siren at Armory • Lack of permanent generators at critical facilities and infrastructure – See Project 1 • The city’s sanitary sewer and storm water systems are designed in a “barrel-vault” style with the sanitary sewer lines located directly above the storm water lines. The storm sewer system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence (sinkholes). \Sinkholes in the system have resulted in city streets eroding, which has the potential to collapse. • City’s snow-go snowblower is an outdated model and breaks down frequently. Replacement parts are hard to find resulting in the equipment being out of commission for extended periods of time. 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • Adopted building codes and has enforcement • Manual-activated emergency siren at Carrington Armory 		

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

Space Weather			
Impact	<ul style="list-style-type: none"> • Loss of operation of the city hall, fire hall, critical facilities, lift station, etc. • Loss/outage of medical devices at private residences • Property damage from sewer backups due to loss of lift station 		
Frequency	<ul style="list-style-type: none"> • Never a recorded occurrence in Foster County or North Dakota 		
Likelihood	<ul style="list-style-type: none"> • Dependent on solar activity and the 11-year solar cycle • Likely to occur once every 500 years per the 2018 N.D. Enhanced Mitigation MAOP 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at pumphouse, lift station, community center, and fire hall • Carrington Public School • CHI-St. Alexius Health Carrington Medical Center • Golden Acres Manor </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at pumphouse, lift station, community center, and fire hall • Carrington Public School • CHI-St. Alexius Health Carrington Medical Center • Golden Acres Manor 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at pumphouse, lift station, community center, and fire hall • Carrington Public School • CHI-St. Alexius Health Carrington Medical Center • Golden Acres Manor 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens 		

Table 8.1.2 – City of Carrington Jurisdiction Risk Assessment – Continued

Transportation Incident			
Impact	<ul style="list-style-type: none"> • Blocked roads from inadequate road clearing • Human Injury/Death • Increased Fire Potential • Loss of Transportation/Accessibility • Mass Casualties/Fatalities <ul style="list-style-type: none"> • Delayed Emergency Response • HAZMAT Release • Livestock Loss • Business Interruptions • Property Damage • Could be catastrophic if involving a school bus filled with children and a truck carrying hazardous materials 		
Frequency	<ul style="list-style-type: none"> • Annual occurrences of accidents involving cars and/or farm equipment • Semi-rolled over at the roundabout at the intersection of U.S. Highways 52/281 and N.D. Highway 200 in October 2021 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017 </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic 	<u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017
<u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic 	<u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • U.S. Highways 52/281 and N.D. Highway 200 • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Semis take the roundabout at intersection of U.S. Highways 52/281 and N.D. Highway 200 too fast • Wildlife </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge • CHI-St. Alexius Health Carrington Medical Center • Roundabout at intersection of U.S. Highways 52/281 and N.D. Highway 200 </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • U.S. Highways 52/281 and N.D. Highway 200 • City is at the intersection of railroad infrastructure (Canadian Pacific and Red River Valley & Western) • Presence of Tier II sites • Semis take the roundabout at intersection of U.S. Highways 52/281 and N.D. Highway 200 too fast • Wildlife 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge • CHI-St. Alexius Health Carrington Medical Center • Roundabout at intersection of U.S. Highways 52/281 and N.D. Highway 200
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8.1.3 Mitigation Strategy

The Foster County Multi-Jurisdictional Multi-Hazard Plan Update includes a mitigation strategy consisting of seven goals in Chapter 6. The following problem statement and mitigation projects address the mitigation needs of the city of Carrington. It should be noted that some mitigation projects that pertain to all jurisdictions are included to encourage county-wide collaboration.

Problem Statement

The city of Carrington lacks sources of backup power at critical facilities and infrastructure. The city own's a fire index sign, but it is not installed. The outdoor emergency siren at the Carrington Armory is manually-activated and needs to be upgraded. The city's sanitary sewer and storm water systems are designed in a "barrel-vault" style with the sanitary sewer lines located directly above the storm water lines. The city's storm water system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence. Sinkholes have resulted in city streets collapsing. Flooded streets have resulted in backup of water into homes and businesses. The city needs a capital improvement plan to complement or become an annex to the city's strategic plan to strategize investments in critical facilities and infrastructure. The city's comprehensive plan and zoning ordinances need updating. The city's continuity of operations plan and building permits should be evaluated annually.

Installation of generators for backup power, installation of a dispatch/radio-activated emergency siren at the Carrington Armory, engineering to retrofit/upgrade the sanitary sewer and storm water systems and updating of planning regulatory and education and outreach capabilities are a priority for the city.

City of Carrington Project 1: Install generators at critical facilities and infrastructure.

Description/Benefit	<p>Test existing generators and create regularly scheduled maintenance system. Install new generators to establish permanent source of backup power to maintain continued operation of the following critical facilities and infrastructure.</p> <p><u>New (permanent):</u> Carrington Ambulance Bay, Carrington Armory (Emergency Operations Shelter), Carrington City Hall, Carrington Fire Hall, Carrington Police Department, Carrington Public School, CHI-St. Alexius Health Carrington Medical Center, Golden Acres Manor/Estates, master lift station.</p> <p><u>Upgrade (permanent):</u> CHI-St. Alexius Health Carrington Medical Center, Foster County Courthouse, Foster County Public Health</p> <p><u>New portable:</u> Carrington Fire Hall, Carrington Police Department, lift stations</p>		
Hazards Addressed	All hazards		
Affected Jurisdiction(s)	City of Carrington and Foster County		
Project Status	New/Ongoing and Continue		
Priority	Very High		
Responsible Agency	City Council(s), County Commission, Emergency Services, Public Works, Carrington Public School, Public Health		
Partners	Emergency Management, Carrington Economic Development, Public Utilities, CHI-St. Alexius Health Carrington Medical Center, Golden Acres Manor/Estates		
Completion Timeframe	Ongoing	Cost	Project-specific
Funding Source	Public Utilities, Regional Council, RD. FEMA’s Building Resilient Infrastructure and Communities (BRIC) Grant Program. State Homeland Security grants. Local budgets.		

Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)

Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	4	4	5	3	5	31

Integration of Mitigation Plan Requirements into Local Planning Mechanisms

<u>Planning Mechanisms Utilized</u>	<u>Plan Element Utilized</u>	<u>Process for Integration</u>
<p>Carrington Comprehensive/Land Use Plan Carrington Continuity of Operations Plan Carrington Strategic Plan Foster County LEOP & Mitigation Plan Foster County THIRA</p>	<p>Capability Assessment, Hazard History, Risk Assessment</p>	<p>Include in city, county and/or local department’s budget. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval by city council, county commission, or board.</p>

City of Carrington Project 2: Upgrade manually-activated outdoor emergency siren at the Carrington Armory.

Description/Benefit		The outdoor emergency sirens at the Carrington Armory is manually activated and needs to be upgraded to provide radio-activation/dispatch-activation.					
Hazards Addressed		All					
Affected Jurisdiction(s)		City of Carrington					
Project Status		New/Ongoing and Continue					
Priority		High					
Responsible Agency		City Council(s), Emergency Services					
Partners		County Commission, Emergency Management, NDAC, NDLC, Regional Council					
Completion Timeframe		2 to 3 years	Cost	Up to \$25,000 for a new siren			
Funding Source		Local budgets. N.D. League of Cities. State Homeland Security Grants. NDDDES. 9-1-1 funds.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	3	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Carrington Comprehensive/Land Use Plan Carrington Continuity of Operations Plan Carrington Strategic Plan Foster County LEOP & Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Include in city, county, or fire department’s capital improvement plan. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval by city council, county commission, or board.		

City of Carrington Project 3: Conduct engineering study to retrofit and/or update critical facilities and infrastructure.

Description/Benefit	The city’s sanitary sewer and storm water systems are designed in a “barrel-vault” style with the sanitary sewer lines located directly above the storm water lines. The entire system needs to be redesigned and reconstructed. An engineering study needs to be completed to identify solutions to retrofit/upgrade both systems with the intent to complete separate.						
Hazard/Threat Addressed	Flood (overland), HAZMAT, Infectious Disease, Severe Summer Weather, Severe Winter Weather (All)						
Affected Jurisdiction(s)	City of Carrington						
Project Status	New						
Priority	Very High						
Responsible Agency	City Council(s), Public Works						
Partners	Emergency Management, Emergency Services, DWR, FEMA, NDDES, Public Health, engineering firms, private contractors						
Completion Timeframe	2 years	Cost	Project-specific				
Funding Source	FEMA’s Building Resilient Infrastructure and Communities (BRIC). Local budgets. NDDEQ. Prairie Dog Fund. DWR.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	3	3	3	3	25
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Carrington Comprehensive/Land Use Plan Carrington Continuity of Operations Plan Carrington Strategic Plan Foster County LEOP & Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Commission studies through a formal bidding process. Select contractor. Apply for grant funding to execute or budget in local budgets.		

City of Carrington Project 4: Conduct engineering study to retrofit and/or upgrade the city’s storm water system.

Description/Benefit		The storm sewer system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence (sinkholes). The system is comprised mostly of clay tile, which allows ground water to infiltrate the system. Sinkholes in the system have resulted in city streets eroding, which has the potential to collapse. Heavy precipitation events result in manhole covers popping out of the street. Flooded streets and water has backed-up into homes when the system is at or over capacity essentially becoming man-made overland flooding.					
		<ul style="list-style-type: none"> • 5th Avenue South between 2nd St. North and 2nd St. South • 3rd St. North and 9th Avenue by the old grade school – two blocks in any direction • Intersection of Main St. and 12th Avenue • Intersection of 10th Ave and 1st St. North 					
Hazard/Threat Addressed		Flood (overland), HAZMAT, Infectious Disease, Severe Summer Weather, Severe Winter Weather (All)					
Affected Jurisdiction(s)		City of Carrington					
Project Status		New					
Priority		Very High					
Responsible Agency		City Council(s), Public Works, engineering firms, private contractors, private property owners					
Partners		Emergency Management, Emergency Services, DWR, FEMA, NDDES, Water Resource Board					
Completion Timeframe		2 years		Cost		Project-specific	
Funding Source		FEMA’s Building Resilient Infrastructure and Communities (BRIC). DWR. Water Resource Board.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	3	3	3	3	25
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>			<u>Plan Element Utilized</u>			<u>Process for Integration</u>	
Carrington Comprehensive/Land Use Plan Carrington Continuity of Operations Plan Carrington Strategic Plan Foster County LEOP & Mitigation Plan Foster County THIRA			Capability Assessment, Hazard History, Risk Assessment			Commission studies through a formal bidding process. Select contractor. Apply for grant funding to execute or budget in local budgets.	

City of Carrington Project 5: Update/expand existing and/or create new planning and regulatory capabilities to address existing and new development to strengthen local planning processes.

Description/Benefit	<p>The city of Carrington needs a capital improvement plan to complement or become an annex to the city’s strategic plan to strategize investments in critical facilities and infrastructure.</p> <p>The city’s comprehensive plan and zoning ordinances need updating.</p> <p>The city’s continuity of operations plan and building permits should be evaluated annually.</p> <p>A list of plans, policies, codes and ordinances is shown in Chapter 7, Capability Assessment.</p>						
Hazard/Threat Addressed	All						
Affected Jurisdiction(s)	City of Carrington						
Project Status	New						
Priority	Medium/High						
Responsible Agency	City Council(s), Public Works						
Partners	Emergency Management, Emergency Services, NDACo, NDDC, NDLC						
Completion Timeframe	2 years for capital improvement plan. Ongoing for all others.		Cost	\$0 to \$25,000 / Staff-time			
Funding Source	Local budgets. State and federal grants.						
Values: 1 is low (negative impact and/or too costly) – Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	3	5	3	5	29
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
All		Capability Assessment, Hazard History, Risk Assessment			Develop, review, and approve by city council.		

8.2 City of Glenfield, North Dakota

The following profile includes information specific to the city of Glenfield for mitigation planning purposes. The information included is as follows:

- Profile and Inventory;
- Risk Assessment;
- Hazard Scoring Notes;
- Mitigation Projects, and
- Capabilities for Mitigation.

Integration into Planning Mechanisms

The process for integration of the mitigation plan into existing planning mechanisms is discussed at the bottom of each mitigation project in section 8.2.3, in section 8.2.4, and in Chapter 6, Mitigation Strategy.

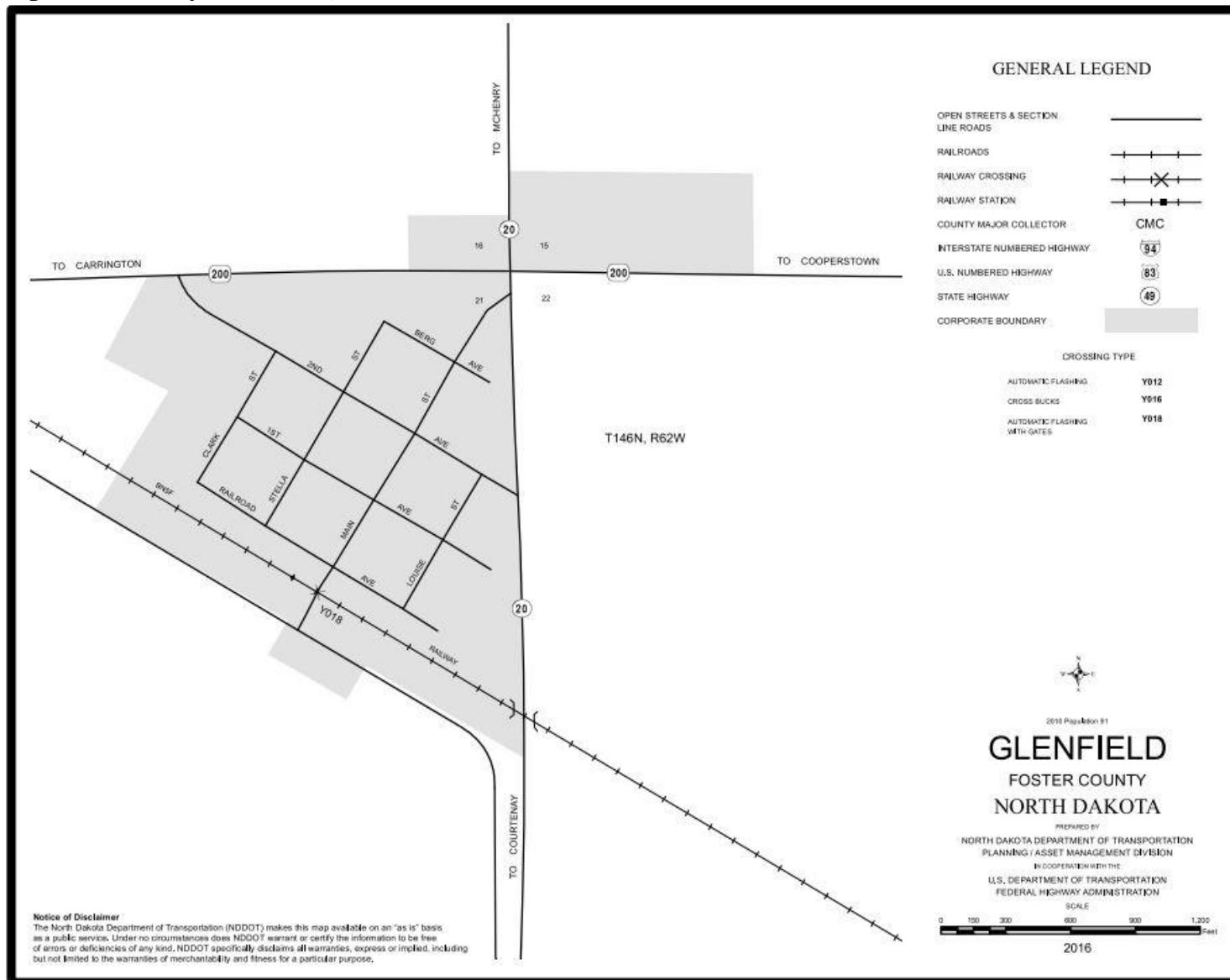
Plan Maintenance

Plan maintenance is shown in section 8.2.6.

Critical Facilities and Infrastructure

Figure 8.2.1 is a map of the city of Glenfield provided by the N.D. Dept. of Transportation.

Figure 8.2.1 – City of Glenfield, North Dakota



Source(s): N.D. Dept. of Transportation

8.2.1 Profile and Inventory

The location, total population, vulnerable populations, housing units and household size, businesses, critical facilities and infrastructure, new and future development, services, jurisdictional buildings, emergency response services and utilities are shown for the city of Glenfield. Detailed narratives follow each section heading to profile the city.

Detailed information on public buildings, services provided, emergency response services and utilities can be found can be found in Chapter 3, Profile and Inventory.

Location

The city of Glenfield is located on N.D. Highway 200 approximately 25 miles east of the city of Carrington, the county seat. The Burlington Northern Santa Fe railroad traverses the city.

Population

Table 8.2.1 shows population trends for the city of Glenfield from 1920 to 2020.

Per the 2020 U.S. Decennial Census, the city of Glenfield has a population of 94 people, which is an increase of three people (3.3 percent) from 91 people in 2010.

Table 8.2.1 – 1920 to 2020 City of Glenfield, North Dakota Population Statistics

1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020
--	--	--	--	129	127	164	118	134	91	94

Source(s): U.S. Decennial Census; American Community Survey, 5-Year Estimates

Vulnerable Populations

Age. Per the 2015 to 2019 American Community Survey 5-Year Estimate, the population of the city of Glenfield consists of 40 individuals under the age of 20 and 18 individuals aged 65 and older.

Daycares. There are no daycares in the city of Glenfield.

Poverty. Per the 2015 to 2019 American Community Survey 5-Year Estimate, there is one household in the city of Glenfield that live below the poverty line.

Public Schools. The Midkota Public School is in the city of Glenfield. Children living in the city of Glenfield and surrounding area rural areas of Eddy, Foster, Griggs, Nelson, and Stutsman Counties attend the school.

Senior Housing Developments/Care Centers. There are no age-restricted, senior housing developments, or care centers in the city of Glenfield.

Housing Units and Household Size

The 2015 to 2019 American Community Survey 5-Year Estimate shows there is a total of 54 housing units in the city consisting of 32 single-family homes, 13 mobile/RV homes, and nine multifamily homes.

According to the Mayor of Glenfield, there is a total of 49 housing units in the city consisting of 31 single-family homes, eight mobile/RV homes, and 10 multifamily homes.

The 2015 to 2019 American Community Survey 5-Year Estimate shows there are 42 households in the city of Glenfield resulting in an average household size of 2.38 people.

Businesses

The major employer in the city of Glenfield is the Midkota Public School. Additional information on businesses and economic development in the city of Carrington or can be obtained by contacting Carrington Economic Development.

New and Future Development

Analyzing development trends is important for mitigation to understand where projects may be needed in the future and funding is best allocated. New development is anything occurring since the 2015 and new and future development is anything planned, pending, and proposed development under construction.

New

- A poll barn constructed in 2018
- A small shop was constructed in 2015
- A new addition to the school was completed in 2018 along with a new parking lot when the Legvik house was moved
- New park equipment was installed
- Two new trailer houses on main street were constructed
- One trailer house was demolished
- A VFW memorial was constructed

Future

- Two properties are scheduled to be demolished within the next year
- Electrical, sewage and new camper hookups are scheduled for spring 2022

Critical Facilities. The following facilities were identified as critical in the city of Glenfield.

- Glenfield City Hall/Community Center
- Glenfield Fire Hall
- Midkota Public School

Infrastructure. The following infrastructure was identified as critical in the city of Glenfield.

- The city of Glenfield has a sanitary sewer with two lagoon cells and a lift station.
- The city maintains an underground water storage tank for drinking/potable water and fire suppression.
- The city of Glenfield does not have an inert landfill.
- The city is of Glenfield is located on N.D. Highways 20 and 200, and the BNSF railroad.

Emergency Response Services. The following emergency response services were identified in the city of Glenfield.

- Griggs County Ambulance provides ambulance services to the city of Glenfield.
- The Glenfield Rural Fire Protection District provides fire protection services to the city and surrounding rural areas.
- The Foster County Sheriff's Office provides law enforcement services to the city of Glenfield.
- The nearest hospital is the CHI-St. Alexius Health Carrington Medical Center in the city of Carrington.
- Foster County Public Health is in the city of Carrington and provides public health services to the city of Carrington and greater Foster County.

Services and Utilities. The following services are provided in the city of Glenfield.

- Brager Disposal of Cooperstown provides garbage collection services to the city of Glenfield.
- The city of Glenfield does not have an inert landfill.
- The city of Glenfield has its own sanitary sewer system consisting of one lift station and two lagoon cells. There are no active septic systems in the city limits.
- The city has a storm water system consisting of culverts and drainage ditches.
- The Foster County Independent is the official newspaper of the city of Glenfield.
- Greater Ramsey Water District provides drinking/potable water to the city of Glenfield.
- Electricity is provided by Otter Tail Power.
- Natural gas is not available in the city of Glenfield.
- Fuel oil and propane are used as an alternative heating source and is provided by companies chosen by the individual consumer. Electric heat is also used as an alternative heating source.
- Moore Liberty Griggs County Telephone Company (MLGC) provides internet, phone, and TV.

8.2.2 Risk Assessment and Hazard Scoring Notes

Table 8.2.2 summarizes the risk assessment scoring of the city of Glenfield. The risk assessment and hazard scoring notes for each hazard specific to the city are shown in Table 8.2.2. Risk assessment notes for impact, frequency, likelihood and vulnerability ubiquitous for jurisdictions in Foster County are found in Chapter 4, Threat and Hazard Identification Assessment in each respective hazard profile.

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment Scoring Summary

Risk Assessment		Jurisdiction: City of Glenfield				
<u>Natural Hazard</u>	<u>Impact</u>	<u>Frequency</u>	<u>Likelihood</u>	<u>Vulnerability</u>	<u>Capabilities</u>	<u>Total</u>
Drought	4	2	4	3	2	11
Fire – Urban/Structure Collapse	4	2	2	2	2	8
Fire – Wildland (Rural)	4	3	4	2	2	11
Flood	4	2	4	3	2	11
Geologic Hazard	1	2	2	2	2	5
Infectious Disease	4	4	4	4	2	14
Severe Summer Weather	4	4	4	3	1	13
Severe Winter Weather	4	4	4	3	1	13
Space Weather	4	1	2	4	2	9
<u>Adversarial Threats</u>						
Civil Disturbance	4	1	2	2	1	8
Criminal, Terrorist or Nation-State Attack	4	2	2	2	1	11
Cyberattack	4	2	4	3	1	12
<u>Technological Threats</u>						
Dam Failure	1	1	1	1	1	3
Hazardous Material Release	4	2	2	4	1	13
Transportation Incident	4	2	3	3	1	11

- (Formula: **Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total**)

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment

Civil Disturbance			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public and private) • HAZMAT Release – oil trains and natural gas pipeline • Human Injury/Death • Increased Public Safety Runs • Loss/Overcrowded Medical Facilities • Loss of Potable Water • Property Damage (Structure) • Property Damage (Vehicle) • Mass Casualties/Fatalities • Lockdown of Midkota Public School 		
Frequency	<ul style="list-style-type: none"> • Never an occurrence of a major incident • DAPL protesters were not active in the city 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population
<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment - Continued

Criminal, Terrorist, Nation-State Attack			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public and private) • HAZMAT Release – oil trains and natural gas pipeline • Human Injury/Death • Lockdown of Midkota Public School • Increased Public Safety Runs • Loss/Overcrowded Medical Facilities • Loss of Potable Water • Property Damage (Structure) • Property Damage (Vehicle) • Mass Casualties/Fatalities • Threats to city water supply • Loss of Communication Systems • Disease Outbreak/Mass Infections 		
Frequency	<ul style="list-style-type: none"> • No occurrences • Miscellaneous property damage occurring in the city on an occasional basis 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population
<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment - Continued

	Cyberattack	
Impact	<ul style="list-style-type: none"> • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public) • HAZMAT Release 	<ul style="list-style-type: none"> • Human Injury/Death • School Closure • Loss of Communication Systems • Identity Theft – loss of wages and/or assets
Frequency	<ul style="list-style-type: none"> • Never an occurrence of a major attack 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Small town with lack of technological infrastructure to defend against cyber attacks • Midkota Public School • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Lack of major financial institutions or communication infrastructure
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Small town with lack of technological infrastructure to defend against cyber attacks • Elderly population relying largely on landlines for communication purposes, remote medical care and equipment monitoring • Midkota Public School (loss of records) • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Some city records are on paper and not digital 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Lack of major financial institutions or communication infrastructure • Some city records are on paper and not digital

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment - Continued

Dam Failure			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Crop Loss and Loss of Livestock • Delayed Emergency Response • Evacuation (Localized) • Loss of Critical Facilities and Infrastructure • Loss of Potable/Drinking Water • Loss of Power • Loss of Transportation Systems/Accessibility • Loss of Wildlife Habitat • Mass Casualties/Fatalities <ul style="list-style-type: none"> • Loss of recreational activities and summer-time population resulting in economic loss • Possible temporary homeless population due to lack of facilities to shelter large numbers of people 		
Frequency	<ul style="list-style-type: none"> • Never an occurrence 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More Likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance </td> </tr> </table>	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance
<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge • The city of Glenfield is not vulnerable to dam failure as it is not located in the inundation area of any dam infrastructure </td> </tr> </table>	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge • The city of Glenfield is not vulnerable to dam failure as it is not located in the inundation area of any dam infrastructure
<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge • The city of Glenfield is not vulnerable to dam failure as it is not located in the inundation area of any dam infrastructure 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment - Continued

		Drought	
Impact		<ul style="list-style-type: none"> • Crop Loss • Loss of Economy • Loss of Livestock • Loss of Wildlife Habitat (decreased wildlife populations) • Increase in Wildland Fire Potential 	<ul style="list-style-type: none"> • Water quality compromised from stock dams • Diminished soil quality – salinity will increase • Negative impact on mental health of producers and fire responders – “community impact” • Local producers forced to sell off herds which can last for several years • Population loss as people moved away due to loss of economy
Frequency		<ul style="list-style-type: none"> • Severe Drought of 1961/1962, 1988/1989 to 1991/1992 • Summer of 2017, local producers forced to sell off portions of their herds 	<ul style="list-style-type: none"> • End of July through winter of 2016 – county reached severe drought status • Severe drought in summer/fall of 2020
Likelihood		<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Dry/wet cycle every six years • Climatic patterns will result in an eventual drought of significance • Lack of precipitation 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Heavy precipitation
Vulnerability		<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Wildlife & hunting economy • Agriculture economy • Elderly population • Flat terrain/open topography contributes to conditions • Pastureland adjacent to structures and city limits • City does not have a fire index sign • City does not have a water tower 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Financial assistance programs made available by the state and federal government • Burn Ban by county emergency management • Fire Index monitoring and mapping from NDDDES • Advanced communications such as internet and TV

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment - Continued

Fire – Urban Fire/Structure Collapse			
Impact	<ul style="list-style-type: none"> • Building Collapse • Delayed Emergency Response • Evacuation (Localized) • Explosion • HAZMAT Release <ul style="list-style-type: none"> • Human Injury/Death • Increase Fire Potential • Property damage on a significant scale if impacting downtown structures 		
Frequency	<ul style="list-style-type: none"> • Occurrences of structures/vehicles being impacted every five years • Three structure fires and three vehicle fires between January 1, 2000, and December 31, 2019. 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Age of structures on main street • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Age of structures on main street • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems 	<u>Less Likely</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses
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Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Age of structures • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • Fire Hall does not have a permanent or portable generator • Prolonged response times due to limited fire staff during the daytime • Presence of abandoned properties • City does not have a water tower • Fire department lacks adequate equipment </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Fire department with trained volunteers • Street signage for emergency services </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Age of structures • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • Fire Hall does not have a permanent or portable generator • Prolonged response times due to limited fire staff during the daytime • Presence of abandoned properties • City does not have a water tower • Fire department lacks adequate equipment 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Fire department with trained volunteers • Street signage for emergency services
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Age of structures • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • Fire Hall does not have a permanent or portable generator • Prolonged response times due to limited fire staff during the daytime • Presence of abandoned properties • City does not have a water tower • Fire department lacks adequate equipment 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Fire department with trained volunteers • Street signage for emergency services 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment – Continued

Fire – Rural & Wildland	
Impact	<ul style="list-style-type: none"> • Building Collapse • Crop Loss • Delayed Emergency Response • Evacuation (Localized) • Explosion • Increase Fire Potential <ul style="list-style-type: none"> • Loss of Power/Downed Power Lines • Mass Casualties • Losses could be on a significant scale if impacting a major producer or farmstead • Loss of farm equipment and assets • Loss of Livestock • Disruption of wildlife habitat
Frequency	<ul style="list-style-type: none"> • Significant fire once every five years • Approximately four wildland fires occurring annually <ul style="list-style-type: none"> • Controlled burns becoming out of control approximately 25 percent of the time
Likelihood	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><u>More Likely</u></p> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites </div> <div style="width: 48%;"> <p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation </div> </div>
Vulnerability	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Large fire district – strained coverage/resources • Lack of fire breaks around city limits • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites • Lack of fire index sign </div> <div style="width: 48%;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation • MOUs with neighboring fire departments • Burn bans by county emergency management for areas outside city limits </div> </div>

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment – Continued

		Flood	
Impact	<p><u>Blocked Roads:</u></p> <ul style="list-style-type: none"> • School Avenue and Louise Street • Clark Avenue and Church Street • Midkota High School parking lot on School Avenue and Clark Street • Areas near the city park • Area near Tough-T Manufacturing floods 		<ul style="list-style-type: none"> • Delayed Emergency Response • Flooding (Highway & Structure) • Human Injury/Death • Property Damage / Sewer Backup • Runoff from buildings causes overland flooding • Ground seepage around homes
Frequency	<ul style="list-style-type: none"> • Bi-annual occurrences of localized flooding of nearby township roads and highways • Annual overland flooding occurrences at blocked roads listed above 		<ul style="list-style-type: none"> • Flash flooding occurs from heavy precipitation
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table 		<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Dry seasons and low precipitation • City performs storm water drainage maintenance
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table • Local topography of the city with closed basins • City is not enrolled in the NFIP / no flood ordinances • Outdated pumps at the lift station • City lacks an adequate storm water system • City park in low-lying area • The storm sewer system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence (sinkholes). The system is comprised of copper pipe, clay tile, PVC (in some sections), which allows ground water to infiltrate the system. Sinkholes in the system have resulted in city streets collapsing. 		<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Alternate routes were identified for townships roads • City performs storm water drainage maintenance

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment – Continued

Geologic Hazard			
Impact	<ul style="list-style-type: none"> • Delayed Emergency Response • Human Injury/Death • Loss of Economy • Loss of Power • Property Damage 		
Frequency	<ul style="list-style-type: none"> • No incidents involving geologic hazards in or near city limits 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils 	<u>Less Likely</u> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done
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<u>More Vulnerable</u> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done • Flat topography - no steep terrain where landslides could occur 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment – Continued

Hazardous Material Release			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Delayed Emergency Response / Increased Fire Potential • Environmental Degradation • Evacuation (localized) • Explosion • Human Injury/Death • Loss of Economy • Loss of Potable Water • Loss of Power • Property Damage • Increased risk of HAZMAT release and/or transportation incidents due to increased oil train traffic and trucks 		
Frequency	<ul style="list-style-type: none"> • Small incidents of leaking anhydrous tanks bi-annually • Never any major spills reported 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Storage of chemicals/fertilizers in city limits • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Private companies have HAZMAT certifications • State training for farmers to handle ag chemicals </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Storage of chemicals/fertilizers in city limits • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Likely</u> <ul style="list-style-type: none"> • Private companies have HAZMAT certifications • State training for farmers to handle ag chemicals
<u>More Likely</u> <ul style="list-style-type: none"> • Storage of chemicals/fertilizers in city limits • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Likely</u> <ul style="list-style-type: none"> • Private companies have HAZMAT certifications • State training for farmers to handle ag chemicals 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy and related industries • Storage of chemicals/fertilizers in city limits • No hospital or medical clinic in city limits • Lack of outdoor emergency siren • Presence of BNSF railroad and hazardous liquid pipeline • Presence of Tier II sites • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Fire departments have some HAZMAT training • State training for farmers to handle ag chemicals </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy and related industries • Storage of chemicals/fertilizers in city limits • No hospital or medical clinic in city limits • Lack of outdoor emergency siren • Presence of BNSF railroad and hazardous liquid pipeline • Presence of Tier II sites • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Fire departments have some HAZMAT training • State training for farmers to handle ag chemicals
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy and related industries • Storage of chemicals/fertilizers in city limits • No hospital or medical clinic in city limits • Lack of outdoor emergency siren • Presence of BNSF railroad and hazardous liquid pipeline • Presence of Tier II sites • City located at intersection of N.D. Highways 20 and 200 – both serve as major agriculture and commercial trucking arteries in the state 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Fire departments have some HAZMAT training • State training for farmers to handle ag chemicals 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment – Continued

Infectious Disease	
Impact	<ul style="list-style-type: none"> • Crop Loss • Human Injury/Death • Livestock Loss • Loss of Economy • Mass Casualties <ul style="list-style-type: none"> • Strain on local medical resources (ambulance) • Loss of medical staff due to sickness • Loss of Potable Water • Financial cost to public health resources
Frequency	<ul style="list-style-type: none"> • Annual occurrences of death, primarily among the elderly • Occurrence of disease - 1 in 3 for people annually • Annual occurrences of influenza cases in the local population <ul style="list-style-type: none"> • The COVID-19 Pandemic of 2020 resulted in mass quarantine and sheltering of the local population and temporary closure of businesses
Likelihood	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Likely</u></p> <ul style="list-style-type: none"> • Growing elderly population • Small population of children without immunization • Agriculture economy • Dependent on weather for animals and crops • Presence of abandoned properties and overgrown lots </div> <div style="width: 45%;"> <p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities </div> </div>
Vulnerability	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Growing elderly population • Small population of children without immunization • Agriculture economy • Presence of abandoned properties and overgrown lots • No hospital or medical clinic • No vet clinic in city limits • Midkota Public School </div> <div style="width: 45%;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities • Immunizations & medications of local population • No care center in the city </div> </div>

Table 8.2.2 – City of Carrington Jurisdiction Risk Assessment – Continued

Severe Summer Weather			
Impact	<p><u>Blocked Roads:</u></p> <ul style="list-style-type: none"> • School Ave and Main St. • Church Ave • Park Road <ul style="list-style-type: none"> • Evacuation (Localized) • Human Injury/Death – heat exhaustion • Sewer Backup • Shelter-in-place Vehicle Damage • Loss of Livestock • Loss of Crops • Loss of Power/Downed Power Lines - • Property Damage – repair of roofing, siding and drainage systems for homes 		
Frequency	<ul style="list-style-type: none"> • Property damage from tornados/straight-line winds in summer 2017 and 2019 • Windstorms occurring annually • Annual occurrences of hailstorms • Two or three significant storms producing damage to trees and property annually 		
Likelihood	<ul style="list-style-type: none"> • Climatic patterns will result in numerous annual occurrences of the hazard 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School • Lacks building code enforcement • Outdated pumps at the lift station </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV </td> </tr> </table>	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School • Lacks building code enforcement • Outdated pumps at the lift station 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV
<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School • Lacks building code enforcement • Outdated pumps at the lift station 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment – Continued

Severe Winter Weather			
Impact	<p><u>Blocked Roads:</u></p> <ul style="list-style-type: none"> • N.D. Highways 20 and 200 • All city streets become blocked: School Ave, Main St., Louise St., Stella St., Railroad St., Clark St., Church Ave, Berg Ave <ul style="list-style-type: none"> • Evacuation (Localized) • Human Injury/Death – wind chill • Property Damage – repair of roofing, siding and drainage systems for homes • Loss of Crops • Loss of Livestock • Loss of Power/Downed Power Lines • Sewer Backup • Shelter-in-place • Vehicle Damage • Infrastructure Degradation 		
Frequency	<ul style="list-style-type: none"> • March 2017 snowstorm resulted in blocked roads throughout the city • Spring snowstorm of 2019 • Annual occurrences of power loss from storms • Two or three significant blizzards producing damage to trees and property annually 		
Likelihood	<ul style="list-style-type: none"> • Climatic patterns will result in numerous annual occurrences of the hazard 		
Vulnerability	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School • Lacks building code enforcement • Outdated pumps at the lift station </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV </td> </tr> </table>	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School • Lacks building code enforcement • Outdated pumps at the lift station 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV
<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School • Lacks building code enforcement • Outdated pumps at the lift station 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment – Continued

Space Weather			
Impact	<ul style="list-style-type: none"> • Loss of operation of the city hall, fire hall, lift station, etc. • Loss/outage of medical devices at private residences • Property damage from sewer backups due to loss of lift station 		
Frequency	<ul style="list-style-type: none"> • Never a recorded occurrence in Foster County or North Dakota 		
Likelihood	<ul style="list-style-type: none"> • Dependent on solar activity and the 11-year solar cycle • Likely to occur once every 500 years per the 2018 N.D. Enhanced Mitigation MAOP 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation – water and sewer system • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation – water and sewer system • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation – water and sewer system • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at fire hall, community center, public school and lift station • Midkota Public School 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens 		

Table 8.2.2 – City of Glenfield Jurisdiction Risk Assessment – Continued

Transportation Incident			
Impact	<ul style="list-style-type: none"> • Blocked roads from inadequate road clearing • Human Injury/Death • Increased Fire Potential • Loss of Transportation/Accessibility • Mass Casualties/Fatalities <ul style="list-style-type: none"> • Delayed Emergency Response • HAZMAT Release • Livestock Loss • Business Interruptions • Property Damage • Could be catastrophic if involving a school bus filled with children and a truck carrying hazardous materials 		
Frequency	<ul style="list-style-type: none"> • Annual occurrences of accidents involving cars and/or farm equipment 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic </td> <td style="width: 50%; border: none; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017 </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic 	<u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017
<u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic 	<u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • N.D. Highways 20 and 200 • Presence of BNSF railroad • Presence of Tier II sites • Midkota Public School </td> <td style="width: 50%; border: none; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • N.D. Highways 20 and 200 • Presence of BNSF railroad • Presence of Tier II sites • Midkota Public School 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • N.D. Highways 20 and 200 • Presence of BNSF railroad • Presence of Tier II sites • Midkota Public School 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge 		

8.2.3 Mitigation Strategy

The Foster County Multi-Jurisdictional Multi-Hazard Plan Update includes a mitigation strategy consisting of seven goals in Chapter 6. The following problem statement and mitigation projects address the mitigation needs of the city of Glenfield. It should be noted that some mitigation projects that pertain to all jurisdictions are included to encourage county-wide collaboration.

Problem Statement

The city of Glenfield lacks sources of backup power at critical facilities and infrastructure. The outdoor emergency siren is outdated/inactive. The city's storm water system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence. Sinkholes have resulted in city streets collapsing. Flooded streets have resulted in backup of water into homes and businesses. The pumps at the lift station are outdated and can lose functionality during high precipitation events. The city does not have building permits.

Installation of generators for backup power, installation of a dispatch/radio-activated emergency siren, engineering to retrofit/upgrade the storm water system, installation of new pumps at the lift station, development of building permits, and education and outreach are a priority for the city.

City of Glenfield Project 1: Install permanent generators at critical facilities and infrastructure.

Description/Benefit		Test existing generators and create regularly scheduled maintenance system. Install new generators to establish permanent source of backup power to maintain continued operation of the following critical facilities and infrastructure.					
		<u>Install New</u> <ul style="list-style-type: none"> • Glenfield Fire Hall • Glenfield Community Center • Midkota Public School • Lift station 					
Hazards Addressed		All hazards					
Affected Jurisdiction(s)		City of Glenfield					
Project Status		New/Ongoing and Continue					
Priority		Very High					
Responsible Agency		City Council(s), Emergency Services, Public Works					
Partners		Emergency Management, Public Utilities					
Completion Timeframe		2 to 3 years			Cost	Project-specific	
Funding Source		Public Utilities, Regional Council, RD. FEMA’s Building Resilient Infrastructure and Communities (BRIC) Grant Program. State Homeland Security grants.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	3	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>			<u>Plan Element Utilized</u>			<u>Process for Integration</u>	
Foster County LEOP & Mitigation Plan Foster County THIRA			Capability Assessment, Hazard History, Risk Assessment			Include in city and/or fire department’s budget. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval city council or board.	

City of Glenfield Project 2: Install dispatch-activated outdoor emergency siren.

Description/Benefit	The city’s current outdoor emergency siren is outdated/inactive and nonfunctional. The city needs to install a new dispatch-activated siren.						
Hazards Addressed	All						
Affected Jurisdiction(s)	City of Glenfield						
Project Status	New/Ongoing and Continue						
Priority	Very High						
Responsible Agency	City Council(s), Emergency Services						
Partners	County Commission, Emergency Management, NDAC, NDLC, Regional Council						
Completion Timeframe	2 to 3 years	Cost	Up to \$25,000 for a new siren				
Funding Source	Local budgets. N.D. League of Cities. State Homeland Security Grants. NDDES. 9-1-1 funds.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	3	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP & Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Include in city and/or fire department’s capital improvement plan. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval city council or board.		

City of Glenfield Project 3: Conduct engineering study to retrofit and/or upgrade the city’s storm water system.

Description/Benefit	<p>The storm sewer system is inundated during high precipitation events, saturated ground conditions, shifting soils, and land subsidence (sinkholes). The system is comprised of copper pipe, clay tile, PVC (in some sections), which allows ground water to infiltrate the system. Sinkholes in the system have resulted in city streets collapsing. Flooded streets and backup into homes has occurred when the system is at or over capacity, essentially becoming man-made overland flooding.</p> <ul style="list-style-type: none"> • School Avenue and Louise Street • Clark Avenue and Church Street • Midkota High School parking lot on School Avenue • Areas near the city park 						
Hazard/Threat Addressed	Flood (overland), Infectious Disease, Severe Summer Weather, Severe Winter Weather (All)						
Affected Jurisdiction(s)	City of Glenfield						
Project Status	New						
Priority	Medium/High						
Responsible Agency	City Council(s), Public Works, Midkota Public School, engineering firms, private contractors, private property						
Partners	Emergency Management, Emergency Services, DWR, FEMA, NDDDES, Water Resource Board						
Completion Timeframe	2 years			Cost	Project-specific		
Funding Source	FEMA’s Building Resilient Infrastructure and Communities (BRIC). DWR. Water Resource Board.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	5	3	1	3	25
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Foster County LEOP & Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Commission studies through a formal bidding process. Select contractor. Apply for grant funding to execute or budget in local budgets.		

City of Glenfield Project 4: Develop and implement building permits

Description/Benefit	To ensure new and existing structures adhere to building standards to withstand impacts from hazards and keep people safe.						
Hazard/Threat Addressed	All						
Affected Jurisdiction(s)	City of Glenfield						
Project Status	Ongoing and Continue						
Priority	Medium						
Responsible Agency	City Council(s), County Commission						
Partners	NDACo, NDDC, NDLC, NDTOA, ND Fire Marshal's Office						
Completion Timeframe	2 years	Cost	Staff time				
Funding Source	Local budgets.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	3	5	5	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Identify as adoption of buildings codes as an objective and/or action in the county's comprehensive plan. Encourage jurisdictions to adopt. Enforcement is the second part.		

City of Glenfield Project 5: Purchase and install new lift station pumps.

Description/Benefit	The two pumps for the lift stations are nearing the end of useful life and are inundated by overland flooding during incidents of high precipitation from severe summer weather and severe winter weather events.		
Hazards Addressed	Flood, Infectious Disease, Severe Summer Weather, Severe Winter Weather		
Affected Jurisdiction(s)	City of Glenfield		
Project Status	New		
Priority	Very High		
Responsible Agency	City Council(s), Emergency Services		
Partners	Emergency Management, NDLC, Regional Council, private contractors		
Completion Timeframe	2 to 3 years	Cost	TBD
Funding Source	Local budgets. N.D. League of Cities. FEMA’s Building resilient Infrastructure and Communities (BRIC) Grant.		

Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)

Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	4	5	34

Integration of Mitigation Plan Requirements into Local Planning Mechanisms

<u>Planning Mechanisms Utilized</u>	<u>Plan Element</u>	<u>Process for Integration</u>
Foster County LEOP & Mitigation Plan Foster County THIRA	Capability Assessment, Hazard History, Risk Assessment	Identify the cost and scope of the project. Include in city’s budget/capital improvement plan. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval city council.

8.3 City of Grace City, North Dakota

The following profile includes information specific to the city of Grace City for mitigation planning purposes. The information included is as follows:

- Profile and Inventory;
- Risk Assessment;
- Hazard Scoring Notes;
- Mitigation Projects, and
- Capabilities for Mitigation.

Integration into Planning Mechanisms

The process for integration of the mitigation plan into existing planning mechanisms is discussed at the bottom of each mitigation project in section 8.3.3, in section 8.3.4, and in Chapter 6, Mitigation Strategy.

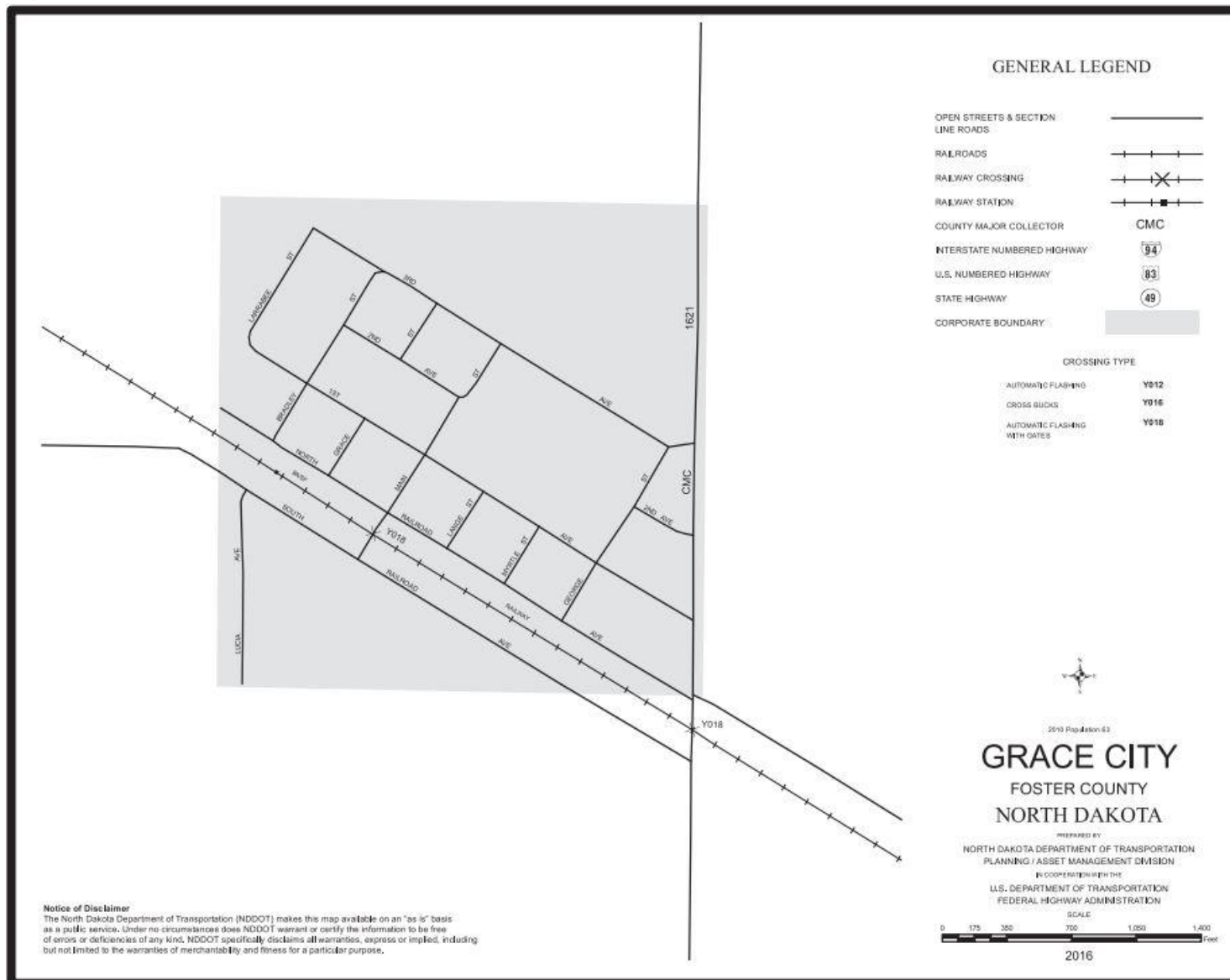
Plan Maintenance

Plan maintenance is shown in section 8.3.6.

Critical Facilities and Infrastructure

Figure 8.3.1 is a map of the city of Grace City provided by the N.D. Dept. of Transportation.

Figure 8.3.1 – City of Grace City, North Dakota



Source(s): N.D. Dept. of Transportation

8.3.1 Profile and Inventory

The location, total population, vulnerable populations, housing units and household size, businesses, critical facilities and infrastructure, new and future development, services, jurisdictional buildings, emergency response services and utilities are shown for the city of Grace City. Detailed narratives follow each section heading to profile the city.

Detailed information on public buildings, services provided, emergency response services and utilities can be found can be found in Chapter 3, Profile and Inventory.

Location

The city of Grace City is located on 92nd Ave NE approximately 21 miles east-northeast of the city of Carrington, the county seat. The Burlington Northern Santa Fe railroad traverses the city.

Population

Table 8.3.1 shows population trends for the city of Grace City from 1920 to 2020.

Per the 2020 U.S. Decennial Census, the city of Grace City has a population of 53 people, which is a decrease of 10 people (15.9 percent) from 71 people in 2010.

Table 8.3.1 – 1920 to 2020 City of Grace City, North Dakota Population Statistics

1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020
--	--	--	--	--	--	--	108	71	63	53

Source(s): U.S. Decennial Census; American Community Survey, 5-Year Estimates

Vulnerable Populations

Age. Per the 2015 to 2019 American Community Survey 5-Year Estimate, the population of the city of Grace City consists of 32 individuals under the age of 20 and 12 individuals aged 65 and older.

Daycares. There are no daycares in the city of Grace City.

Poverty. Per the 2015 to 2019 American Community Survey 5-Year Estimate, there are eight households in the city of Grace City that live below the poverty line.

Public Schools. There are no public schools in the city of Grace City.

Senior Housing Developments/Care Centers. There are no age-restricted, senior housing developments, or care centers in the city of Grace City.

Housing Units and Household Size

The 2015 to 2019 American Community Survey 5-Year Estimate shows there is a total of 39 housing units in the city consisting of 29 single-family homes, no mobile/RV homes, and 10 multifamily homes.

The 2015 to 2019 American Community Survey 5-Year Estimate shows there are 31 households in the city of Grace City resulting in an average household size of 2.74 people.

Businesses

There are no major employers in the city of Grace City. Additional information on businesses and economic development in the city of Carrington or can be obtained by contacting Carrington Economic Development.

New and Future Development

Analyzing development trends is important for mitigation to understand where projects may be needed in the future and funding is best allocated. New development is anything occurring since the 2015 and new and future development is anything planned, pending, and proposed development under construction.

No new and future development was identified at the time of this plan update for the city of Grace City.

Critical Facilities. The following facilities were identified as critical in the city of Grace City.

- Grace City City Hall/Community Center

Infrastructure. The following infrastructure was identified as critical in the city of Grace City.

- The city of Grace City does not have a sanitary sewer system. Residents utilize septic systems.
- The city of Grace City has an inert landfill.
- The BNSF railroad traverses the city.

Emergency Response Services. The following emergency response services were identified in the city of Grace City.

- Foster County Ambulance provides ambulance services to the city of Grace City.
- The Carrington Rural Fire Protection District provides fire protection services to the city and surrounding rural areas.
- The Foster County Sheriff's Office provides law enforcement services to the city of Grace City.
- The nearest hospital is the CHI-St. Alexius Health Carrington Medical Center in the city of Carrington.
- Foster County Public Health is in the city of Carrington and provides public health services to the city of Carrington and greater Foster County.

Services and Utilities. The following services are provided in the city of Grace City.

- Brager Disposal of Cooperstown provides garbage collection services to the city of Grace City.
- The city of Grace City maintains an inert landfill.
- The city of Grace City does not have a sanitary sewer system. Residents utilize septic systems.
- The city has a storm water system consisting of culverts and drainage ditches.
- The Foster County Independent is the official newspaper of the city of Grace City.
- Greater Ramsey Water District provides drinking/potable water to the city of Grace City.
- Electricity is provided by Otter Tail Power.
- Natural gas is not available in the city of Grace City.

- Fuel oil and propane are used as an alternative heating source and is provided by companies chosen by the individual consumer.
- Daktel provides internet, phone, and TV.

8.3.2 Risk Assessment and Hazard Scoring Notes

Table 8.3.2 summarizes the risk assessment scoring of the city of Grace City. The risk assessment and hazard scoring notes for each hazard specific to the city are shown in Table 8.3.2. Risk assessment notes for impact, frequency, likelihood and vulnerability ubiquitous for jurisdictions in Foster County are found in Chapter 4, Threat and Hazard Identification Assessment in each respective hazard profile.

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment Scoring Summary

Jurisdiction: City of Grace City						
Risk Assessment	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total
<u>Natural Hazard</u>						
Drought	4	2	4	2	1	11
Fire – Urban/Structure Collapse	4	2	2	4	1	11
Fire – Wildland (Rural)	4	2	3	4	1	12
Flood	4	2	2	3	3	8
Geologic Hazard	1	2	2	2	2	5
Infectious Disease	4	4	4	3	1	14
Severe Summer Weather	4	4	4	3	1	13
Severe Winter Weather	4	4	4	3	1	13
Space Weather	4	1	2	4	2	9
<u>Adversarial Threats</u>						
Civil Disturbance	4	1	2	2	1	8
Criminal, Terrorist or Nation-State Attack	4	2	2	2	1	11
Cyberattack	2	1	3	2	1	7
<u>Technological Threats</u>						
Dam Failure	1	1	1	1	1	3
Hazardous Material Release	4	2	2	3	1	11
Transportation Incident	4	2	3	3	1	11

- (Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment

Civil Disturbance			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public and private) • HAZMAT Release – oil trains and natural gas pipeline • Human Injury/Death 		
Frequency	<ul style="list-style-type: none"> • Never an occurrence of a major incident 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population
<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population 		

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment - Continued

Criminal, Terrorist, Nation-State Attack			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public and private) • HAZMAT Release – oil trains and natural gas pipeline • Human Injury/Death • Increased Public Safety Runs • Loss/Overcrowded Medical Facilities • Loss of Potable Water • Property Damage (Structure) • Property Damage (Vehicle) • Mass Casualties/Fatalities • Threats to city water supply • Loss of Communication Systems • Disease Outbreak/Mass Infections 		
Frequency	<ul style="list-style-type: none"> • No occurrences • Miscellaneous property damage occurring in the city on an occasional basis 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population
<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population 		

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment - Continued

	Cyberattack	
Impact	<ul style="list-style-type: none"> • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public) • HAZMAT Release 	<ul style="list-style-type: none"> • Human Injury/Death • School Closure • Loss of Communication Systems • Identity Theft – loss of wages and/or assets
Frequency	<ul style="list-style-type: none"> • Never an occurrence of a major attack 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Small town with lack of technological infrastructure to defend against cyber attacks • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Lack of major financial institutions or communication infrastructure • No public school
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Small town with lack of technological infrastructure to defend against cyber attacks • Elderly population relying largely on landlines for communication purposes, remote medical care and equipment monitoring • Presence of hazardous liquid pipeline • Presence of BNSF railroad 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Lack of major financial institutions or communication infrastructure • No public school • City records are on paper

Table 8.3.3 – City of Grace City Jurisdiction Risk Assessment - Continued

Dam Failure			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Crop Loss and Loss of Livestock • Delayed Emergency Response • Evacuation (Localized) • Loss of Critical Facilities and Infrastructure • Loss of Potable/Drinking Water • Loss of Power • Loss of Transportation Systems/Accessibility • Loss of Wildlife Habitat • Mass Casualties/Fatalities <ul style="list-style-type: none"> • Loss of recreational activities and summer-time population resulting in economic loss • Possible temporary homeless population due to lack of facilities to shelter large numbers of people 		
Frequency	<ul style="list-style-type: none"> • Never an occurrence 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance </td> </tr> </table>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance
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Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge • The city of Grace City is not vulnerable to dam failure as it is not located in the inundation area of any dam infrastructure </td> </tr> </table>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge • The city of Grace City is not vulnerable to dam failure as it is not located in the inundation area of any dam infrastructure
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Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment - Continued

		Drought	
Impact	<ul style="list-style-type: none"> • Crop Loss • Loss of Economy • Loss of Livestock • Loss of Wildlife Habitat (decreased wildlife populations) • Increase in Wildland Fire Potential 	<ul style="list-style-type: none"> • Water quality compromised from stock dams • Diminished soil quality – salinity will increase • Negative impact on mental health of producers and fire responders – “community impact” • Local producers forced to sell off herds which can last for several years • Population loss as people moved away due to loss of economy 	
Frequency	<ul style="list-style-type: none"> • Severe Drought of 1961/1962, 1988/1989 to 1991/1992 • Summer of 2017, local producers forced to sell off portions of their herds 	<ul style="list-style-type: none"> • End of July through winter of 2016 – county reached severe drought status • Severe drought in summer/fall of 2020 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Dry/wet cycle every five to six years • Climatic patterns will result in an eventual drought of significance • Lack of precipitation 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Heavy precipitation 	
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Wildlife & hunting economy • Agriculture economy • Elderly population • Flat terrain/open topography contributes to conditions • Pastureland adjacent to structures and city limits • City does not have a fire index sign • City does not have a water tower 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Financial assistance programs made available by the state and federal government • Burn Ban by county emergency management • Fire Index monitoring and mapping from NDDDES • Advanced communications such as internet and TV 	

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment - Continued

Fire – Urban Fire/Structure Collapse	
Impact	<ul style="list-style-type: none"> • Building Collapse • Delayed Emergency Response • Evacuation (Localized) • Explosion • HAZMAT Release <ul style="list-style-type: none"> • Human Injury/Death • Increase Fire Potential • Property damage on a significant scale if impacting downtown structures
Frequency	<ul style="list-style-type: none"> • Occurrences of structures/vehicles being impacted every five years • A fire was started by sunflowers in a bin at Dalgren Elevator and smoldered for several days in 2017/2018
Likelihood	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Likely</u></p> <ul style="list-style-type: none"> • Age of structures on main street • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems </div> <div style="width: 45%;"> <p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses </div> </div>
Vulnerability	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Age of structures • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • No fire department • Presence of abandoned properties • City does not have a water tower </div> <div style="width: 45%;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Street signage for emergency services </div> </div>

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

Fire – Rural & Wildland			
Impact	<ul style="list-style-type: none"> • Building Collapse • Crop Loss • Delayed Emergency Response • Evacuation (Localized) • Explosion • Increase Fire Potential • Loss of Power/Downed Power Lines • Mass Casualties • Losses could be on a significant scale if impacting a major producer or farmstead • Loss of farm equipment and assets • Loss of Livestock 		
Frequency	<ul style="list-style-type: none"> • Significant fire once every five years • Approximately four wildland fires occurring annually • Controlled burns becoming out of control approximately 25 percent of the time 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites 	<u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation
<u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites 	<u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Large fire district – strained coverage/resources • Lack of local fire department • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites • Lack of fire index sign </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation • MOUs with neighboring fire departments • Burn bans by county emergency management for areas outside city limits </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Large fire district – strained coverage/resources • Lack of local fire department • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites • Lack of fire index sign 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation • MOUs with neighboring fire departments • Burn bans by county emergency management for areas outside city limits
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Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

Flood			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Delayed Emergency Response • Flooding (Highway & Structure) • Human Injury/Death • Property Damage / Sewer Backup • Runoff from buildings causes overland flooding 		
Frequency	<ul style="list-style-type: none"> • Bi-annual occurrences of localized flooding of nearby township roads and highways • Flash flooding occurs from heavy precipitation 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Dry seasons and low precipitation • City performs storm water maintenance </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table 	<u>Less Likely</u> <ul style="list-style-type: none"> • Dry seasons and low precipitation • City performs storm water maintenance
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Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table • Local topography of the city with closed basins • City is not enrolled in the NFIP • City does not have flood ordinances </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Alternate routes were identified for townships roads • City performs storm water drainage maintenance </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table • Local topography of the city with closed basins • City is not enrolled in the NFIP • City does not have flood ordinances 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Alternate routes were identified for townships roads • City performs storm water drainage maintenance
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Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

Geologic Hazard			
Impact	<ul style="list-style-type: none"> • Delayed Emergency Response • Human Injury/Death • Loss of Economy • Loss of Power • Property Damage 		
Frequency	<ul style="list-style-type: none"> • No incidents involving geologic hazards in or near city limits 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils 	<u>Less Likely</u> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done
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Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

Hazardous Material Release			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Delayed Emergency Response / Increased Fire Potential • Environmental Degradation • Evacuation (localized) • Explosion • Human Injury/Death • Loss of Economy • Loss of Potable Water • Loss of Power • Property Damage • Increased risk of HAZMAT release and/or transportation incidents due to increased oil train traffic and trucks 		
Frequency	<ul style="list-style-type: none"> • Small incidents of leaking anhydrous tanks bi-annually • Never any major spills reported 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Transportation of chemicals by truck through city limits • Storage of chemicals/fertilizers in city limits • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites • Presence of elevator, fertilizer plant, and anhydrous plant </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Private companies have HAZMAT certifications </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Transportation of chemicals by truck through city limits • Storage of chemicals/fertilizers in city limits • Presence of hazardous liquid pipeline • Presence of BNSF railroad • Presence of Tier II sites • Presence of elevator, fertilizer plant, and anhydrous plant 	<u>Less Likely</u> <ul style="list-style-type: none"> • Private companies have HAZMAT certifications
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Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy and related industries • Transportation of chemicals by truck through city limits • Storage of chemicals/fertilizers in city limits • No hospital or medical clinic in city limits • Lack of outdoor emergency siren • Presence of hazardous liquid pipeline and BNSF railroad • Presence of Tier II sites • Presence of elevator, fertilizer plant, and anhydrous plant </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Fire departments have some HAZMAT training </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy and related industries • Transportation of chemicals by truck through city limits • Storage of chemicals/fertilizers in city limits • No hospital or medical clinic in city limits • Lack of outdoor emergency siren • Presence of hazardous liquid pipeline and BNSF railroad • Presence of Tier II sites • Presence of elevator, fertilizer plant, and anhydrous plant 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Fire departments have some HAZMAT training
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy and related industries • Transportation of chemicals by truck through city limits • Storage of chemicals/fertilizers in city limits • No hospital or medical clinic in city limits • Lack of outdoor emergency siren • Presence of hazardous liquid pipeline and BNSF railroad • Presence of Tier II sites • Presence of elevator, fertilizer plant, and anhydrous plant 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Fire departments have some HAZMAT training 		

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

Infectious Disease	
Impact	<ul style="list-style-type: none"> • Crop Loss • Human Injury/Death • Livestock Loss • Loss of Economy • Mass Casualties <ul style="list-style-type: none"> • Strain on local medical resources (ambulance) • Loss of medical staff due to sickness • Loss of Potable Water • Financial cost to public health resources
Frequency	<ul style="list-style-type: none"> • Annual occurrences of death, primarily among the elderly • Occurrence of disease - 1 in 3 for people annually • Annual occurrences of influenza cases in the local population <ul style="list-style-type: none"> • The COVID-19 Pandemic of 2020 resulted in mass quarantine and sheltering of the local population and temporary closure of businesses
Likelihood	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Likely</u></p> <ul style="list-style-type: none"> • Growing elderly population • Small population of children without immunization • Agriculture economy • Dependent on weather for animals and crops • Presence of abandoned properties and overgrown lots </div> <div style="width: 45%;"> <p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities </div> </div>
Vulnerability	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Growing elderly population • Small population of children without immunization • Agriculture economy • Presence of abandoned properties and overgrown lots • No hospital or medical clinic • No vet clinic in city limits </div> <div style="width: 45%;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities • Immunizations & medications of local population • No care center in the city • No public school </div> </div>

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

Severe Summer Weather			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Evacuation (Localized) • Human Injury/Death – heat exhaustion • Sewer Backup • Shelter-in-place Vehicle Damage • Loss of Livestock • Loss of Crops • Loss of Power/Downed Power Lines - • Property Damage – repair of roofing, siding and drainage systems for homes 		
Frequency	<ul style="list-style-type: none"> • Property damage from tornados/straight-line winds in summer 2017 and 2019 • Windstorms occurring annually • Annual occurrences of hailstorms • Two or three significant storms producing damage to trees and property annually 		
Likelihood	<ul style="list-style-type: none"> • Climatic patterns will result in numerous annual occurrences of the hazard 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at community center and lift station • Lacks building code enforcement </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • No public school </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at community center and lift station • Lacks building code enforcement 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • No public school
<u>More Vulnerable</u> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at community center and lift station • Lacks building code enforcement 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • No public school 		

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

	Severe Winter Weather	
Impact	<ul style="list-style-type: none"> Blocked Roads Evacuation (Localized) Human Injury/Death – wind chill Property Damage – repair of roofing, siding and drainage systems for homes 	<ul style="list-style-type: none"> Loss of Crops Loss of Livestock Loss of Power/Downed Power Lines Sewer Backup Shelter-in-place Vehicle Damage Infrastructure Degradation
Frequency	<ul style="list-style-type: none"> March 2017 snowstorm resulted in blocked roads throughout the city Spring snowstorm of 2019 	<ul style="list-style-type: none"> Annual occurrences of power loss from storms Two or three significant blizzards producing damage to trees and property annually
Likelihood	<ul style="list-style-type: none"> Climatic patterns will result in numerous annual occurrences of the hazard 	
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> High elderly population Presence of mobile homes Aging infrastructure (roads and electrical systems) Lack of outdoor emergency siren Lack of permanent generator at community center and lift station Lacks building code enforcement 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> Advanced warning and notification such as internet and TV No public school

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

Space Weather			
Impact	<ul style="list-style-type: none"> • Loss of operation of the city hall, fire hall, lift station, etc. • Loss/outage of medical devices at private residences • Property damage from sewer backups due to loss of lift station 		
Frequency	<ul style="list-style-type: none"> • Never a recorded occurrence in Foster County or North Dakota 		
Likelihood	<ul style="list-style-type: none"> • Dependent on solar activity and the 11-year solar cycle • Likely to occur once every 500 years per the 2018 N.D. Enhanced Mitigation MAOP 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at former schoolhouse/community center and lift station </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens • Lack of public school </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at former schoolhouse/community center and lift station 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens • Lack of public school
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at former schoolhouse/community center and lift station 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens • Lack of public school 		

Table 8.3.2 – City of Grace City Jurisdiction Risk Assessment – Continued

Transportation Incident			
Impact	<ul style="list-style-type: none"> • Blocked roads from inadequate road clearing • Human Injury/Death • Increased Fire Potential • Loss of Transportation/Accessibility • Mass Casualties/Fatalities <ul style="list-style-type: none"> • Delayed Emergency Response • HAZMAT Release • Livestock Loss • Business Interruptions • Property Damage • Could be catastrophic if involving a school bus filled with children and a truck carrying hazardous materials 		
Frequency	<ul style="list-style-type: none"> • Annual occurrences of accidents involving cars and/or farm equipment 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic </td> <td style="width: 50%; border: none; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017 </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic 	<u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017
<u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic 	<u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • Presence of BNSF railroad • Presence of Tier II sites </td> <td style="width: 50%; border: none; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge • No major state highways • No public school </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • Presence of BNSF railroad • Presence of Tier II sites 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge • No major state highways • No public school
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • Presence of BNSF railroad • Presence of Tier II sites 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge • No major state highways • No public school 		

8.3.3 Mitigation Strategy

The Foster County Multi-Jurisdictional Multi-Hazard Plan Update includes a mitigation strategy consisting of seven goals in Chapter 6. The following problem statement and mitigation projects address the mitigation needs of the city of Grace City. It should be noted that some mitigation projects that pertain to all jurisdictions are included to encourage county-wide collaboration.

Problem Statement

The city of Grace City lacks sources of backup power at critical facilities and infrastructure. The city also does not have an outdoor emergency siren. The city does not have building permits.

Installation of generators for backup power, installation of a dispatch/radio-activated emergency siren, development of building permits, and education and outreach are a priority for the city.

City of Grace City Project 1: Purchase portable generators at critical facilities and infrastructure.

Description/Benefit		Test existing generators and create regularly scheduled maintenance system. Install new generators to establish source of backup power to maintain continued operation of the following critical facilities and infrastructure.					
		<ul style="list-style-type: none"> The city needs a portable generator for its lift station. Former schoolhouse, which now serves as the Senior Center/Community Center and shelter, needs a permanent generator. 					
Hazards Addressed		All hazards					
Affected Jurisdiction(s)		City of Grace City					
Project Status		New/Ongoing and Continue					
Priority		Very High					
Responsible Agency		City Council(s), Emergency Services, Public Works					
Partners		Emergency Management, Public Utilities					
Completion Timeframe		2 to 3 years	Cost	Project-specific			
Funding Source		Public Utilities, Regional Council, RD. FEMA’s Building Resilient Infrastructure and Communities (BRIC) Grant Program. State Homeland Security grants.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	5	5	35
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>			<u>Plan Element Utilized</u>			<u>Process for Integration</u>	
Foster County LEOP & Mitigation Plan Foster County THIRA			Capability Assessment, Hazard History, Risk Assessment			Include in city and/or fire department’s budget. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval city council or board.	

City of Grace City Project 2: Install dispatch-activated outdoor emergency siren.

Description/Benefit	The city of Grace City lacks an outdoor emergency siren dispatch activated.						
Hazards Addressed	All						
Affected Jurisdiction(s)	City of Grace City						
Project Status	Ongoing and Continue						
Priority	Very High						
Responsible Agency	City Council(s), Emergency Services						
Partners	County Commission, Emergency Management, NDAC, NDLC, Regional Council						
Completion Timeframe	2 to 3 years	Cost	Up to \$25,000 for a new siren				
Funding Source	Local budgets. N.D. League of Cities. State Homeland Security Grants. NDDES. 9-1-1 funds.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	3	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP & Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Include in city and/or fire department's capital improvement plan. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval city council or board.		

City of Grace City Project 3: Develop and implement building permits

Description/Benefit	To ensure new and existing structures adhere to building standards to withstand impacts from hazards and keep people safe.						
Hazard/Threat Addressed	All						
Affected Jurisdiction(s)	City of Grace City						
Project Status	Ongoing and Continue						
Priority	Medium						
Responsible Agency	City Council(s), County Commission						
Partners	NDACo, NDDC, NDLC, NDTOA, ND Fire Marshal's Office						
Completion Timeframe	2 years	Cost	Staff time				
Funding Source	Local budgets.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	3	5	5	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Identify as adoption of buildings codes as an objective and/or action in the county's comprehensive plan. Encourage jurisdictions to adopt. Enforcement is the second part.		

8.4 City of McHenry, North Dakota

The following profile includes information specific to the city of McHenry for mitigation planning purposes. The information included is as follows:

- Profile and Inventory;
- Risk Assessment;
- Hazard Scoring Notes;
- Mitigation Projects, and
- Capabilities for Mitigation.

Integration into Planning Mechanisms

The process for integration of the mitigation plan into existing planning mechanisms is discussed at the bottom of each mitigation project in section 8.4.3, in section 8.4.4, and in Chapter 6, Mitigation Strategy.

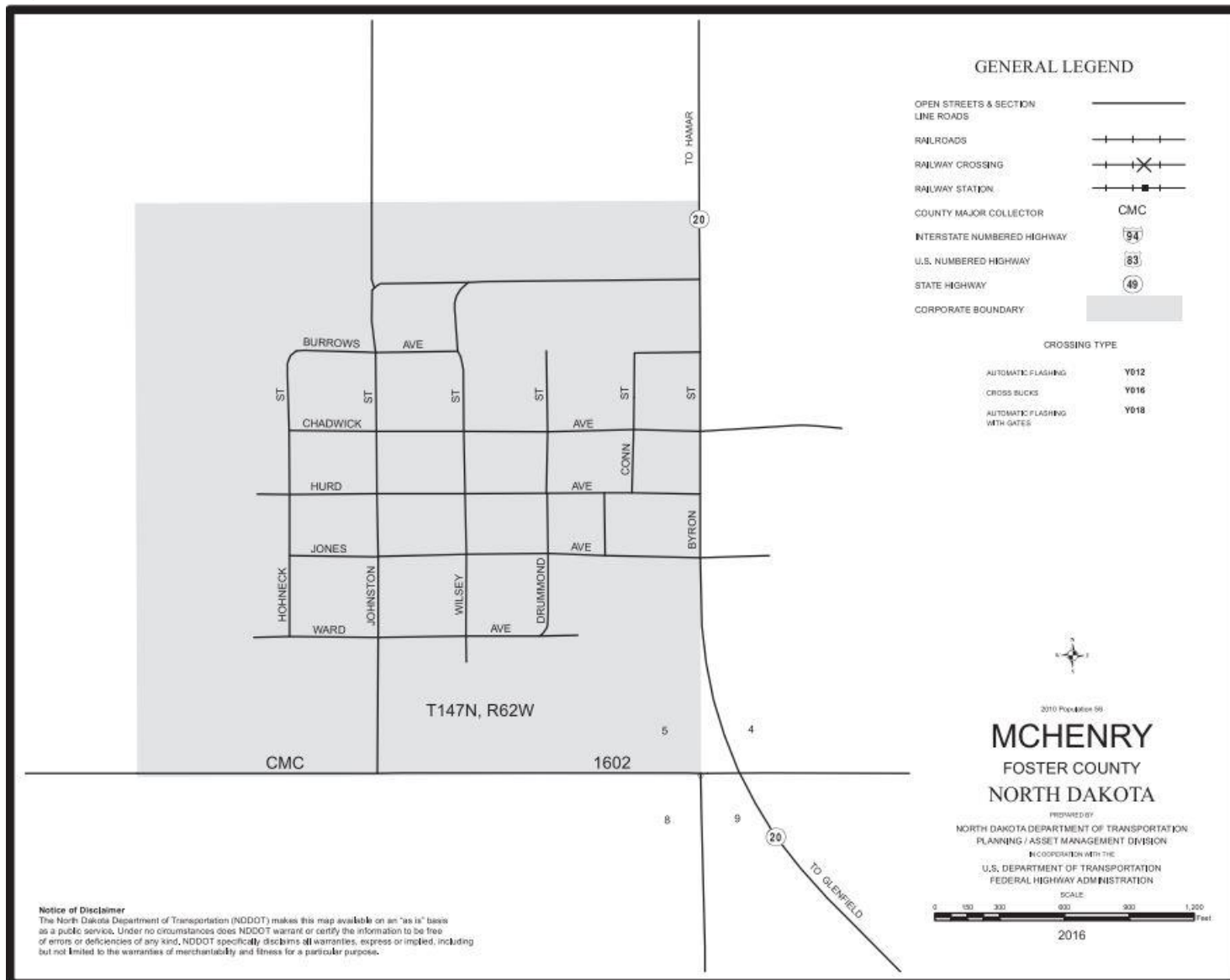
Plan Maintenance

Plan maintenance is shown in section 8.4.6.

Critical Facilities and Infrastructure

Figure 8.4.1 is a map of the city of McHenry provided by the N.D. Dept. of Transportation.

Figure 8.4.1 – City of McHenry, North Dakota



Source(s): N.D. Dept. of Transportation

8.4.1 Profile and Inventory

The location, total population, vulnerable populations, housing units and household size, businesses, critical facilities and infrastructure, new and future development, services, jurisdictional buildings, emergency response services and utilities are shown for the city of McHenry. Detailed narratives follow each section heading to profile the city.

Detailed information on public buildings, services provided, emergency response services and utilities can be found can be found in Chapter 3, Profile and Inventory.

Location

The city of McHenry is located on N.D. Highway 20 approximately 35 miles northeast of the city of Carrington, the county seat.

Population

Table 8.4.1 shows population trends for the city of McHenry from 1920 to 2020.

Per the 2020 U.S. Decennial Census, the city of McHenry has a population of 64 people, which is an increase of eight people (14.3 percent) from 56 people in 2010.

Table 8.4.1 – 1920 to 2020 City of McHenry, North Dakota Population Statistics

1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020
299	219	250	189	155	152	113	85	71	56	64

Source(s): U.S. Decennial Census; American Community Survey, 5-Year Estimates

Vulnerable Populations

Age. Per the 2015 to 2019 American Community Survey 5-Year Estimate, the population of the city of McHenry consists of four individuals under the age of 20 and 10 individuals aged 65 and older.

Daycares. There are no daycares in the city of McHenry.

Poverty. Per the 2015 to 2019 American Community Survey 5-Year Estimate, there are no on households in the city of McHenry that live below the poverty line.

Public Schools. There is not a public school in the city of McHenry.

Senior Housing Developments/Care Centers. There are no age-restricted, senior housing developments, or care centers in the city of McHenry.

Housing Units and Household Size

The 2015 to 2019 American Community Survey 5-Year Estimate shows there is a total of 39 housing units in the city consisting of 35 single-family homes, four mobile/RV homes, and no multifamily homes.

The 2015 to 2019 American Community Survey 5-Year Estimate shows there are 20 households in the city of McHenry resulting in an average household size of 1.65 people.

Businesses

There are no major employers in the city of McHenry. Additional information on businesses and economic development in the city of Carrington or can be obtained by contacting Carrington Economic Development.

New and Future Development

Analyzing development trends is important for mitigation to understand where projects may be needed in the future and funding is best allocated. New development is anything occurring since the 2015 and new and future development is anything planned, pending, and proposed development under construction.

No new and future development was identified at the time of this plan update for the city of McHenry.

Critical Facilities. The following facilities were identified as critical in the city of McHenry.

- McHenry City Hall/Community Center
- McHenry Fire Hall

Infrastructure. The following infrastructure was identified as critical in the city of McHenry.

- The city of McHenry has a sanitary sewer with two lagoon cells and a lift station.
- The city maintains an underground water storage tank for drinking/potable water and fire suppression.
- The city of McHenry has an inert landfill.
- The city is of McHenry is located on N.D. Highway 20.

Emergency Response Services. The following emergency response services were identified in the city of McHenry.

- Foster County Ambulance provides ambulance services to the city of McHenry.
- The McHenry Rural Fire Protection District provides fire protection services to the city and surrounding rural areas.
- The Foster County Sherriff's Office provides law enforcement services to the city of McHenry.
- The nearest hospital is the CHI-St. Alexius Health Carrington Medical Center in the city of Carrington.
- Foster County Public Health is in the city of Carrington and provides public health services to the city of Carrington and greater Foster County.

Services and Utilities. The following services are provided in the city of McHenry.

- Brager Disposal of Carrington provides garbage collection services to the city of McHenry.
- The city of McHenry maintains an inert landfill.
- The city of McHenry has its own sanitary sewer system consisting of one lift station and two lagoon cells. There are no active septic systems in the city limits.
- The city has a storm water system consisting of culverts and drainage ditches.
- The Foster County Independent is the official newspaper of the city of McHenry.

- Greater Ramsey Water District provides drinking/potable water to the city of McHenry.
- Electricity is provided by Otter Tail Power.
- Natural gas is not available in the city of McHenry.
- Fuel oil and propane are used as an alternative heating source and is provided by companies chosen by the individual consumer.
- Moore Liberty Griggs County Telephone Company (MLGC) provides internet, phone, and TV.

8.4.2 Risk Assessment and Hazard Scoring Notes

Table 8.4.2 summarizes the risk assessment scoring of the city of McHenry. The risk assessment and hazard scoring notes for each hazard specific to the city are shown in Table 8.4.2. Risk assessment notes for impact, frequency, likelihood and vulnerability ubiquitous for jurisdictions in Foster County are found in Chapter 4, Threat and Hazard Identification Assessment in each respective hazard profile.

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment Scoring Summary

Risk Assessment							Jurisdiction: City of McHenry						
Natural Hazard	Impact	Frequency	Likelihood	Vulnerability	Capabilities	Total							
Drought	4	2	4	2	1	11							
Fire – Urban/Structure Collapse	4	1	2	2	2	9							
Fire – Wildland (Rural)	4	1	3	2	1	9							
Flood	4	3	4	4	1	14							
Geologic Hazard	1	2	2	2	2	5							
Infectious Disease	4	4	4	3	1	14							
Severe Summer Weather	4	4	4	3	1	13							
Severe Winter Weather	4	4	4	3	1	13							
Space Weather	4	1	2	4	2	9							
Adversarial Threats													
Civil Disturbance	4	1	2	1	1	7							
Criminal, Terrorist or Nation-State Attack	4	2	2	2	1	11							
Cyberattack	3	1	3	2	1	8							
Technological Threats													
Dam Failure	1	1	1	1	1	3							
Hazardous Material Release	4	1	2	2	1	8							
Transportation Incident	4	2	3	2	1	10							

- (Formula: Impact + Frequency + Likelihood + Vulnerability – Capabilities = Total)

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment

	Civil Disturbance	
Impact	<ul style="list-style-type: none"> Blocked Roads Business Interruptions Delayed Emergency Response Financial Hardship/Strain (public and private) HAZMAT Release – oil trains and natural gas pipeline Human Injury/Death 	<ul style="list-style-type: none"> Increased Public Safety Runs Loss/Overcrowded Medical Facilities Loss of Potable Water Property Damage (Structure) Property Damage (Vehicle) Mass Casualties/Fatalities
Frequency	<ul style="list-style-type: none"> Never an occurrence of a major incident 	<ul style="list-style-type: none"> DAPL protesters were not active in the city
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> Lack of local active/continuous law enforcement coverage 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> Small town with no major regional/state attractions Sparse population No railroad infrastructure or pipelines
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> Lack of local active/continuous law enforcement coverage 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> Small town with no major regional/state attractions Sparse population No railroad infrastructure or pipelines

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment - Continued

Criminal, Terrorist, Nation-State Attack			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public and private) • HAZMAT Release – oil trains and natural gas pipeline • Human Injury/Death • Increased Public Safety Runs • Loss/Overcrowded Medical Facilities • Loss of Potable Water • Property Damage (Structure) • Property Damage (Vehicle) • Mass Casualties/Fatalities • Threats to city water supply • Loss of Communication Systems • Disease Outbreak/Mass Infections 		
Frequency	<ul style="list-style-type: none"> • No occurrences • Miscellaneous property damage occurring in the city on an occasional basis 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population • No railroad infrastructure or pipelines </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage 	<u>Less Likely</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population • No railroad infrastructure or pipelines
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Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population • No railroad infrastructure or pipelines </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population • No railroad infrastructure or pipelines
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Lack of local active/continuous law enforcement coverage 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Small town with no major regional/state attractions • Sparse population • No railroad infrastructure or pipelines 		

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment - Continued

	Cyberattack	
Impact	<ul style="list-style-type: none"> • Business Interruptions • Delayed Emergency Response • Financial Hardship/Strain (public) • HAZMAT Release 	<ul style="list-style-type: none"> • Human Injury/Death • School Closure • Loss of Communication Systems • Identity Theft – loss of wages and/or assets
Frequency	<ul style="list-style-type: none"> • Never an occurrence of a major attack 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Small town with lack of technological infrastructure to defend against cyber attacks 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Lack of major financial institutions or communication infrastructure • No public school • No railroad infrastructure or pipelines
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Small town with lack of technological infrastructure to defend against cyber attacks • Elderly population relying largely on landlines for communication purposes, remote medical care and equipment monitoring 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Lack of major financial institutions or communication infrastructure • No public school • No railroad infrastructure or pipelines • City records are on paper

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment - Continued

Dam Failure			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Crop Loss and Loss of Livestock • Delayed Emergency Response • Evacuation (Localized) • Loss of Critical Facilities and Infrastructure • Loss of Potable/Drinking Water • Loss of Power • Loss of Transportation Systems/Accessibility • Loss of Wildlife Habitat • Mass Casualties/Fatalities <ul style="list-style-type: none"> • Loss of recreational activities and summer-time population resulting in economic loss • Possible temporary homeless population due to lack of facilities to shelter large numbers of people 		
Frequency	<ul style="list-style-type: none"> • Never an occurrence 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance </td> </tr> </table>	<p><u>More likely</u></p> <ul style="list-style-type: none"> • Heavy rains and/or melting of snowpack may lead to dams becoming overwhelmed • Aging infrastructure – at 50 years the likelihood/probability of a dam failure increases • Climate change will affect the likelihood of dam failures due to significant changes and fluctuations in precipitation frequency and volume 	<p><u>Less likely</u></p> <ul style="list-style-type: none"> • Dry periods of weather with little to no rain or lack of heavy snow fall • State agencies ongoing and continuous maintenance
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Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents </td> <td style="width: 50%; vertical-align: top;"> <p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge • The city of McHenry is not vulnerable to dam failure as it is not located in the inundation area of any dam infrastructure </td> </tr> </table>	<p><u>More vulnerable</u></p> <ul style="list-style-type: none"> • Tier II sites and pipelines located in inundation areas • Lack of alternative housing or shelters to house displaced residents 	<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> • Annual and ongoing dam inspections & routine maintenance • Foster County Nixle-Everbridge • The city of McHenry is not vulnerable to dam failure as it is not located in the inundation area of any dam infrastructure
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Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment - Continued

		Drought	
Impact	<ul style="list-style-type: none"> • Crop Loss • Loss of Economy • Loss of Livestock • Loss of Wildlife Habitat (decreased wildlife populations) • Increase in Wildland Fire Potential 	<ul style="list-style-type: none"> • Water quality compromised from stock dams • Diminished soil quality – salinity will increase • Negative impact on mental health of producers and fire responders – “community impact” • Local producers forced to sell off herds which can last for several years • Population loss as people moved away due to loss of economy 	
Frequency	<ul style="list-style-type: none"> • Severe Drought of 1961/1962, 1988/1989 to 1991/1992 • Summer of 2017, local producers forced to sell off portions of their herds 	<ul style="list-style-type: none"> • End of July through winter of 2016 – county reached severe drought status • Severe drought in summer/fall of 2020 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Dry/wet cycle every five to eight years • Climatic patterns will result in an eventual drought of significance • Lack of precipitation 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Heavy precipitation 	
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Wildlife & hunting economy • Agriculture economy • Elderly population • Flat terrain/open topography contributes to conditions • Pastureland adjacent to structures and city limits • City does not have a fire index sign • City lacks a water tower 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Financial assistance programs made available by the state and federal government • Burn Ban by county emergency management • Fire Index monitoring and mapping from NDDDES • Advanced communications such as internet and TV 	

Table 8.4.2 – City of Glenfield Jurisdiction Risk Assessment - Continued

Fire – Urban Fire/Structure Collapse			
Impact	<ul style="list-style-type: none"> • Building Collapse • Delayed Emergency Response • Evacuation (Localized) • Explosion • HAZMAT Release <ul style="list-style-type: none"> • Human Injury/Death • Increase Fire Potential • Property damage on a significant scale if impacting downtown structures 		
Frequency	<ul style="list-style-type: none"> • Occurrences of structures/vehicles being impacted every five years • One structure fire and three vehicle fires between January 1, 2000, and December 31, 2019. 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Age of structures on main street • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Well-equipped fire department with trained volunteers </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Age of structures on main street • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems 	<u>Less Likely</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Well-equipped fire department with trained volunteers
<u>More Likely</u> <ul style="list-style-type: none"> • Age of structures on main street • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems 	<u>Less Likely</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Well-equipped fire department with trained volunteers 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Age of structures • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • Fire Hall does not have a permanent or portable generator • Prolonged response times due to limited fire staff during the daytime • Presence of abandoned properties • City lacks a water tower </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Well-equipped fire department with trained volunteers • Street signage for emergency services </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Age of structures • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • Fire Hall does not have a permanent or portable generator • Prolonged response times due to limited fire staff during the daytime • Presence of abandoned properties • City lacks a water tower 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Well-equipped fire department with trained volunteers • Street signage for emergency services
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Age of structures • Increased use of electric heaters • Outdated electric wiring in older homes and structures • Outdated heating systems • Fire Hall does not have a permanent or portable generator • Prolonged response times due to limited fire staff during the daytime • Presence of abandoned properties • City lacks a water tower 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Better building standards and maintenance of structures • Smoke detectors in public buildings and private homes/businesses • Well-equipped fire department with trained volunteers • Street signage for emergency services 		

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

Fire – Rural & Wildland			
Impact	<ul style="list-style-type: none"> • Building Collapse • Crop Loss • Delayed Emergency Response • Evacuation (Localized) • Explosion • Increase Fire Potential • Loss of Power/Downed Power Lines • Mass Casualties • Losses could be on a significant scale if impacting a major producer or farmstead • Loss of farm equipment and assets • Loss of Livestock 		
Frequency	<ul style="list-style-type: none"> • Significant fire once every five years • Approximately four wildland fires occurring annually • Controlled burns becoming out of control approximately 25 percent of the time 		
Likelihood	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • Presence of Tier II sites </td> <td style="width: 50%; vertical-align: top;"> <u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation • No pipelines • No railroad infrastructure </td> </tr> </table>	<u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • Presence of Tier II sites 	<u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation • No pipelines • No railroad infrastructure
<u>More Likely</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Severe summer weather with significant lightning • Presence of Tier II sites 	<u>Less Likely</u> <ul style="list-style-type: none"> • Removal of CRP near city limits • Summer and winter weather with heavy precipitation • No pipelines • No railroad infrastructure 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Large fire district – strained coverage/resources • Lack of fire breaks around city limits • Presence of Tier II sites • Lack of fire index sign </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation • MOUs with neighboring fire departments • Burn bans by county emergency management for areas outside city limits • No pipelines • No railroad infrastructure </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agricultural burn-off • High winds annually and dry conditions – when present • Pastureland adjacent to structures and city limits • Large fire district – strained coverage/resources • Lack of fire breaks around city limits • Presence of Tier II sites • Lack of fire index sign 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Removal of CRP • Summer and winter weather with heavy precipitation • MOUs with neighboring fire departments • Burn bans by county emergency management for areas outside city limits • No pipelines • No railroad infrastructure
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Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

		Flood	
Impact		<ul style="list-style-type: none"> • Blocked Roads: N.D. Highway 20 • Delayed Emergency Response • Flooding (Highway & Structure) • Human Injury/Death • Property Damage / Sewer Backup • Runoff from buildings causes overland flooding • Inundation of city’s sanitary sewer system from Alkali Lake causing outages of the system 	
Frequency		<ul style="list-style-type: none"> • Bi-annual occurrences of localized flooding of nearby township roads and highways 	<ul style="list-style-type: none"> • Flash flooding occurs from heavy precipitation
Likelihood		<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Dry seasons and low precipitation • City performs storm water maintenance
Vulnerability		<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Rapid change of seasons resulting in excessive snow melt • High water table • Local topography of the city with closed basins • City is not enrolled in the NFIP • City does not have flood ordinances • City lacks an adequate storm water system • Flooding from Alkali Lake impacts the functionality of the sanitary sewer lagoon for the city of McHenry causing outages and results in sewage seeping into the lake. 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Alternate routes were identified for townships roads • City performs storm water drainage maintenance

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

	Geologic Hazard	
Impact	<ul style="list-style-type: none"> • Delayed Emergency Response • Human Injury/Death • Loss of Economy 	<ul style="list-style-type: none"> • Loss of Power • Property Damage
Frequency	<ul style="list-style-type: none"> • No incidents involving geologic hazards in or near city limits 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • All North Dakota counties are in EPA Radon Zone 1 • Drought and periods of heavy precipitation exacerbate expansive/unstable soils 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • No Abandoned Mine Lands located near city limits • No expansive or shifting soils • PSC has an AML reclamation project aimed at recovering AMLs – work has been done • Flat topography - no steep terrain where landslides could occur

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

	Hazardous Material Release	
Impact	<ul style="list-style-type: none"> • Blocked Roads • Delayed Emergency Response / Increased Fire Potential • Environmental Degradation • Evacuation (localized) • Explosion 	<ul style="list-style-type: none"> • Human Injury/Death • Loss of Economy • Loss of Potable Water • Loss of Power • Property Damage • Increased risk of HAZMAT release and/or transportation incidents due to increased oil train traffic and trucks
Frequency	<ul style="list-style-type: none"> • Small incidents of leaking anhydrous tanks bi-annually • Never any major spills reported 	
Likelihood	<p><u>More Likely</u></p> <ul style="list-style-type: none"> • Transportation of chemicals by truck through city limits • Storage of chemicals/fertilizers in city limits • Presence of Tier II sites 	<p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Private companies have HAZMAT certifications • No pipelines or railroad infrastructure
Vulnerability	<p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Agriculture economy and related industries • Transportation of chemicals by truck through city limits • Storage of chemicals/fertilizers in city limits and on farmsteads in large tanks near city limits • No hospital or medical clinic in city limits • Presence of Tier II sites 	<p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Fire departments have some HAZMAT training • Lack of outdoor emergency siren • No pipelines or railroad infrastructure

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

Infectious Disease	
Impact	<ul style="list-style-type: none"> • Crop Loss • Human Injury/Death • Livestock Loss • Loss of Economy • Mass Casualties <ul style="list-style-type: none"> • Strain on local medical resources (ambulance) • Loss of medical staff due to sickness • Loss of Potable Water • Financial cost to public health resources
Frequency	<ul style="list-style-type: none"> • Annual occurrences of death, primarily among the elderly • Occurrence of disease - 1 in 3 for people annually • Annual occurrences of influenza cases in the local population <ul style="list-style-type: none"> • The COVID-19 Pandemic of 2020 resulted in mass quarantine and sheltering of the local population and temporary closure of businesses
Likelihood	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Likely</u></p> <ul style="list-style-type: none"> • Growing elderly population • Small population of children without immunization • Agriculture economy • Dependent on weather for animals and crops • Presence of abandoned properties and overgrown lots </div> <div style="width: 45%;"> <p><u>Less Likely</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities </div> </div>
Vulnerability	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>More Vulnerable</u></p> <ul style="list-style-type: none"> • Growing elderly population • Small population of children without immunization • Agriculture economy • Presence of abandoned properties and overgrown lots • No hospital or medical clinic • No vet clinic in city limits </div> <div style="width: 45%;"> <p><u>Less Vulnerable</u></p> <ul style="list-style-type: none"> • Advanced communications such as internet and tv • Public health and employment regulations for public facilities • Immunizations & medications of local population • No care center in the city • No public school </div> </div>

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

	Severe Summer Weather	
Impact	<ul style="list-style-type: none"> Blocked Roads Evacuation (Localized) Human Injury/Death – heat exhaustion Sewer Backup Shelter-in-place Vehicle Damage 	<ul style="list-style-type: none"> Loss of Livestock Loss of Crops Loss of Power/Downed Power Lines - Property Damage – repair of roofing, siding and drainage systems for homes
Frequency	<ul style="list-style-type: none"> Property damage from tornados/straight-line winds in summer 2017 and 2019 Windstorms occurring annually 	<ul style="list-style-type: none"> Annual occurrences of hailstorms Two or three significant storms producing damage to trees and property annually
Likelihood	<ul style="list-style-type: none"> Climatic patterns will result in numerous annual occurrences of the hazard 	
Vulnerability	<u>More Vulnerable</u> <ul style="list-style-type: none"> High elderly population Presence of mobile homes Aging infrastructure (roads and electrical systems) Lack of outdoor emergency siren Lack of permanent generator at fire hall, lift station and the senior center (city hall/community center/shelter) Lacks building code enforcement 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> Advanced warning and notification such as internet and TV No public school

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

Severe Winter Weather			
Impact	<ul style="list-style-type: none"> • Blocked Roads • Evacuation (Localized) • Human Injury/Death – wind chill • Property Damage – repair of roofing, siding and drainage systems for homes • Loss of Crops • Loss of Livestock • Loss of Power/Downed Power Lines • Sewer Backup • Shelter-in-place • Vehicle Damage • Infrastructure Degradation 		
Frequency	<ul style="list-style-type: none"> • March 2017 snowstorm resulted in blocked roads throughout the city • Spring snowstorm of 2019 • Annual occurrences of power loss from storms • Two or three significant blizzards producing damage to trees and property annually 		
Likelihood	<ul style="list-style-type: none"> • Climatic patterns will result in numerous annual occurrences of the hazard 		
Vulnerability	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, lift station and the senior center (city hall/community center/shelter) • Lacks building code enforcement </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • No public school </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, lift station and the senior center (city hall/community center/shelter) • Lacks building code enforcement 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • No public school
<u>More Vulnerable</u> <ul style="list-style-type: none"> • High elderly population • Presence of mobile homes • Aging infrastructure (roads and electrical systems) • Lack of outdoor emergency siren • Lack of permanent generator at fire hall, lift station and the senior center (city hall/community center/shelter) • Lacks building code enforcement 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Advanced warning and notification such as internet and TV • No public school 		

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

Space Weather			
Impact	<ul style="list-style-type: none"> • Loss of operation of the city hall, fire hall, lift station, etc. • Loss/outage of medical devices at private residences • Property damage from sewer backups due to loss of lift station 		
Frequency	<ul style="list-style-type: none"> • Never a recorded occurrence in Foster County or North Dakota 		
Likelihood	<ul style="list-style-type: none"> • Dependent on solar activity and the 11-year solar cycle • Likely to occur once every 500 years per the 2018 N.D. Enhanced Mitigation MAOP 		
Vulnerability	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at fire hall, lift station and the senior center (city hall/community center/shelter) </td> <td style="width: 50%; vertical-align: top;"> <u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens • Lack of public school </td> </tr> </table>	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at fire hall, lift station and the senior center (city hall/community center/shelter) 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens • Lack of public school
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Agriculture economy • All critical facilities and infrastructure that require electricity for operation • Advanced communication systems (internet, TV, etc.) • Lack of permanent generator at fire hall, lift station and the senior center (city hall/community center/shelter) 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • Local food production/households with gardens • Lack of public school 		

Table 8.4.2 – City of McHenry Jurisdiction Risk Assessment – Continued

	Transportation Incident	
Impact	<ul style="list-style-type: none"> • Blocked roads from inadequate road clearing • Human Injury/Death • Increased Fire Potential • Loss of Transportation/Accessibility • Mass Casualties/Fatalities 	<ul style="list-style-type: none"> • Delayed Emergency Response • HAZMAT Release • Livestock Loss • Business Interruptions • Property Damage • Could be catastrophic if involving a school bus filled with children and a truck carrying hazardous materials
Frequency	<ul style="list-style-type: none"> • Annual occurrences of accidents involving cars and/or farm equipment 	
Likelihood	<u>More Likely</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic 	<u>Less Likely</u> <ul style="list-style-type: none"> • No commercial passenger airport • Decrease in oil trains (from a frequency of one per hour) one the DAPL opened in 2017
Vulnerability	<u>More Vulnerable</u> <ul style="list-style-type: none"> • Intoxicated drivers • High truck traffic from agriculture-related traffic • N.D. Highway 20 • Presence of Tier II sites 	<u>Less Vulnerable</u> <ul style="list-style-type: none"> • No commercial passenger airport • Presence of designated truck routes through city limits • Fire departments have some HAZMAT training • Foster County Nixle-Everbridge • No railroad infrastructure • No public school

8.4.3 Mitigation Strategy

The Foster County Multi-Jurisdictional Multi-Hazard Plan Update includes a mitigation strategy consisting of seven goals in Chapter 6. The following problem statement and mitigation projects address the mitigation needs of the city of McHenry. It should be noted that some mitigation projects that pertain to all jurisdictions are included to encourage county-wide collaboration.

Problem Statement

The city of McHenry lacks sources of backup power at critical facilities and infrastructure. The city also does not have an outdoor emergency siren. The city's sanitary sewer system is inundated by Alkali Lake during high precipitation events causing outages in the system and the potential for release of hazardous materials into the natural environment. The city does not have building permits.

Installation of generators for backup power, installation of a dispatch/radio-activated emergency siren, a full engineering study for Alkali Lake, development of building permits, and education and outreach are a priority for the city.

City of McHenry Project 1: Purchase and install permanent or portable generators at critical facilities and infrastructure.

Description/Benefit	Test existing generators and create regularly scheduled maintenance system. Install new generators to establish source of backup power to maintain continued operation of the following critical facilities and infrastructure. <ul style="list-style-type: none"> • Purchase a portable generator for the city’s lift station • Permanent generator for McHenry Fire Hall (serves as a shelter) • Permanent generator for the Senior Center (serves as a city hall/community center and shelter) 						
Hazards Addressed	All hazards						
Affected Jurisdiction(s)	City of McHenry						
Project Status	New/Ongoing and Continue						
Priority	Very High						
Responsible Agency	City Council, Emergency Services, Public Works						
Partners	Emergency Management, Public Utilities						
Completion Timeframe	2 to 3 years	Cost	Project-specific				
Funding Source	Public Utilities, Regional Council, RD. FEMA’s Building Resilient Infrastructure and Communities (BRIC) Grant Program. State Homeland Security grants.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	3	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element Utilized</u>			<u>Process for Integration</u>		
Foster County LEOP & Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Include in city and/or fire department’s budget. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval city council or board.		

City of McHenry Project 2: Install dispatch-activated outdoor emergency siren.

Description/Benefit		The city of McHenry lacks an outdoor emergency siren activated by dispatch.					
Hazards Addressed		All					
Affected Jurisdiction(s)		City of McHenry					
Project Status		Ongoing and Continue					
Priority		Very High					
Responsible Agency		City Council, Emergency Services					
Partners		County Commission, Emergency Management, NDAC, NDLC, Regional Council					
Completion Timeframe		2 to 3 years	Cost	Up to \$25,000 for a new siren			
Funding Source		Local budgets. N.D. League of Cities. State Homeland Security Grants. NDDES. 9-1-1 funds.					
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	5	5	3	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP & Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Include in city and/or fire department's capital improvement plan. Apply for grant funding or purchase directly using existing sales tax revenue or budgets. Approval city council or board.		

Foster County Project AT-6/City of McHenry Project 3: Conduct engineering study for Alkali Lake to eliminate impacts of flooding to the City of McHenry.

Description/Benefit	High water on Alkali Lake, which receives water from an adjacent unnamed lake also experiencing high water, causes flooding impacts to roadways to the City of McHenry, McHenry Township, and the ND Dept. of Transportation. The city's sanitary sewer lagoon system is located adjacent to the lake and would be completely inundated before Alkali Lake reaches its natural outlet elevation. A preliminary engineering study has been completed by Foster County Water Board in conjunction with Moore Engineering, Inc. The preliminary study identified installation of a two-mile pipeline to eliminate impacts of overland flooding. See Figure 8.4.1 for an aerial image of the McHenry Sanitary Sewer Lagoons and Alkali Lake.		
Hazards Addressed	Flood (Overland), Infectious Disease, Hazardous Material Release, Severe Summer Weather, Severe Winter Weather		
Affected Jurisdiction(s)	Foster County and City of McHenry		
Project Status	New		
Priority	Very High		
Responsible Agency	City Council(s), County Commission, Emergency Management, Foster County Water Board		
Partners	Emergency Services, DWR, FEMA, Public Works, NRCS, engineering firms		
Completion Timeframe	End of 2022	Cost	TBD
Funding Source	Local budgets. FEMA's Building Resilient Infrastructure and Communities (BRIC). DWR Cost Share. Clean Water State Revolving Fund. RD.		

Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)

Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	4	4	5	3	1	3	25

Integration of Mitigation Plan Requirements into Local Planning Mechanisms

<u>Planning Mechanisms Utilized</u>	<u>Plan Element Utilized</u>	<u>Process for Integration</u>
Alkali Lake High Water Outlet Feasibility Study (preliminary) Foster County LEOP Foster County Mitigation Plan Foster County THIRA	Capability Assessment, Hazard History, Risk Assessment	Procure bids and evaluate options. Select firm to complete the study. Consider options. Approval and adoption by city councils and/or county commission.

Figure 8.4.1 City of McHenry Sanitary Sewer Lagoons



Source(s): City of McHenry

City of McHenry Project 4: Develop and implement building permits

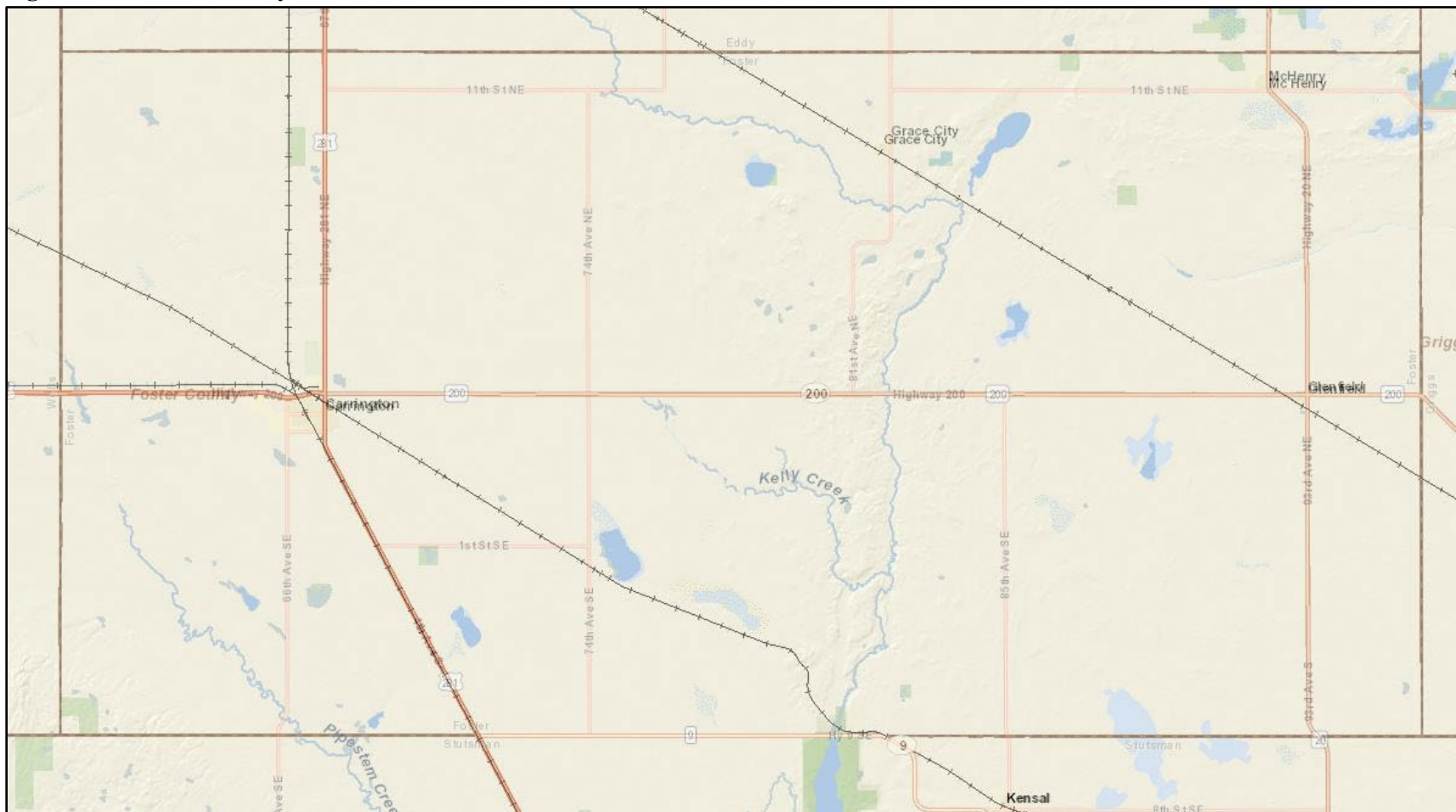
Description/Benefit	To ensure new and existing structures adhere to building standards to withstand impacts from hazards and keep people safe.						
Hazard/Threat Addressed	All						
Affected Jurisdiction(s)	City of McHenry						
Project Status	Ongoing and Continue						
Priority	Medium						
Responsible Agency	City Council(s), County Commission						
Partners	NDACo, NDDC, NDLC, NDTOA, ND Fire Marshal’s Office						
Completion Timeframe	2 years		Cost		Staff time		
Funding Source	Local budgets.						
Values: 1 is low (negative impact and/or too costly) -- Value of 5 is high (positive impact/higher benefit compared to cost)							
Social	Technical	Administrative	Political	Legal	Economic	Environmental	TOTAL
5	5	5	3	5	5	5	33
Integration of Mitigation Plan Requirements into Local Planning Mechanisms							
<u>Planning Mechanisms Utilized</u>		<u>Plan Element</u>			<u>Process for Integration</u>		
Foster County LEOP Foster County Mitigation Plan Foster County THIRA		Capability Assessment, Hazard History, Risk Assessment			Identify as adoption of buildings codes as an objective and/or action in the county’s comprehensive plan. Encourage jurisdictions to adopt. Enforcement is the second part.		

9. Maps

Maps provide visual illustrations of the geography of the Foster County and assist in mitigation by providing details of the inventory of the county, where critical facilities and infrastructure are located, geographic coverage of emergency services, and each incorporated jurisdiction. Maps are drawings, depictions, and illustrations and are commonly referred to as figures in planning documents.

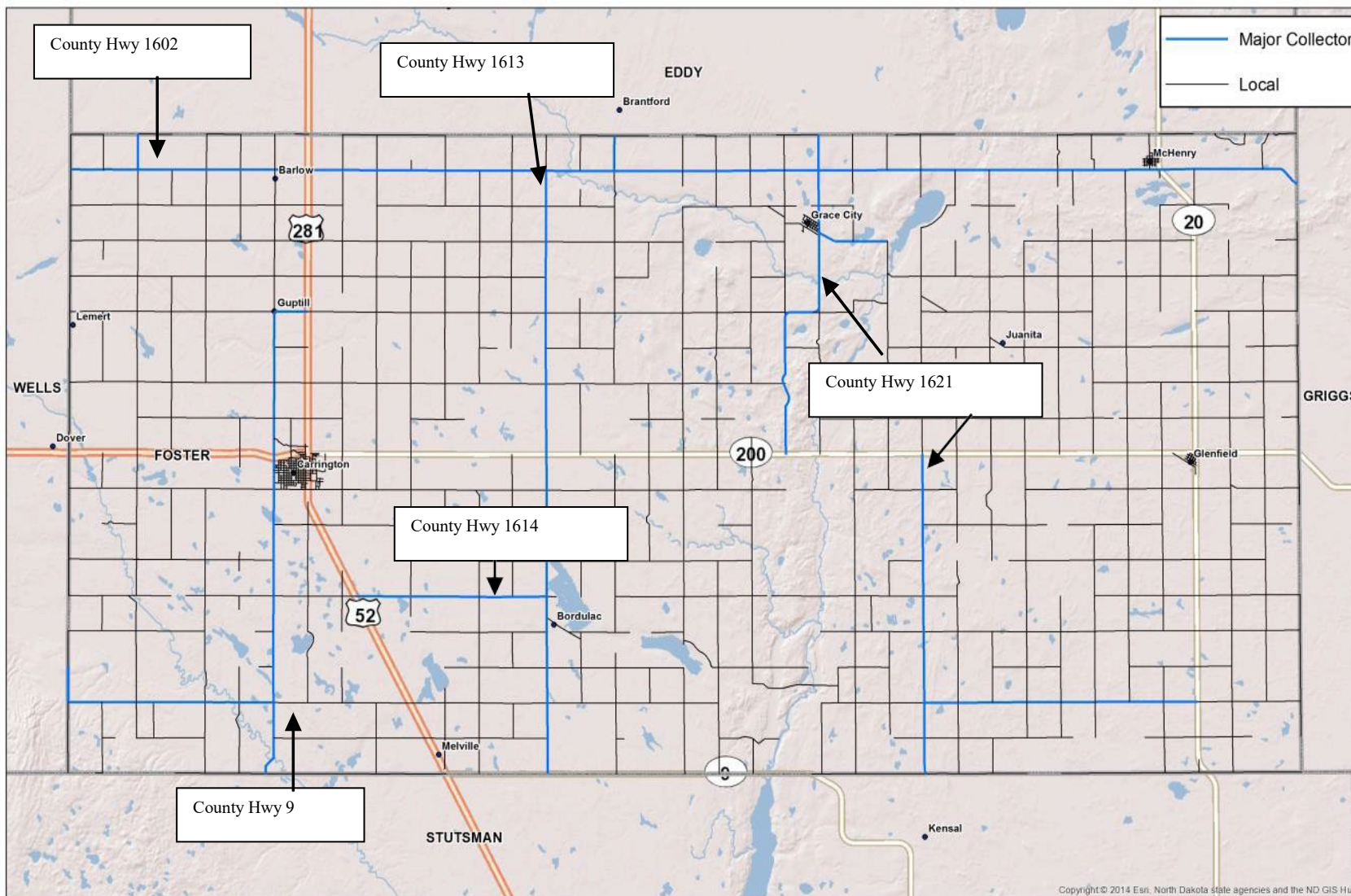
Figure 9.1 is of Foster County and illustrates where each jurisdiction is in reference to one another; national, state and county highways; railroads; and bodies of water and rivers. Information on the transportation system, including freight railroad, bridges and airports is important for understanding the transportation system and potential risk involved with transportation accidents, among other hazards.

Figure 9.1 – Foster County, North Dakota



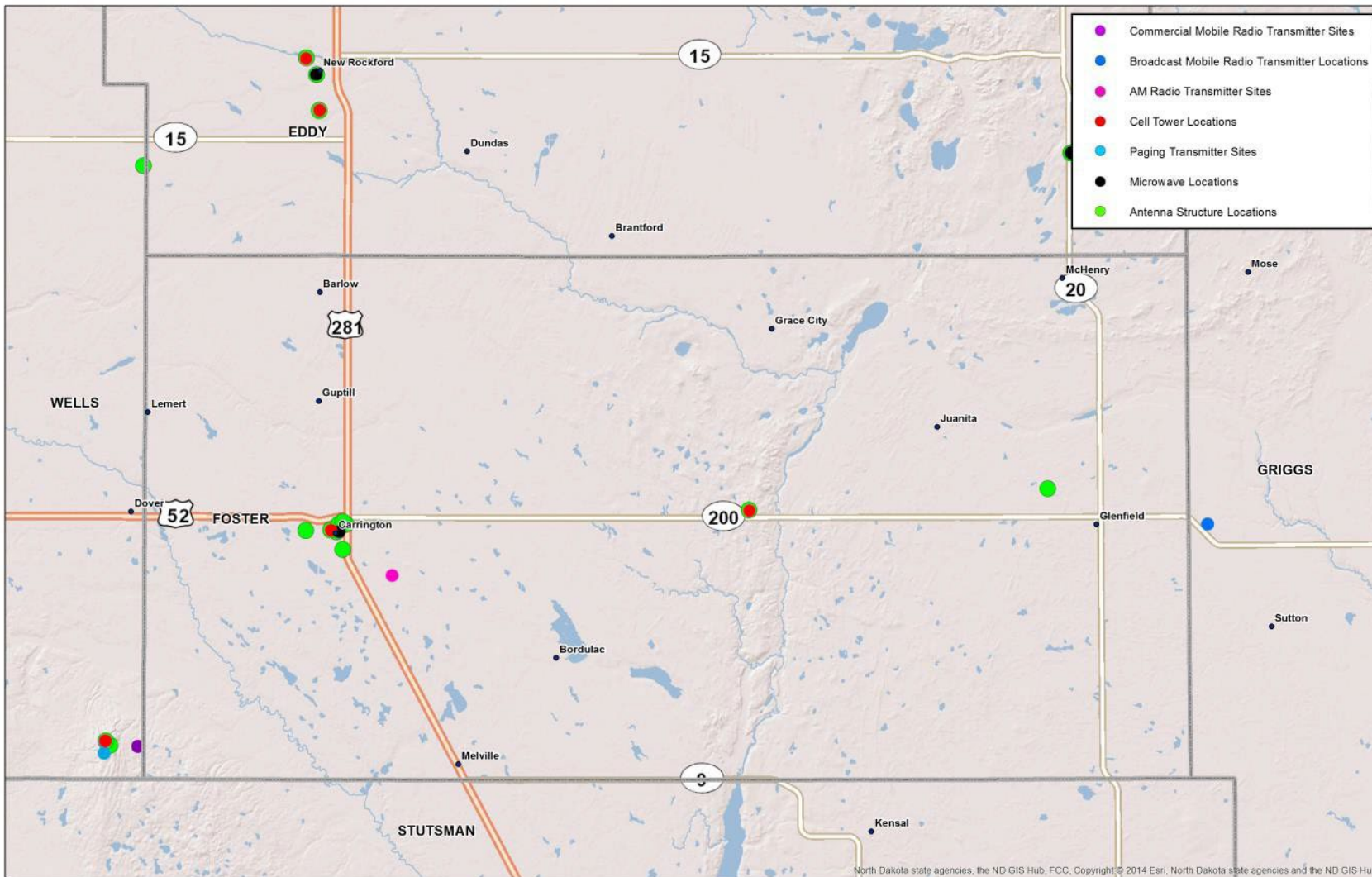
Source: N.D. Geographic Information Systems

Figure 9.3 – Roads in Foster County, North Dakota



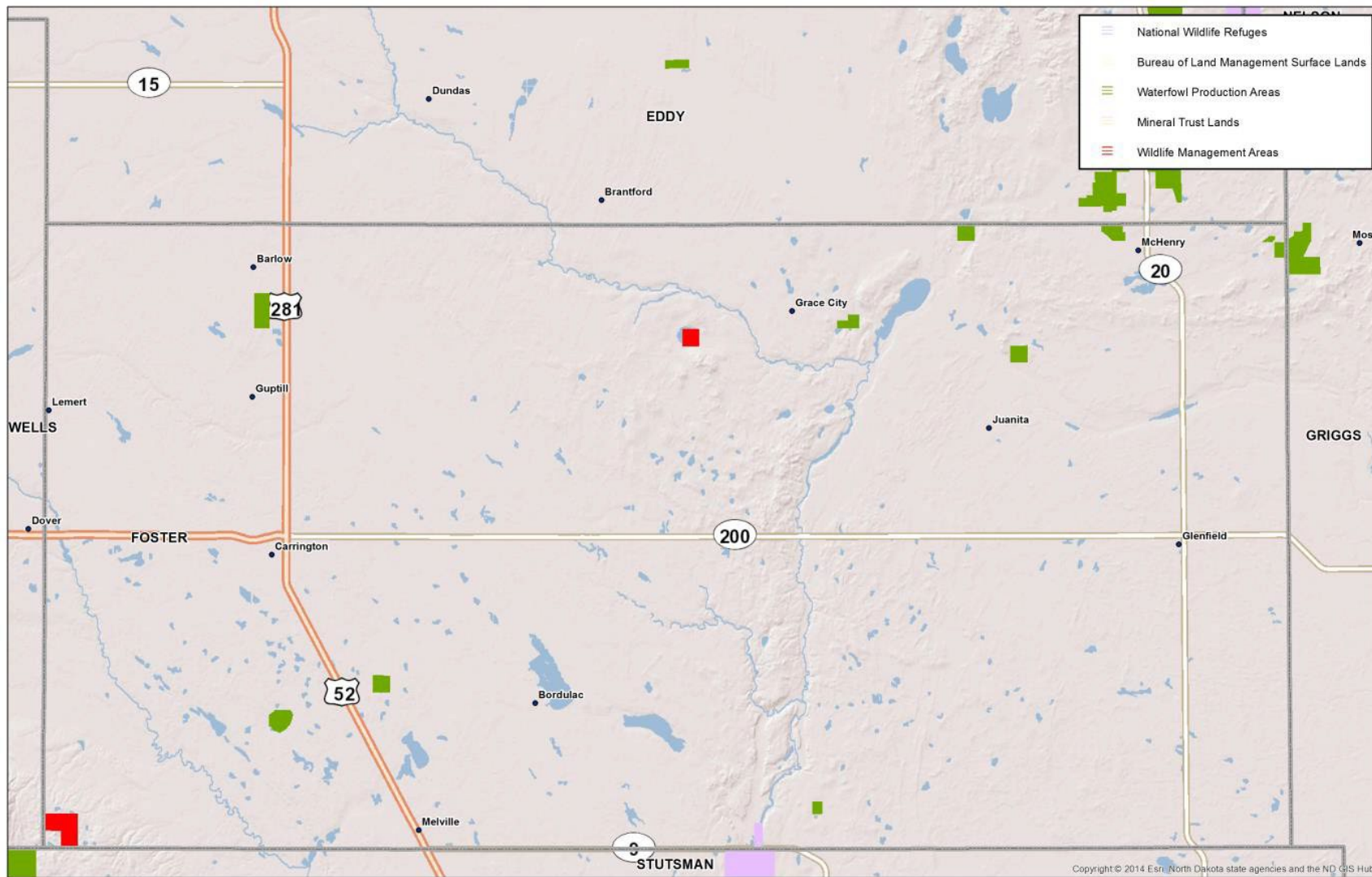
Source: 2015 Foster County Mitigation Plan

Figure 9.4 – Communication Towers in Foster County, North Dakota



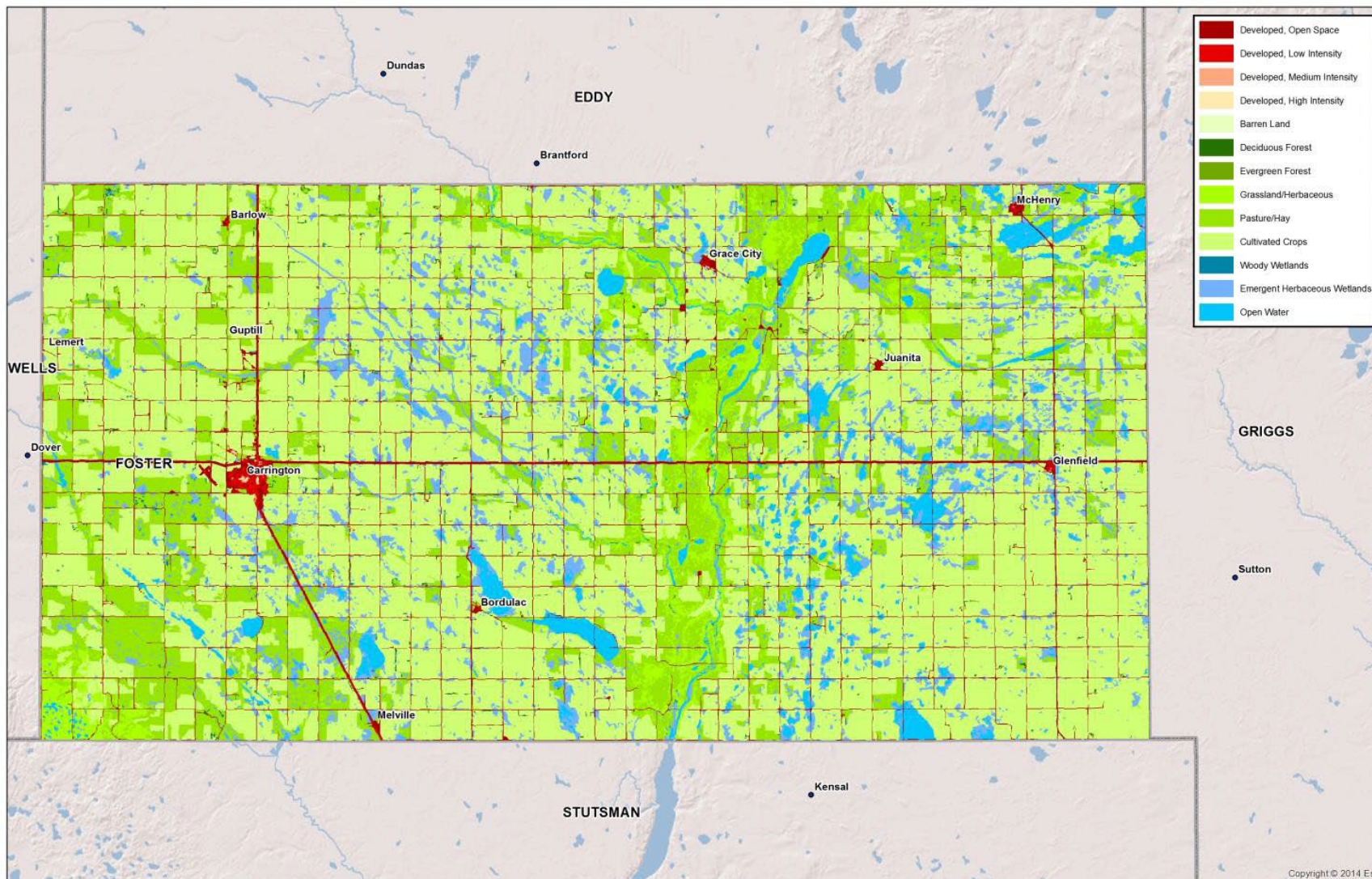
Source: 2015 Foster County Mitigation Plan

Figure 9.5 – State and Federal Managed Lands in Foster County, North Dakota



Source: 2015 Foster County Mitigation Plan

Figure 9.6 – Land Cover in Foster County, North Dakota



Source: 2015 Foster County Mitigation Plan

10. Plan Maintenance

Mitigation planning for Foster County, North Dakota is continuous. An important aspect of any useable plan is the maintenance and upkeep of the document. At any given time, planning, risk analysis, updating the risk assessment, research, coordinating, disaster response or other activity is occurring. Thus, ensuring the plan will remain useful is critical.

Plan Monitoring

Foster County's emergency manager and the LEPC are responsible for monitoring, evaluating and updating the plan. All disaster and emergency incidents will be evaluated for general and specific hazard history and mitigation strategy recommendations to be added to the plan.

The plan will be updated and submitted to the N.D. Dept. of Emergency Services and FEMA within five years to assure the county maintains a FEMA-approved multi-jurisdictional multi-hazard mitigation plan.

Plan Evaluation

At its February meeting each year, each county commission, city council/commission and emergency response entity will review actions taken on mitigation projects and losses due to hazards in the past year.

- **A Mitigation Action Progress Report Form for reporting of annual mitigation actions taken and losses due to hazards is included in this chapter for Foster County.**
- **The annual reports are due back to each respective emergency manager by March 15.**

The comments about the plan, project implementation, and information will be shared through each jurisdiction's minutes, and these minutes will be sent to county emergency management. The emergency manager will share this information with the Foster County Commission. Emergency services and the public health department will be encouraged to inform emergency management of incidents constantly and consistently as they occur so that the data can be immediately considered to better understand the risks in the county and enable accurate updating of hazard information to include in hazard mitigation efforts.

Public Involvement

The public will be informed of the opportunity to comment on plan updates through the advertising of the jurisdiction meetings. The plan will be available to the public at the Foster County Courthouse and at the city halls in each of the jurisdictions. During plan updates, the plan will also be on the emergency management website for Foster County. The public is encouraged to share input on the plan.

10.1 Foster County, N.D. Mitigation Action Progress Report Form

The Mitigation Action Progress Report Form is part of the annual review of hazard impacts, mitigation projects and reporting of data to the emergency manager. Please complete to maintain the mitigation plan for Foster County. Include date and location of incident(s), and photographs or other documentation.

Additional information can be included and attached to this form on a separate page.

Return to: Foster County Emergency Manager
 1000 5th St. N
 Carrington, ND 58421

Due: March 15

List injuries or property losses due to hazards in past year:

List new vulnerable areas that need to be addressed:

Identify what actions on jurisdiction’s mitigation projects were taken in past year:

If no action, why:

First & Last Name	
Title & Jurisdiction Represented	
Date (MM/DD/YYYY)	
Contact Info (Email & Phone)	

**Appendix 1 – Adoption Documentation
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City of McHenry Adoption Resolution	1-9

Authority

Federal: Public Law 93-288 as amended, established the basis for federal mitigation activity in 1974. A section of this Act requires the identification, evaluation, and mitigation of hazards as a prerequisite for state receipt of future disaster assistance outlays. Since 1974, many additional programs, regulations, and laws have expanded on the original Stafford Act, several additional provisions were also added that provided for the availability of significant mitigation measures in the aftermath or presidentially declared disasters. Civil preparedness Guide 1-3, Chapter 6-Hazard Mitigation Assistance Programs places emphasis on hazard mitigation planning directed towards hazards with a high impact and threat potential.

Legislative: The North Dakota Century Code, Chapter 37-17.1 requires the North Dakota Department of Emergency Services to coordinate the development of a Hazard Mitigation Plan. Other state laws require various state agencies to mitigate the effects or impacts of hazards regarding public safety, environment, etc. The North Dakota State Water Commission is responsible for assisting in the flood insurance program and is the lead agency in flood hazard mitigation actions.

Executive: The Governor has the leadership role in the issuance of guidance to all state agencies to minimize the effects of hazards on the citizens of North Dakota. In state and federal recovery agreements following a presidentially declared disaster, the Governor initiates updating of the state and local mitigation plans based on federal requirements or state and presidentially declared disaster (see State Administrative Recovery Handbook for Mitigation Assistance).

Local: Local governments play an essential role in implementing effective mitigation, both before and after disaster events. Each local government will review all damages, losses, and related impacts to determine the need or requirement for mitigation action and planning whenever seriously affected by a disaster, or when applying for state or federal recovery assistance.

In Foster County, the local governing body responsibility for carrying out plans and policies are the county commissions. The Foster County Commission and each incorporated city in the county – Carrington, Glenfield, Grace City, and McHenry – are responsible for reviewing and updating ordinances in Foster County. The county commissions represent all townships and unincorporated communities in each county for planning purposes. Budgets are limited and do not allow the county and jurisdictions the ability to complete as many projects as desired.

Promulgation Statement

Government at all levels has the responsibility for the protection of life, property, and the environment from hazards and threats which are known to impact jurisdictions. The jurisdiction of Foster County, by resolution, hereby adopt the concepts and conditions set forth by the 2021 Foster County, N.D. Multi-Jurisdictional Multi-Hazard Mitigation Plan Update (MHMP).

U.S. Department of Homeland Security
Region VIII
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267



FEMA

R8-MT

February 9, 2022

RECEIVED

Mr. Justin Messner
Disaster Recovery Chief
North Dakota Department of Emergency Services
Fraire Barracks Lane, Building 35
P.O. Box 5511
Bismarck, North Dakota 58502-5511

FEB 14 2022

NORTH DAKOTA
DEPT OF EMERGENCY SERVICES

Dear Mr. Messner:

We are pleased to inform you that effective February 9, 2022, the Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan is in compliance with the Federal hazard mitigation planning requirements resulting from the Disaster Mitigation Act of 2000 as contained in 44 CFR 201.6.

As outlined in the FEMA-State Agreement for FEMA-DR-4323-ND, your office has been delegated the authority to review and approve local mitigation plans under the Program Administration by States Program. Our Agency was recently notified that your office completed its review of the Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan and determined it meets the requirements of 44 CFR 201.6.

The plan approval extends to the following participating jurisdictions that have adopted the plan: Foster County and the Cities of Carrington, Glenfield, Grace City, and McHenry. The approved jurisdictions are eligible for FEMA Hazard Mitigation Assistance grant programs. All requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular programs under which the application is submitted.

This plan is approved through February 8, 2027. A local jurisdiction must revise its plan to reflect changes in development, progress in local mitigation efforts, changes in priorities, and resubmit for approval within five years to continue to be eligible for mitigation project grant funding.

Sincerely,

Jeanine D. Petterson
Mitigation Division Director

Enclosure

cc: Kathleen Donahue, Planning Section Deputy Chief, North Dakota Department of Emergency Services

www.fema.gov



February 18, 2022

Pat Copenhaver, Chair
 Foster County Commission
 1000 5th St N.
 Carrington, ND 58421

Dear Chair Copenhaver:

Congratulations on your communities' successful efforts to increase resilience to emergencies and disasters through Foster County's recent comprehensive mitigation planning initiative, led by Emergency Manager Aaron Devereaux.

The N.D. Department of Emergency Services (NDDes) is currently a participant in the federal Program Administration by States (PAS) Pilot Program, which delegates the authority to approve local Multi-Hazard Mitigation Plans (MHMPs) to our office. Per our operational agreement for the PAS Program, we have determined the Foster County Multi-Hazard Mitigation Plan meets federal requirements under the Disaster Mitigation Act of 2000 as contained in 44 CFR 201.6.

The plan is approved for the time period of February 9th, 2022, through February 8th, 2027, for Foster County; and the Cities of Carrington, Glenfield, Grace City, McHenry. For your records, we are providing you with the enclosed letter from FEMA supporting our approval of your MHMP and indicating your jurisdictions' eligibility to apply for funding under FEMA's Hazard Mitigation Assistance (HMA) grant programs. We have also included a sample news release regarding your county's achievement for your use as well.

Now that your MHMP has been completed and approved, please submit any eligible costs, in-kind documentation (if applicable), and proof of payments to Hazard Mitigation Specialist Carl Meyer for reimbursement. Carl will review the documentation and, if eligible, reimburse all costs as outlined in the approved scope of work and budget of the project. Carl's contact information is 701-328-8108, carlmeyer@nd.gov.

Once all eligible costs have been reimbursed, the project will be ready for closeout at the State and Federal levels. NDDes will forward a closeout letter template with examples for your use, which will include the final project costs. The county will simply need to copy this template onto its letterhead, sign the document, and resubmit the completed letter back to NDDes. If a final 404 quarterly report form has never been submitted, NDDes will request that as well showing the project is 100% completed with the final approval date including day, month and year. NDDes will submit all closeout paperwork to FEMA once it has been compiled.

During the next five years, we encourage the Foster County Planning Team to ensure the MHMP becomes a living document. We recommend the Planning Team begin that effort by periodically updating content and by pursuing mitigation projects, as outlined in the plan. Our planners provided comments and recommended revisions in the enclosed Plan Review Tool, which will help guide



Doug
Burgum
GOVERNOR

Major General
Alan S. Dohrmann
DIRECTOR - DEPARTMENT
OF EMERGENCY SERVICES

Darin
Hanson
DIRECTOR - DIVISION
OF HOMELAND SECURITY

Daniel
Donlin
DIRECTOR - DIVISION
OF STATE RADIO

Ensuring a safe and secure homeland for all North Dakotans

PO Box 5511 | Bismarck, ND 58506-5511 | 701.328.8100 | Fax: 701.328.8181 | Email: nddes@nd.gov | des.nd.gov



update efforts in the future.

We hope Foster County considers pursuing grants currently available through the HMA. Please contact Todd Joersz, State Hazard Mitigation Officer, at 701-328-8261, tjoersz@nd.gov, for additional information.

NDDes staff can also assist your Planning Team move forward with plan implementation. Questions about mitigation planning can be directed to Kathleen Donahue, Planning Section Deputy Chief, at 701-328-8113, kdonahue@nd.gov.

Thanks for all your hard work to keep our state safer.

Sincerely,

A handwritten signature in black ink, appearing to read "Justin Messner".

Justin Messner
Disaster Recovery Chief
N.D. Division of Homeland Security

Enclosures: February 9, 2022 FEMA Compliance Letter
Foster County Plan Review Tool
Sample News Release

cc: Aaron Devereaux, Foster County Emergency Manager



Doug
Burgum
GOVERNOR

Major General
Alan S. Dohrmann
DIRECTOR - DEPARTMENT
OF EMERGENCY SERVICES

Darin
Hanson
DIRECTOR - DIVISION
OF HOMELAND SECURITY

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Foster County Multi-Hazard Mitigation Plan

Whereas, Foster County recognizes the threat that natural, man-made or technological hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce and/or eliminate the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple Federal Emergency Management Agency (FEMA) pre- and post-disaster mitigation grant programs; and

Whereas, Foster County participated in the preparation of this plan in accordance with the Disaster Mitigation Act of 2000; and

Whereas, adoption of the Foster County Multi-Hazard Mitigation Plan demonstrates the commitment to hazard mitigation; and

Now, therefore, be it resolved, that the Foster County adopts the Foster County Multi-Hazard Mitigation Plan pending final approval by the North Dakota Department of Emergency Services and the Federal Emergency Management Agency.

Signed this 16th day of November, 2021.

Attested: 
Foster Co., Auditor

Signed: 
Foster Co., Chairperson Commission

County Multi-Hazard Mitigation Plan

Whereas, the County of Foster and City of Carrington, ND recognizes the threat that natural, man-made or technological hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce and/or eliminate the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple Federal Emergency Management Agency (FEMA) pre- and post-disaster mitigation grant programs; and

Whereas, the County of Foster and City of Carrington, ND participated in the preparation of this plan in accordance with the Disaster Mitigation Act of 2000; and

Whereas, adoption of the Foster County Multi-Hazard Mitigation Plan demonstrates the commitment to hazard mitigation; and

Now, therefore, be it resolved, that the City of Carrington, ND adopts the Foster County Multi-Hazard Mitigation Plan pending final approval by the North Dakota Department of Emergency Services and the Federal Emergency Management Agency.

Signed this 8th day of November, 2021.

Attested: Jennifer Gast
Carrington City Auditor
Jennifer Gast

Signed: Thomas Erdmann
Carrington Mayor
Thomas Erdmann

Foster County Multi-Hazard Mitigation Plan

Whereas, City of Glenfield (name of jurisdiction – city/county) recognizes the threat that natural, man-made or technological hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce and/or eliminate the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple Federal Emergency Management Agency (FEMA) pre- and post-disaster mitigation grant programs; and

Whereas, City of Glenfield (name of jurisdiction – city/county) participated in the preparation of this plan in accordance with the Disaster Mitigation Act of 2000; and

Whereas, adoption of the Foster County Multi-Hazard Mitigation Plan demonstrates the commitment to hazard mitigation; and

Now, therefore, be it resolved, that the City of Glenfield (name of jurisdiction – city/county) adopts the Foster County Multi-Hazard Mitigation Plan pending final approval by the North Dakota Department of Emergency Services and the Federal Emergency Management Agency.

Signed this 13 day of December, 2020.

Attested: Paulette Hoyt
Glenfield City, Auditor

Signed: Chris Johnson Brandt
Mayor, Chairperson Commission

Foster County Multi-Hazard Mitigation Plan

Whereas, Mchenry City (name of jurisdiction – city/county) recognizes the threat that natural, man-made or technological hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce and/or eliminate the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple Federal Emergency Management Agency (FEMA) pre- and post-disaster mitigation grant programs; and

Whereas, Mchenry City (name of jurisdiction – city/county) participated in the preparation of this plan in accordance with the Disaster Mitigation Act of 2000; and

Whereas, adoption of the Foster County Multi-Hazard Mitigation Plan demonstrates the commitment to hazard mitigation; and

Now, therefore, be it resolved, that the Mchenry City (name of jurisdiction – city/county) adopts the Foster County Multi-Hazard Mitigation Plan pending final approval by the North Dakota Department of Emergency Services and the Federal Emergency Management Agency.

Signed this 7th day of Dec, 2020.

Attested: Kalissa Gilbertson
12/7/21, Auditor

Signed: Rebbyn Sorum
_____, Chairperson Commission

Appendix 2 – Attendance

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Appendix 2

2021 Foster County, ND Multi-Jurisdictional Multi-Hazard Mitigation Plan Update Attendance Record - Steering and Jurisdictional Meetings												
Last Name	First Name	Title	Representing	2/11/2021	4/21/2021		5/26/2021		6/9/2021		6/30/2021	
				LEPC	Virtual Kickoff	Mileage	Steering Committee	Mileage	Steering Committee	Mileage	Steering Committee	Mileage
Balak	Frank	Vice Chairman, Regional Emergency Response Coord., Member	Central Valley Health District, Foster County LEPC		2		2.5		3		3	
Beumer	Scott	Commissioner, Sr. Mill Manager	Foster County, Dakota Growers Pasta Plant				3	1	3		3	
Black	Wes	Resident	City of McHenry		2		3	180				
Brandt	Iris	Mayor, Member, Counselor and Career Development Counselor	City of Glenfield, Foster County LEPC, Midkota Public Schools		2		3	50	3	52	3	50
Brown (Griffin)	Karlee	Director	Carrington Economic Development		2		3				3	
Buskness	Robert	EHS Manager	Dakota Growers Pasta Plant	0.5	2		2.75					
Danielson	Richard	Superintendent	Midkota Public Schools		2							
Devereaux	Aaron	Emergency Manager/9-1-1 Coord., EMT	Foster County, Carrington Ambulance Services	X	2		X		X		X	
Devereaux	Erin	EMT	Carrington Ambulance Services									
Devereaux	Roary	Resident	City of Carrington									
Dillingham	William	Resident	City of Carrington									
Dillingham	Stefanie	Resident	City of Carrington									
Doeling	Mariann	CEO, Member	Carrington Medical Center, Foster County LEPC			X						
Donahue	Kathleen	Deputy Planning Chief, Accreditation Manager, Individual Assistance Officer	N.D. Dept. of Emergency Services								3	
Eli	Curt		Dakota Growers Pasta Plant	0.5								
Ellingson	Sheri	Auditor	City of Grace City, Foster County LEPC								3	
Erdmann	Tom	Mayor	City of Carrington				3	3	3	3	3	3
Evans	Karen	Tax Equalization Director, Member	Foster County, Foster County LEPC	0.5	2		3		3		3	
Gale	Jeff	Extension Agent	NDSU Extension/Foster County				3		3		3	
Gast	Jennifer	Auditor, Member	City of Carrington, Foster County LEPC				3		3			
Goulette	Sarah	Paramedic	Carrington Ambulance Services									
Hilbert	Lisa	Director, Unified Incident Command, Member	Foster County Public Health, Foster County Emergency Operations Center, Foster County LEPC						3		3	
Hoppe	Lynelle Luman	Recorder, City Council Member	Foster County, City of Grace City									
Hovdenes	Jodi	VP of Patient Care Services, Member, Director	CHI-St. Alexius Carrington Medical Center, Foster County LEPC, Carrington Ambulance Services	0.5			3				3	
Johnson	Justin	Sheriff, Member	Foster County, Foster County LEPC				3		3		3	
Koepplin	Danielle	PIO/FC Clerk of Courts, Member	Foster County, Foster County LEPC				3					
Kruse	Amber	RN, Member	Foster County Public Health, Foster County LEPC				3		3			
Kruse	Nathan	Deputy Sheriff, Member	Foster County, Foster County LEPC				3		3		3	
Lies	Joe	NE Regional Emergency Response Coord., Member	N.D. Dept. of Emergency Services, Foster County LEPC				2.5				3	
Monson	Nate	Superintendent, Member	Foster County Highway Department, Foster County LEPC		2				3			
Ormiston	Chris	Interim Chief of Police	Carrington Police Department						3			
Schwartz	Daniel	Planner	Nexus Planning & Consulting, LLC	X	X		X		X		X	
Solberg	Brad	Auditor, Board Member, Member, President	Foster County, Carrington Cemetery Board, Foster County LEPC, Carrington Public Schools School Board		2		3		3			
Sorum	Robyn	Mayor	City of McHenry				3				3	
Trader	Al	President	Carrington City Council									
Topp	Justin	Mayor, Member	City of Grace City, Barnes County LEPC									
Utke	David	Commissioner, Representative, Member	Foster County, NE Regional CRIB Board, Foster County LEPC		2		3	52	3	52	3	54
Wangen	Ken	Fire Chief, Member	Carrington Fire Department, Foster County LEPC				3		3		3	
Wolsky	Jason	Director, Asst. Fire Chief, Manager, Member	Carrington Public Works, Carrington Fire Department, Carrington Municipal Airport, Foster County LEPC		1.5		3		3		3	

Appendix 2

2021 Foster County, ND Multi-Jurisdictional Multi-Hazard Mitigation Plan Update Attendance Record - Steering and Jurisdictional Meetings											
Last Name	First Name	Title	Representing	10/12/2021		10/12/2021		11/4/2021		11/4/2021	
				Steering Committee	Mileage	Joint Jurisdictional Workshop	Mileage	Public Hearing	Mileage	Steering Committee	Mileage
Balak	Frank	Vice Chairman, Regional Emergency Response Coord., Member	Central Valley Health District, Foster County LEPC	3							
Beumer	Scott	Commissioner, Sr. Mill Manager	Foster County, Dakota Growers Pasta Plant								
Black	Wes	Resident	City of McHenry	3							
Brandt	Iris	Mayor, Member, Counselor and Career Development Counselor	City of Glenfield, Foster County LEPC, Midkota Public Schools	3		3					
Brown (Griffin)	Karlee	Director	Carrington Economic Development					0.5		0.5	
Buskness	Robert	EHS Manager	Dakota Growers Pasta Plant								
Danielson	Richard	Superintendent	Midkota Public Schools								
Devereaux	Aaron	Emergency Manager/9-1-1 Coord., EMT	Emergency County, Carrington Ambulance Services	X		X		X			
Devereaux	Erin	EMT	Carrington Ambulance Services	3		3	52	0.5		0.5	
Devereaux	Roary	Resident	City of Carrington	3		3		0.5		0.5	
Dillingham	William	Resident	City of Carrington					0.5		0.5	
Dillingham	Stefanie	Resident	City of Carrington					0.5		0.5	
Doeling	Mariann	CEO, Member	Carrington Medical Center, Foster County LEPC								
Donahue	Kathleen	Deputy Planning Chief, Accreditation Manager, Individual Assistance Officer	N.D. Dept. of Emergency Services								
Eli	Curt		0 Dakota Growers Pasta Plant								
Ellingson	Sheri	Auditor	City of Grace City, Foster County LEPC			3	30				
Erdmann	Tom	Mayor	City of Carrington			3	52	0.5			
Evans	Karen	Tax Equalization Director, Member	Foster County, Foster County LEPC	3				0.5			
Gale	Jeff	Extension Agent	NDSU Extension/Foster County								
Gast	Jennifer	Auditor, Member	City of Carrington, Foster County LEPC			3	52				
Goulette	Sarah	Paramedic	Carrington Ambulance Services	3							
Hilbert	Lisa	Director, Unified Incident Command, Member	Foster County Public Health, Foster County Emergency Operations Center, Foster County LEPC	3							
Hoppe	Lynelle Luman	Recorder, City Council Member	Foster County, City of Grace City								
Hovdenes	Jodi	VP of Patient Care Services, Member, Director	CHI-St. Alexius Carrington Medical Center, Foster County LEPC, Carrington Ambulance Services	3				0.5		0.5	
Johnson	Justin	Sheriff, Member	Foster County, Foster County LEPC	3				0.5		0.5	
Koepplin	Danielle	PIO/FC Clerk of Courts, Member	Foster County, Foster County LEPC								
Kruse	Amber	RN, Member	Foster County Public Health, Foster County LEPC	3				0.5		0.5	
Kruse	Nathan	Deputy Sheriff, Member	Foster County, Foster County LEPC	3							
Lies	Joe	NE Regional Emergency Response Coord., Member	N.D. Dept. of Emergency Services, Foster County LEPC	3							
Monson	Nate	Superintendent, Member	Foster County Highway Department, Foster County LEPC								
Ormiston	Chris	Interim Chief of Police	Carrington Police Department								
Schwartz	Daniel	Planner	Nexus Planning & Consulting, LLC	X		X					
Solberg	Brad	Auditor, Board Member, Member, President	Foster County, Carrington Cemetery Board, Foster County LEPC, Carrington Public Schools School Board								
Sorum	Robyn	Mayor	City of McHenry								
Trader	Al	President	Carrington City Council	3		3	52				
Topp	Justin	Mayor, Member	City of Grace City, Barnes County LEPC					0.5		0.5	
Utke	David	Commissioner, Representative, Member	Foster County, NE Regional CRIB Board, Foster County LEPC	3				0.5	53	0.5	
Wangen	Ken	Fire Chief, Member	Carrington Fire Department, Foster County LEPC	3							
Wolsky	Jason	Director, Asst. Fire Chief, Manager, Member	Carrington Public Works, Carrington Fire Department, Carrington Municipal Airport, Foster County LEPC			3	52	0.5		0.5	

Appendix 2

2021 Foster County, ND Multi-Jurisdictional Multi-Hazard Mitigation Plan Update Attendance Record - Hazard/Threat Profiles													
Last Name	First Name	Title	Representing	6/9/2021		6/9/2021		10/20/2021		10/20/2021		10/20/2021	
				CD, CTNS, Cyber	Mileage	SW & TI	Mileage	Flood	Mileage	Severe Weather	Mileage	Infectious Disease	Mileage
Devereaux	Aaron	Emergency Manager/9-1-1 Coord., EMT	Foster County, Carrington Ambulance Services	X		X		X		X		X	
Devereaux	Erin	EMT	Carrington Ambulance Services									2	
Devereaux	Roary	Resident	City of Carrington									2	
Evans	Karen	Tax Equalization Director, Member	Foster County, Foster County LEPC					2		2			
Goulette	Sarah	Paramedic	Carrington Ambulance Services									2	
Hilbert	Lisa	Director, Unified Incident Command, Member	Foster County Public Health, Foster County Emergency Operations Center, Foster County LEPC									2	
Hoppe	Lynelle Lyman	Recorder, City Council Member	Foster County, City of Grace City					2		2			
Johnson	Justin	Sheriff, Member	Foster County, Foster County LEPC	2		1.5		2		2			
Koeplin	Danielle	PIO/FC Clerk of Courts, Member	Foster County, Foster County LEPC					2					
Kollman	Shelley	RN, Nurse Manager	CHI-St. Alexius Carrington Medical Center									2	
Konschak	Kristy	RN	CHI-St. Alexius Carrington Medical Center									2	
Kruse	Amber	RN, Member	Foster County Public Health, Foster County LEPC									2	
Monson	Nate	Superintendent, Member	Foster County Highway Department, Foster County LEPC							2			
Munson	Tanya	RN Quality, IP, EH	CHI-St. Alexius Carrington Medical Center									2	
Ness	Cassie	Staff Nurse/Health Equity Lead	Foster County Public Health									2	
Ormiston	Chris	Interim Chief of Police	Carrington Police Department	2		1.5							
Oster	Nicklas	Deputy	Foster County	2		1.5							
Roundy	Ellen	Deputy Auditor	Foster County					2		2			
Scanson	Lisa	Deputy Recorder, resident	Foster County, City of Grace City					2		2			
Schwartz	Daniel	Planner	Nexus Planning & Consulting, LLC	X		X		X		X		X	
Solberg	Brad	Auditor, Board Member, Member, President	Foster County, Carrington Cemetery Board, Foster County LEPC, Carrington Public Schools School Board					2		2			
Wiessz	Craig	Maintenance Supervisor	Foster County					2		2			
Wolsky	Jason	Director, Asst. Fire Chief, Manager, Member	Carrington Public Works, Carrington Fire Department, Carrington Municipal Airport, Foster County LEPC							2			
Yager	Tim	Supervisor	CHI-St. Alexius Carrington Medical Center									2	

Meeting Summary							
Total Number of Participants		14					
Meeting Title	Foster County Multi-Hazard Mitigation Plan (MHMP): Virtual Kickoff						
Meeting Start Time	4/21/2021, 5:51:00 PM						
Meeting End Time	4/21/2021, 8:34:15 PM						
Full Name	Join Time	Leave Time	Duration	Email	Role		
J. Daniel Schwartz	4/21/2021, 5:51:00 PM	4/21/2021, 8:33:14 PM	2h 42m	dschwartz@nexusplanco.com	Organizer		
Aaron Devereaux (Guest)	4/21/2021, 6:00:14 PM	4/21/2021, 8:30:25 PM	2h 30m		Presenter		
Brad Solberg (Guest)	4/21/2021, 6:20:41 PM	4/21/2021, 8:30:21 PM	2h 9m		Presenter		
Frank Balak (Guest)	4/21/2021, 6:21:32 PM	4/21/2021, 8:30:20 PM	2h 8m		Presenter		
Tom Erdmann (Guest)	4/21/2021, 6:23:27 PM	4/21/2021, 8:33:13 PM	2h 9m		Presenter		
David Utke (Guest)	4/21/2021, 6:24:08 PM	4/21/2021, 8:30:22 PM	2h 6m		Presenter		
Robert Buskness	4/21/2021, 6:24:34 PM	4/21/2021, 8:30:24 PM	2h 5m	robert.buskness@8ave.com	Presenter		
Scott Beumer	4/21/2021, 6:25:00 PM	4/21/2021, 8:30:09 PM	2h 5m	scott.beumer@8ave.com	Presenter		
Ed Dankbar	4/21/2021, 6:25:51 PM	4/21/2021, 8:18:44 PM	1h 52m	dan0093@cpr.ca	Presenter		
Lies, Robert J.	4/21/2021, 6:26:24 PM	4/21/2021, 8:30:28 PM	2h 4m	rlies@nd.gov	Presenter		
Wes Black	4/21/2021, 6:26:48 PM	4/21/2021, 8:34:15 PM	2h 7m		Presenter		
Karlee Brown (Guest)	4/21/2021, 6:26:56 PM	4/21/2021, 8:30:16 PM	2h 3m		Presenter		
Jason Wolsky	4/21/2021, 6:29:11 PM	4/21/2021, 7:56:45 PM	1h 27m		Presenter		
Brandt, Iris	4/21/2021, 6:36:57 PM	4/21/2021, 8:30:25 PM	1h 53m	Iris.Brandt@k12.nd.us	Presenter		

SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Wednesday, May 26, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Tom Erdman	Mayor - Carrington	City of Carrington	3
Brad Solberg	Auditor	Foster Co	0
Amber Kruse	RN Foster County Public Health	Health →	0
Nathan Krue	Chief Deputy - Sheriff's Dept	Foster Co. Sheriff's Dept.	0
Danielle Koepplin	PIO/Clerk of Court	Foster County	0
DAVID UHRE	COUNTY COMMISSIONER	COMMISSION	52
Aaron Deereaux	Foster Co. Em	Foster Co. E.M., 911 Cor., Car. Ambulance	0
Jason Wolke	Public Works Director - Carrington Asst Fire Chief - Carrington	City of Carrington	6



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Wednesday, May 26, 2021 Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Scott Beumer	Sr Mill Mgr Dakota Growers Pasta	Same City of	1
Iris Brandt	Mayor, Glenfield	Glenfield, Midkota Public Schools	50
Karlee Brown	Economic Development Director	Carrington Economic Development	
Karen Grass	Tax Director Foster County	Foster County	0
Wes Black		McHenry	180
Ryan Sorum	Mayor	McHenry	
Sodi Hurdnes	VP of Patient Care Services	CHI - St. Alexius Health Carrington	
William Gade	NDSD Extension	Foster County	0



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Wednesday, May 26, 2021 Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Jennifer East	City Auditor	City of Carrington	0
Ken Wanszen	Fire Chief	Carrington City/Rural FD	0
Susan Johnson	Sheriff	Foster S.U.	
Daniel Schwartz	Planner	Nexus Planning + Consulting	



Foster County MHMP: Steering Committee Chat Files Details Scheduling Assistant Whiteboard Breakout rooms +

s meeting chat is muted. Settings

J. Daniel Schwartz joined the meeting.

J. Daniel Schwartz named the meeting to .

Wednesday, May 26, 2021

Meeting ended 4m 44s 5/26 17:52

Meeting started 5/26 17:53

Robert Buskness (Guest) has temporarily joined the chat.

Balak, Frank (Guest) has temporarily joined the chat.

Lies, Robert J. (Guest) has temporarily joined the chat.

Daniel Schwartz (Guest) has temporarily joined the chat.

Robert Buskness (Guest) no longer has access to the chat.

Lies, Robert J. (Guest) no longer has access to the chat.

Balak, Frank (Guest) no longer has access to the chat.

Meeting ended 2h 52m 5/26 20:45

Daniel Schwartz (Guest) no longer has access to the chat.

Type a new message

SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Adversarial Threats Meeting

Date & Time: 1 to 3 p.m., Wednesday, June 9, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Chris Jamison	Interim Police Chief	Carrington Police	-
Susan Johnson	Sheriff	Foster County	-
Aaron Devereaux	Foster Em	Em. 911 coord. ^{Carrington} Emis	-
Nickolas Oster	Deputy	Foster County	
Daniel Schwartz	Planner	Nexus Planning & Consulting	



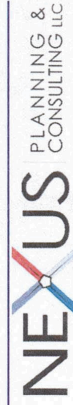
SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Space Weather and Transportation Incident Meeting

Date & Time: 3 to 4 p.m., Wednesday, June 9, 2021

Location: Foster County Sheriff's Office, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Chris Arnistava	Interim Police Chief	Carrington Police	—
Susan Johnson	Sheriff	Foster County	—
Aaron Devereaux	Foster Co. Em	Em. 911/Coor - Carrington EMS	—
Nicholas Oster	Deputy	Foster County	
Daniel Schwartz	Planner	Nexus Planning & Consulting	



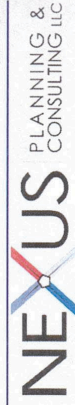
SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Wednesday, June 9, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Aaron DeLoach	Foster Co. Em	Em, 911 Coord. Carrington EMS	
Brad Solberg	Auditor Foster	Foster CO	
Amber Kruse	RN	Foster County Public Health	Ø
Nathan Krude	Deputy	Foster Co. Sheriff's Dept.	Ø
Ken Wanson	Fire Chief	Carrington Fire Dept.	
Ursatlibert	RN	Foster County Public Health	Ø
DAVID UTKER	COMMISSIONER	FOSTER COUNTY	52
Fris Brandt	Mayor Glenfield	City of Glenfield, ND	52



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Wednesday, June 9, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Scott Beumer	Dakota Growers Pasta Foster Co Board Comm	← Sr Mill Mgr / Commissioning	
Nate Manson	Fos. Cty Road Supv	Foster County	
Tom Erdmann	Mayor City of Carrington	City of Carrington	3
Jason Walsh	City of Carrington - Public Works Carrington Fire - Asst. Chief Dir.	City of Carrington / Carrington Fire Dept	
Chris Armistead	Interim Police Chief	Carrington Police	—
Sustan Johnson	Sheriff	Foster County	
Jeff Cole	Asst. Sheriff NDSU Extension	NDSU Extension	
Karen Grant	Foster County Tax Director		8



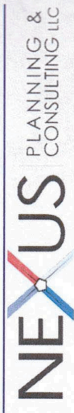
SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Wednesday, June 9, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Jennifer Coast	City Auditor	City of Carrington	0
Daniel Schwartz	Planner	Nexus Planning & Consulting	



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Wednesday, June 30, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Alicia Joverant	Foster C Em	Carrington Ems, Foster 911 car.	
Nathan Kruse	Deputy	Foster Co. Sheriff's Dept	
Robyn Sorum	Mayor	McHenry	
Ken Wanger	Fire Chief	Carrington Fire Dept	
Fris Brandt	Mayor	Stenfield, Midkota School	50
Karla Brown	Economic Development Director	City of Carrington	
Tina Wolshy	Public Works Director Asst. Fire Chief	City of Carrington	
DAVID UTKER	COMMISSIONER	FOSTER COUNTY	54



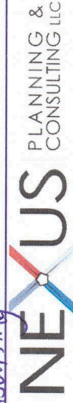
SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Wednesday, June 30, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Lisa Hilbert	PN Administrator	PEPbt	
Susan Johnson	Sheriff	Foster County SO	
Shawn Ellingson	City Auditor	City of Grace City	
Karen Swaus	Tax Director	Foster Co	
Jeff Gale	Extension agent	NDSD Extension	
Tom Erdman	Mayor/City	City of Cypre	3
Jodi Hardener	RD - VP of Public Care CMT - Member Member	CMT - St. Alex. Health-Carrington	
Joe Lies	NRPES Regional Emergency List	NRPES	
Daniel Schwartz	Planner	Nexus Planning & Consulting	



Foster County MHMP: Steering Committee Chat Files Details Scheduling Assistant Meeting notes Whiteboard Attendance +

Jun 30, 10:07:12 PM

5:53 PM - 10:07 PM
Start and End time

4h 13m 46s
Meeting Duration

3h 16m 21s
Average Attendance Time

SUMMARY

4 Attended Participants

PARTICIPANTS

Name	In-Meeting Duration	First Join Time	Last Leave Time	Role
J. Daniel Schwartz dschwartz@nexusplanco.com	3h 6m 5s	5:53 PM	8:59 PM	Organizer
Scott Beumer scott.beumer@save.com	4h 9m 41s	5:55 PM	10:07 PM	Presenter
Donahue, Kathleen B. kdonahue@nd.gov	2h 55m 59s	5:58 PM	8:59 PM	Presenter
Balak, Frank fbalak@nd.gov	2h 53m 41s	6:05 PM	8:59 PM	Presenter

SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Tuesday, October 12, 2021 Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Aaron Duvreault	FC EM # 911 Coord Carrington EMS →		Ø
Erin Duvreault	EMT	Carrington EMS	Ø
Amber Knise	RN	Foster County Public Health	Ø
All Trader	Pres City Council	Cmnt City Council	
Drew Brannet	Mayor Sengfield	City of Sengfield, Midkota Schools	X
Susan Grubbe	EMS Manager	Carrington	Ø
Nathan Krup	Sergeant	Foster Co. S. O.	Ø
Susan Johnson	Shouse	FCSD	



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee Meeting

Date & Time: 6 to 9 p.m., Tuesday, October 12, 2021 Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Karen Swans	Foster County Tax Director		0
Ken Wansan	Carrington Fire Chief	Fire Department	0
Llew Black		Eastern Foster Co	180 mi
Ursu Hilbert	RD	FCPT	0
Josi Huldener	RD CNE	CH St. Alexis Health Carrington	
Joe Lies	Reg Emergency Response	NADDES	
Boary Devereaux		Resident of Carrington	0
Daniel Schwartz	Planner	Nexus Planning + Consulting	



Foster County MHIMP: Steering Committee Chat Files Details Scheduling Assistant Meeting notes Whiteboard Attendance +

Oct 12, 9:07:48 PM >

SUMMARY

4 Attended Participants **0** Redacted Participants **5:58 PM - 9:07 PM** Start and End time **3h 9m 46s** Meeting Duration **2h 18m 18s** Average Attendance Time

PARTICIPANTS

Name	In-Meeting Duration	First Join Time	Last Leave Time	Role
J. Daniel Schwartz dschwartz@nexusplanno.com	3h 3m 3s	5:58 PM	9:04 PM	Organizer
Balak, Frank fbalak@nd.gov	3h 4m 53s	5:59 PM	9:04 PM	Presenter
David Utke	2h 9m 25s	6:01 PM	8:11 PM	Presenter
David Utke (Guest)	55m 51s	8:11 PM	9:07 PM	Presenter

SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Flood Hazard/Threat Meeting

Date & Time: 10 a.m. to 12 p.m., Wednesday, October 20, 2021 Location: Foster County Courthouse, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Danielle Koepplin	Clerk of Court Water-board Sec/Treas. Foster County PFO	Foster County, Foster County Water Board	
Aaron Duvrecaux	Emergency Manager 911 Coord. EMT	Foster County, Carrington Ambulance	
Lynelle Lyman Hoppe	Foster County Recorder Grace City Council Member	Foster County, Grace City, ND	
Misa Scanson	Foster County Deputy Recorder	Foster County, Grace City, ND	
Karen Evans	Tax Director	Foster County, Planning & Zoning	
Susan Johnson	Sheriff	Foster Co. Sheriff's Office	
Bradley Solberg	Auditor, Murbitz	Foster County Cemetery Board Pre-School Board 1	
Ellen Ruedy	Deputy Auditor	Foster County	

Craig Wiesz Maintenance Supervisor

Daniel Schwartz Planner

Foster County

Nexus



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Severe Summer Weather and Severe Winter Weather Hazard/Threat Meeting

Date & Time: 3 to 5 p.m., Wednesday, October 20, 2021

Location: Foster County Shop, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Nate Mann	Road Supt.	Foster County	0
Jason Walsky	Public Works Director Asst. Fire Chief	City of Carrington Carrington Fire Dept	0
Justin Johnson	Sheriff	Foster Co. S.O.	
Craig Wiesz	Maintenance Supervisor	Foster County Courthouse	
Karen Gwais	Tax Director	Foster County Planning's Zoning	0
Lisa Scanson	Foster Co. Deputy Recorder	Foster Co.	
Brad Solbey	Auditor, Member	Foster Co Pre-School Board, Cemetery Board	
Ellen Rundry	DUPY Producer	FOSTER COUNTY	
Stephanie Mantzke	Foster County Recorder	Foster County) Grace City, ND	
Aaron Deercourt	Grace City Council Member	Foster County Caring for Ambulance	
Daniel Schultze	Emergency manager / fire Planner	NEXUS	



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Joint Jurisdictional Workshop

Date & Time: 6 to 9 p.m., Wednesday, October 20, 2021 Location: Glenfield Community Center, Glenfield, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Sheri Ellingson	City auditor	City of grace city	30 30 x 2
Jennifer Coast	City Auditor	City of Carrington	26 x 2
Jason Wolshy	Public Works Director Asst. Fire Chief	City of Carrington Carrington Fire Dept	26 x 2
Luoy Roundy	Councilmen	City of Carrington	26 x 2
Al Trader	Councilmen	City of Carrington	26 x 2
Tom Erchman	Mayor	City of Carrington	26 x 2
Iris Brandt	Mayor	City of Glenfield, Midkota Schools	
Aaron Devereaux	911 COORD. Emergency manager	Foster County, Carrington Ambulance	
Daniel Schwartz	Planner	Nexus Planning & Consulting	26



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Joint Jurisdictional Workshop

Date & Time: 6 to 9 p.m., Wednesday, October 20, 2021 Location: Glenfield Community Center, Glenfield, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Erik Devereaux	EMT	Carrington Ambulance	24
Roary Devereaux	resident	Carrington.	0
Daniel Schwartz	Planner	Nexus Planning + Consulting	



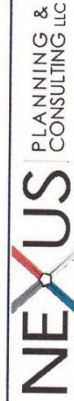
SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Infectious Disease Hazard/Threat Meeting

Date & Time: 10 a.m. to 12 p.m., Thursday, October 21, 2021

Location: Foster County Ambulance Bay, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Amber Kruse	RN	Foster County Public Health	
Cassie Ness	RN	Foster County Public Health	
Lisa Hilbert	RN	Foster Co. Public Health	
Jurilges	Supervisor	CHI	
Kristy Korschak	RN	CHI	
Erin Duvreux	EMT	Carrington Ambulance	Ø
Rodney Duvreux	resident	Carrington	Ø
Sarah Gullette	Pharmacist	Carrington	



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Infectious Disease Hazard/Threat Meeting

Date & Time: 10 a.m. to 12 p.m., Thursday, October 21, 2021 Location: Foster County Ambulance Bay, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
Shelley Kollman	RN Nurse manager	CHF St. Alexis Health Carrington	0.25
Tanya Munson	RN Quality, IP, EH	CHI St Alexis Health Carrington	0.25
Daniel Schwartz	Planner	Nexus Planning & Consulting	
Aaron Devereaux	Emergency management 911/door-EMT	Foster County Carrington Ambulance	



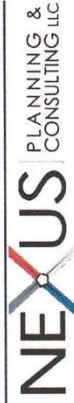
SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Public Hearing

Date & Time: 7:00 to 7:30 p.m., Thursday, November 4, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mig.
Karen Evans	Tax Director	Foster County	0
Aaron Devereaux	EMT Emergency Manager 1411 Cor.	Foste. County, Carrington Carrington Ambulance	
Erin Devereaux	EMT	Carrington Ambulance	0
Roary Devereaux	resident	Carrington	0
Amber Kruse	RN	Foster County Public Health	0
Jodi Hudenes	CNE	CH- St. Alexius Health Carrington	0
Tom Erdman	Mayor	CARRINGTON	0
DAVID UTKER	COMMISSIONER	FOSTER COUNTY	53



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Public Hearing

Date & Time: 7:00 to 7:30 p.m., Thursday, November 4, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
William Dillingham	resident	Carrington	-
Stefanie Dillingham	resident	Carrington	-
Tason Wolshy	Public Works Director Asst. Fire Chief	City of Carrington Carrington Fire Dept	-
Suster Dahmsen	Sheriff	Foster Co. SO.	-
Karlee Griffin	Economic Development Director	City of Carrington	-
Justin Toff	Grace City Mayor	Grace City	-
Daniel Schwartz	Planner	Nexus	



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee

Date & Time: 7:30 to 8:00 p.m., Thursday, October 21, 2021 Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mtg.
DAVID UHRE	COMMISSIONER	FOSTER COUNTY	53
Karlee Griffin	Economic Development Director	City of Carrington	—
Jasen Welsh	Public Works Director Asst. Fire Chief	C. of Carrington Carrington Fire Dept	—
Tom Edmondson	Mayor	CARRINGTON	—
Justin Topp	Grace City Mayor	Grace City	—
Susan Ahrens	Sherriff	Foster Co. SO	—
Jodi Hurdener	CNE - EW	CMT - ST. Alexius Health - Cgtn	—
Amber Knuse	RN	Foster County Public Health	0



SIGN-IN SHEET
Foster County, North Dakota
Multi-Hazard Mitigation Plan Update
Steering Committee

Date & Time: 7:30 to 8:00 p.m., Thursday, October 21, 2021

Location: Carrington City Library, Carrington, ND

(PLEASE PRINT CLEARLY)

First & Last Name	Official Title	Entity Represented (List all if multiple)	Mileage To & From Mig.
Karen Evans	Tax Director	Foster County	0
Erin Devereaux	EMT	Carrington Ambulance	0
Roary Devereaux	resident	Carrington	0
Avon Devereaux	EMT 911 coordinator Emergency management	Foster county Carrington Ambulance	0
Daniel Schwartz	Planner	Nexus	



Appendix 3 – Invitation Documentation

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5/19/2021 – Steering Committee Calendar Invitation	3-7
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6/8/2021 – Adversarial Threats Calendar Invitation	3-13
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10/14/2021 – Infectious Disease Calendar Invitation	3-21
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11/3/2021 – Public Hearing & Steering Committee Calendar Invitation Reminder	3-29

2021 Foster County, ND Multi-Jurisdictional Multi-Hazard Mitigation Plan Update Invitation List			
Last Name	First Name	Title	Representing
Balak	Frank	Vice Chairman, Regional Emergency Response Coord., Member	Central Valley Health District, Foster County LEPC
Beumer	Scott	Commissioner, Sr. Mill Manager	Foster County, Dakota Growers Pasta Plant
Black	Wes	Resident	City of McHenry
Brandt	Iris	Mayor, Member, Counselor and Career Development Counselor	City of Glenfield, Foster County LEPC, Midkota Public Schools
Brown (Griffin)	Karlee	Director	Carrington Economic Development
Buskness	Robert	EHS Manager	Dakota Growers Pasta Plant
Danielson	Richard	Superintendent	Midkota Public Schools
Dankbar	Ed	Hazmat & Emergency Response Officer	CP Railway
Devereaux	Aaron	Emergency Manager/9-1-1 Coord., EMT	Foster County, Carrington Ambulance Services
Devereaux	Erin	EMT	Carrington Ambulance Services
Devereaux	Roary	Resident	City of Carrington
Doeling	Mariann	CEO, Member	Carrington Medical Center, Foster County LEPC
Donahue	Kathleen	Deputy Planning Chief, Accreditation Manager, Individual Assistance Officer	N.D. Dept. of Emergency Services
Duda	Lawrence "Larry"	Road Operator	Foster County Road Department
Edland	Jeff	Fire Chief, Member	Glenfield Fire Department, Foster County LEPC
Eli	Curt		Dakota Growers Pasta Plant
Ellingson	Sheri	Auditor	City of Grace City, Foster County LEPC
Erdmann	Tom	Mayor	City of Carrington
Evans	Karen	Tax Equalization Director, Member	Foster County, Foster County LEPC
Eversvik	Sharon	Director, Member	McHenry Ambulance, Foster County LEPC
Gale	Jeff	Extension Agent	NDSU Extension/Foster County
Gast	Jennifer	Auditor, Member	City of Carrington, Foster County LEPC
Govick	Eric	Reporter, Member	Foster County Independent, Foster County LEPC
Goulette	Sarah	Paramedic	Carrington Ambulance Services
Hagel	Becky	Commissioner	Foster County
Harris	Brittany	RN/Compliance Coordinator, Member	Golden Acres Manor, Foster County LEPC
Hilbert	Lisa	Director, Unified Incident Command, Member	Foster County Public Health, Foster County Emergency Operations Center, Foster County LEPC
Hoppe	Lynelle Luman	Recorder, City Council Member	Foster County, City of Grace City
Hovdenes	Jodi	VP of Patient Care Services, Member, Director	CHI-St. Alexius Carrington Medical Center, Foster County LEPC, Carrington Ambulance Services
Hoyt	Bobby	Fire Chief, Member	McHenry Fire Department, Foster County LEPC
Hoyt	Paulette	Auditor	City of Glenfield
Jerome	Pam	Deputy Auditor, Member	City of Carrington, Foster County LEPC
Johnson	Aaron	Road Operator	Foster County Road Department
Johnson	Justin	Sheriff, Member	Foster County, Foster County LEPC
Kirking	Andrew	Emergency Manager	Stutsman County

2021 Foster County, ND Multi-Jurisdictional Multi-Hazard Mitigation Plan Update Invitation List			
Last Name	First Name	Title	Representing
Kluth	Teresa	Director, Member	Central Prairie Social Services, Foster County LEPC
Koepplin	Danielle	PIO/FC Clerk of Courts, Member	Foster County, Foster County LEPC
Kollman	Shelley	RN, Nurse Manager	CHI-St. Alexius Carrington Medical Center
Konschak	Kristy	RN	CHI-St. Alexius Carrington Medical Center
Kruse	Amber	RN, Member	Foster County Public Health, Foster County LEPC
Kruse	Nathan	Deputy Sheriff, Member	Foster County, Foster County LEPC
Kuehn	Kris	Superintendent	Carrington Public Schools
Lies	Joe	NE Regional Emergency Response Coord., Member	N.D. Dept. of Emergency Services, Foster County LEPC
Maus	Justin	Safety Director	CP Railway
Miller	Matt	Road Operator	Foster County Road Department
Monson	Nate	Superintendent, Member	Foster County Highway Department, Foster County LEPC
Munson	Tanya	RN Quality, IP, EH	CHI-St. Alexius Carrington Medical Center
Ness	Cassie	Staff Nurse/Health Equity Lead	Foster County Public Health
Ormiston	Chris	Interim Chief of Police	Carrington Police Department
Oster	Nicklas	Deputy	Foster County
Roehrich	Tammy	Emergency Manager, Secretary	Wells County, Wells County Water Resource District
Roundy	Ellen	Deputy Auditor	Foster County
Scanson	Lisa	Deputy Recorder, resident	Foster County, City of Grace City
Schumacher	Ashley	Auditor	City of McHenry
Schwartz	Daniel	Planner	Nexus Planning & Consulting, LLC
Short	Jerome	Treasurer, Member	McHency Ambulance, Foster County LEPC
Solberg	Brad	Auditor, Board Member, Member, President	Foster County, Carrington Cemetery Board, Foster County LEPC, Carrington Public Schools School Board
Sorum	Robyn	Mayor	City of McHenry
Thompson	Lisa	Emergency Manager	Eddy County
Trader	Al	President	Carrington City Council
Topp	Justin	Mayor, Member	City of Grace City, Barnes County LEPC
Tufte	Jerry	Firefighter, Member	Carrington Fire Department, Foster County LEPC
Utke	David	Commissioner, Representative, Member	Foster County, NE Regional CRIB Board, Foster County LEPC
Voglewede	Thomas	Road Operator	Foster County Road Department
Wangen	Ken	Fire Chief, Member	Carrington Fire Department, Foster County LEPC
Wiessz	Craig	Maintenance Supervisor	Foster County
Wolsky	Jason	Director, Asst. Fire Chief, Manager, Member	Carrington Public Works, Carrington Fire Department, Carrington Municipal Airport, Foster County LEPC
Yager	Tim	Supervisor	CHI-St. Alexius Carrington Medical Center

The screenshot shows an Outlook window titled "Doodle: Foster County MHMP Kickoff Meeting - Virtual - Message (HTML)". The ribbon includes "File", "Message", "Help", and "Acrobat". The "Message" ribbon has buttons for "Delete", "Archive", "Reply", "Reply All", "Forward", "Respond", "Share to Teams", "Quick Steps", "Move", "Tags", "Editing", "Read Aloud", "Translate", "Zoom", and "Insights".

The email header shows the subject "Doodle: Foster County MHMP Kickoff Meeting - Virtual" and the sender "Doodle <mailer@doodle.com>". The recipient is "To: J. Daniel Schwartz". Action buttons for "Reply", "Reply All", and "Forward" are visible, along with a timestamp "Wed 3/17/2021 10:13".

The main body of the email contains the following text:

Doodle
Hi Daniel Schwartz,
Now that your poll "Foster County MHMP Kickoff Meeting - Virtual" has been created, you can [edit it](#) and invite participants.
[Invite participants](#)
Best wishes,
The Doodle Team

See how easy it is to find a time to get people together when you use Doodle.

[Create a Doodle now](#)

Doodle
Doodle AG, Werdstrasse 21, 8021 Zürich
[Why did I receive this email?](#)

The screenshot shows an Outlook meeting invitation window. The title bar reads "Foster County Multi-Hazard Mitigation Plan (MHMP): Virtual Kickoff - Meeting". The ribbon includes "Meeting", "Help", and "Acrobat". The main content area displays the meeting details:

Foster County Multi-Hazard Mitigation Plan (MHMP): Virtual Kickoff

J. Daniel Schwartz (Required) | fbalak@nd.gov; bbergan@mlgc.com; Scott.Beumer@8ave.com; 4wnblack@gmail.com; Iris.Johnson@sendit.nodak.edu; cedd@daktel.com; Robert.Buskness@8ave.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; **+31 others**

Wed 4/7/2021 14:27

🕒 Wednesday, April 21, 2021 18:30-20:30 | 📍 Microsoft Teams Meeting

The kickoff meeting to update the Foster County MHMP will be virtual via Microsoft Teams. Please use the link provided below to access the meeting.

This meeting invitation will be updated at a later date with an agenda.

Please accept the invitation to get it on your calendar.

Thank you!

J. Daniel Schwartz, MS
President/CEO

NEXUS PLANNING & CONSULTING LLC

dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
522 W Thayer Ave | Bismarck, ND 58501

Microsoft Teams meeting

Join on your computer or mobile app
[Click here to join the meeting](#)

[Learn More](#) | [Meeting options](#)



Foster County Multi-Hazard Mitigation Plan (MHMP): Virtual Kickoff



J. Daniel Schwartz

No Response Required

Required fbalak@nd.gov; bbergen@mlgc.com; Scott.Beumer@8ave.com; 4wnblack@gmail.com; Iris.Johnson@sendit.nodak.edu; cedd@daktel.com; Robert.Buskness@8ave.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; **+32 others**

Optional Becky Utke

Tue 4/20/2021 11:38

- 1 2021-4-21 Agenda - SC.pdf 127 KB
- 2 Team Member Responsibility.pdf 174 KB
- 3 Hazard Handout - Foster.pdf 285 KB

Wednesday, April 21, 2021 18:30-20:30 Microsoft Teams Meeting

REMINDER: The kickoff/steering meeting to update the Foster County MHMP will be held virtually via Microsoft Teams at 6:30 p.m., Wednesday (tomorrow), April 21, 2021.

Please use the [link](#) provided below to access the meeting.

Agenda

Sign-In	Please note all you represent See Database sheet – alphabetical by last name
Welcome & Introductions	Name and Agency
What is Mitigation?	See Presentation
Planning Process	Involvement and Participation Consultant Expectations Team Member Responsibility In-Kind/Local Cost Share Organization of Planning Process Steering Committee Review
Hazards/Threats	See Handout/Projector Overview and Rank
Mitigation Survey	See Projector



May 5, 2021

You are Invited!

Foster County, North Dakota Mitigation Plan Update

The multi-hazard mitigation plan for Foster County needs to be updated per Federal Emergency Management Agency (FEMA) requirements. If receiving this letter, you were identified as a stakeholder to serve on the Steering Committee or included on the invite list. Your participation will assist in direction of the planning process to identify specific actions to reduce risks from natural hazards and man-made threats.

The virtual kickoff meeting was held on April 21, 2021. The remaining meetings for this planning process are being expedited due to significant delays from the pandemic in 2020.

All meetings will be held from 6 to 9 p.m., in the meeting room at the Carrington City Library located at 87 8th Ave N in Carrington, North Dakota, on the following dates:

- Wednesday, May 26, 2021
- Wednesday, June 9, 2021
- Wednesday, June 30, 2021

Food and beverage will be provided. Masks are preferred. Social distancing will be observed.

It is important you attend the meetings and participate in the planning process. Your expertise is needed as Foster County must have an approved mitigation plan to qualify for grants through FEMA and other federal funding programs.

Please RSVP to Daniel Schwartz at (701) 989-7970; dschwartz@nexusplanco.com, or to the Foster County Emergency Manager Aaron Devereaux at (701) 652-2252; adevereaux@nd.gov.

Sincerely,

J. Daniel Schwartz

A handwritten signature in black ink that reads "Daniel Schwartz".

Principal/CEO
Nexus Planning & Consulting, LLC

Nexus Planning & Consulting, LLC | 522 W Thayer Ave | Bismarck, ND 58501

Phone: 701-989-7970 | Email: dschwartz@nexusplanco.com

Foster County MHMP: Steering Committee - Meeting

File Meeting Help Acrobat Tell me what you want to do

Delete Respond Share to Teams Meeting Notes Calendar

Delete Respond Teams Meeting Notes Calendar Quick Steps Move Move Tags Editing Speech Zoom Add-in

Foster County MHMP: Steering Committee

J. Daniel Schwartz

Required fbalak@nd.gov; Scott.Beumer@8ave.com; 4wnblack@gmail.com; Iris.Johnson@sendit.nodak.edu; cedd@daktel.com; Robert.Buskness@8ave.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; **+36 others**

Optional Jerry Bergquist; Riley Schafer

Wednesday, May 26, 2021 18:00-21:00 Carrington City Library (87 8th Ave N, Carrington, ND 58421)

The next Steering Committee Meeting to update the Foster County Multi-Hazard Mitigation Plan will be held from 6 to 9 p.m., Wednesday, May 26, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

- Food and beverage will be provided.
- Masks are preferred.
- Social distancing will be observed.
- The virtual option to the meeting is below.

An agenda will be posted at a later date.

Microsoft Teams meeting

Join on your computer or mobile app
[Click here to join the meeting](#)

[Learn More](#) | [Meeting options](#)

Foster County MHMP: Steering Committee

J. Daniel Schwartz No Response Required

Required [fbalak@nd.gov](#); [Scott.Beumer@8ave.com](#); [4wnblack@gmail.com](#); [Iris.Johnson@sendit.nodak.edu](#); [cedd@daktel.com](#); [Robert.Buskness@8ave.com](#); [richard.danielson@k12.nd.us](#); [Ed_Dankbar@cpr.ca](#); [adeveraux@nd.gov](#); **+35 others**

Optional [Jerry Bergquist](#); [Riley Schafer](#); [Becky Utke](#); [Mariann Doeling ND-Fargo](#); [Jennifer Gast](#)

Wednesday, May 26, 2021 18:00-21:00 Carrington City Library (87 8th Ave N, Carrington, ND 58421)

REMINDER: The next Steering Committee Meeting to update the Foster County Multi-Hazard Mitigation Plan will be held from

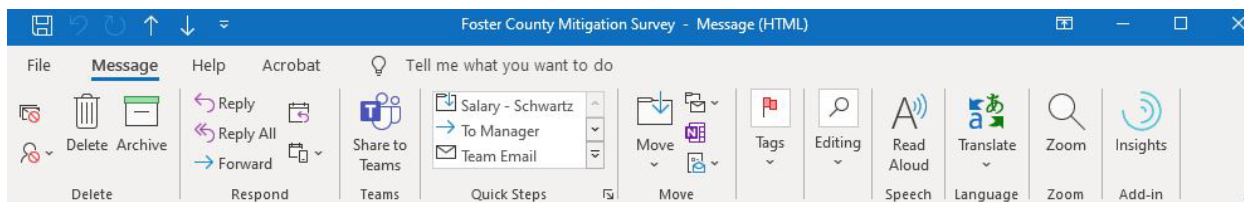
6 to 9 p.m., Wednesday, May 26, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

- Food and beverage will be provided.
- Masks are preferred.
- Social distancing will be observed.
- The virtual option to the meeting is below.

An agenda will be posted at a later date.

Microsoft Teams meeting

Join on your computer or mobile app
[Click here to join the meeting](#)



Foster County Mitigation Survey



J. Daniel Schwartz

To fbalak@nd.gov; Scott.Beumer@8ave.com; 4wnblack@gmail.com; Iris.Johnson@sendit.nodak.edu; cedd@daktel.com; Robert.Buskness@8ave.com; matt.daly@enbridge.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; +37 others

Thu 5/27/2021 16:07

This message was sent with High importance.

Foster County is updating its Multi-Hazard Mitigation Plan. A survey is being conducted as part of the planning process.

Click CTRL plus the link below to access the survey. Please share this with family, friends, colleagues, neighbors, etc.

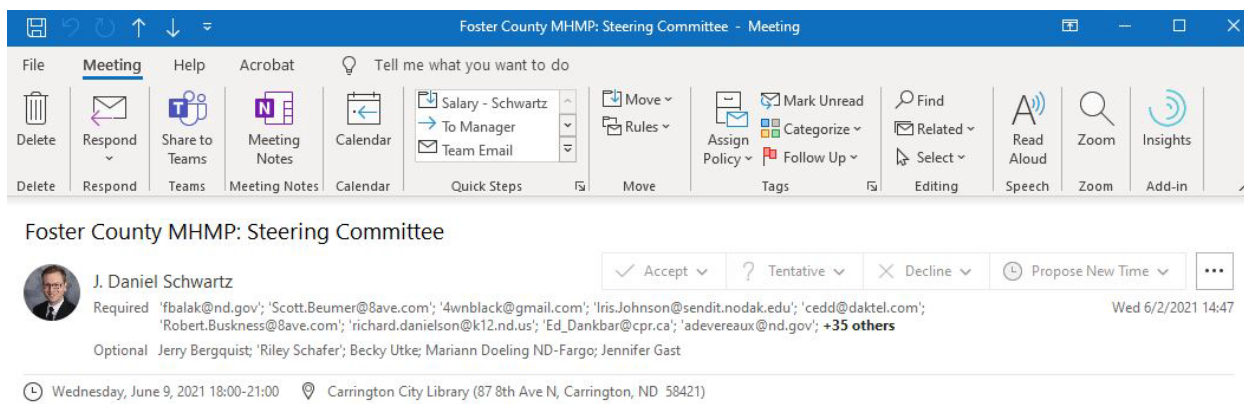
Thank you!

<https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan>

J. Daniel Schwartz, MS
President/CEO



dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
522 W Thayer Ave | Bismarck, ND 58501



The next Steering Committee Meeting to update the Foster County Multi-Hazard Mitigation Plan will be held from

6 to 9 p.m., Wednesday, June 9, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

- Food and beverage will be provided.
- The virtual option to the meeting is below.

An agenda will be posted at a later date.

Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

[Learn More](#) | [Meeting options](#)

REMINDER

of the next Foster County Multi-Hazard Mitigation Plan Update Steering Committee Meeting. Your participation is critical to ensure the county has access to grants through FEMA and other funding sources.

Time: 6 to 9 p.m., CST
Date: Wednesday, June 9, 2021
Location: Carrington City Library
Carrington, ND 58421

See you then,
Daniel Schwartz, Facilitator, Nexus Planning & Consulting
701-989-7970; dschwartz@nexusplanco.com

REMINDER

of the next Foster County Multi-Hazard Mitigation Plan Update Steering Committee Meeting. Your participation is critical to ensure the county has access to grants through FEMA and other funding sources.

Time: 6 to 9 p.m., CST
Date: Wednesday, June 9, 2021
Location: Carrington City Library
Carrington, ND 58421

See you then,
Daniel Schwartz, Facilitator, Nexus Planning & Consulting
701-989-7970; dschwartz@nexusplanco.com

Foster County MHMP: Steering Committee - Meeting

File Meeting Help Acrobat Tell me what you want to do

Delete Respond Share to Teams Meeting Notes Calendar Quick Steps Move Tags Editing Speech Zoom Add-in

Foster County MHMP: Steering Committee

J. Daniel Schwartz No Response Required

Required fbalak@nd.gov; Scott.Beumer@8ave.com; 4wnblack@gmail.com; Iris.Johnson@sendit.nodak.edu; cedd@daktel.com; Robert.Buskness@8ave.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; **+35 others**

Optional Jerry Bergquist; Riley Schafer; Becky Utke; Mariann Doeling ND-Fargo; Jennifer Gast; Kris Kuehn; Jodi Hovdenes ND-Carrington

1 2021-6-9 Agenda - SC.pdf
132 KB

Wednesday, June 9, 2021 18:00-21:00 Carrington City Library (87 8th Ave N, Carrington, ND 58421)

REMINDER: The next Steering Committee Meeting to update the Foster County Multi-Hazard Mitigation Plan will be held from:

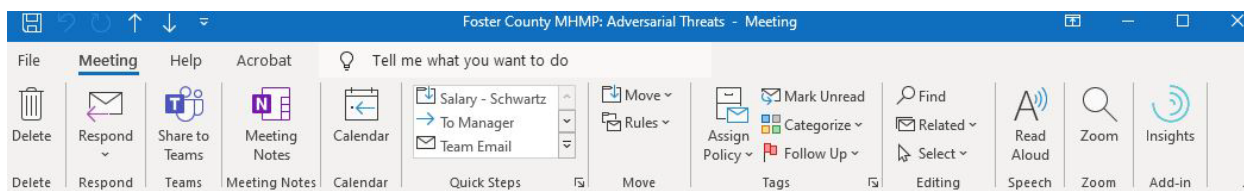
6 to 9 p.m., Wednesday, June 9, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

- Food and beverage will be provided.
- The virtual option to the meeting is below.
- The agenda for the meeting is attached.

Microsoft Teams meeting

Join on your computer or mobile app
[Click here to join the meeting](#)

[Learn More](#) | [Meeting options](#)



Foster County MHMP: Adversarial Threats



J. Daniel Schwartz

Required jjohn@nd.gov; cnormiston@nd.gov
Optional [Devereaux, Aaron](#)

Tue 6/8/2021 11:45



🕒 Wednesday, June 9, 2021 13:00-15:00 📍 1000 5th St N, Carrington, ND

This meeting is being set up to review the hazard profiles for Civil Disturbance; Criminal, Terrorist or Nation/State Attack; and Cyberattack for Foster County.

Please feel free to invite other law enforcement officials or individuals you feel would contribute to the success of the meeting.

The Agenda is attached.

Thank you.

J. Daniel Schwartz, MS
President/CEO




dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
522 W Thayer Ave | Bismarck, ND 58501


Foster County MHMP: Space Weather & Transportation Incident - Meeting



File Meeting Help Acrobat Tell me what you want to do

Delete Respond Share to Teams Meeting Notes Calendar Quick Steps Move Move Rules Assign Policy Mark Unread Categorize Follow Up Find Related Select Read Aloud Zoom Insights

Foster County MHMP: Space Weather & Transportation Incident

 **J. Daniel Schwartz**
 Required jjohn@nd.gov; cnormiston@nd.gov
 Optional Devereaux, Aaron

 1 2021-6-9 Agenda - SW & TI.pdf
132 KB

 Wednesday, June 9, 2021 15:00-16:00  1000 5th St N, Carrington, ND


This meeting is being set up to review the hazard profiles for Space Weather and Transportation Incident for Foster County.

Please feel free to invite other law enforcement officials or individuals you feel would contribute to the success of the meeting.

The Agenda is attached.

Thank you.

J. Daniel Schwartz, MS
President/CEO

 **NEXUS** PLANNING & CONSULTING LLC

dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
 522 W Thayer Ave | Bismarck, ND 58501

REMINDER

of the next Foster County Multi-Hazard Mitigation Plan Update Steering Committee Meeting. Your participation is critical to ensure the county has access to grants through FEMA and other funding sources.

Time: 6 to 9 p.m., CST
Date: Wednesday, June 30, 2021
Location: Carrington City Library
Carrington, ND 58421

See you then,
Daniel Schwartz, Facilitator, Nexus Planning & Consulting
701-989-7970; dschwartz@nexusplanco.com

REMINDER


of the next Foster County Multi-Hazard Mitigation Plan Update Steering Committee Meeting. Your participation is critical to ensure the county has access to grants through FEMA and other funding sources.

Time: 6 to 9 p.m., CST
Date: Wednesday, June 30, 2021
Location: Carrington City Library
Carrington, ND 58421

See you then,
Daniel Schwartz, Facilitator, Nexus Planning & Consulting
701-989-7970; dschwartz@nexusplanco.com



Foster County MHMP: Steering Committee


J. Daniel Schwartz

Required fbalak@nd.gov; Scott.Beumer@8ave.com; 4wnblack@gmail.com; Iris.Johnson@sendit.nodak.edu; cedd@daktel.com; Robert.Buskness@8ave.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; **+35 others**
Mon 6/28/2021 17:07

Optional Jerry Bergquist; Riley Schafer; Becky Utke; Mariann Doeling ND-Fargo; Jennifer Gast; Donahue, Kathleen B.



Wednesday, June 30, 2021 18:00-21:00
 Carrington City Library (87 8th Ave N, Carrington, ND 58421)

The next Steering Committee Meeting to update the Foster County Multi-Hazard Mitigation Plan will be held from:

6 to 9 p.m., Wednesday, June 30, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

- Food and beverage will be provided.
- The virtual option to the meeting is below.
- The agenda for the meeting is attached.

Microsoft Teams meeting

Join on your computer or mobile app
[Click here to join the meeting](#)

[Learn More](#) | [Meeting options](#)

The screenshot shows a Microsoft Teams meeting invitation window. The title bar reads "Foster County MHMP: Steering Committee - Meeting". The ribbon includes "Meeting", "Help", "Acrobat", and "Group". The main content area displays the meeting details:

- Meeting Title:** Foster County MHMP: Steering Committee
- Organizer:** J. Daniel Schwartz (with profile picture and status "Required")
- Response Options:** Accept, Tentative, Decline, Propose New Time
- Attendees:**
 - Required:** fbalak@nd.gov; Scott.Beumer@8ave.com; 4wnblack@gmail.com; iris.brandt@k12.nd.us; cedd@daktel.com; Robert.Buskness@8ave.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; +36 others
 - Optional:** Jerry Bergquist; Riley Schafer; Becky Utke; Mariann Doeling ND-Fargo; Jennifer Gast; Donahue, Kathleen B.; Jodi Hovdenes ND-Carrington
- Attachments:** 1 2021-6-30 Agenda - SC.pdf (132 KB)
- Time and Location:** Wednesday, June 30, 2021 18:00-21:00; Carrington City Library (87 8th Ave N, Carrington, ND 58421)

The main body of the invitation contains the following text:

REMINDER: The next Steering Committee Meeting to update the Foster County Multi-Hazard Mitigation Plan will be held from:

6 to 9 p.m., Wednesday, June 30, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

- Food and beverage will be provided.
- The virtual option to the meeting is below.
- The agenda for the meeting is attached and has been updated!

At the bottom, it says "Microsoft Teams meeting" and provides a link: "Join on your computer or mobile app" and "Click here to join the meeting".

Foster County MHMP: Steering Committee - Meeting

File Meeting Help Acrobat Tell me what you want to do

Delete Respond Share to Teams Meeting Notes Calendar

Delete Respond Teams Meeting N... Calendar Quick Steps Move

Salary - Schwartz
To Manager
Team Email

Move Rules Assign Policy Mark Unread Categorize Follow Up Editing Immersive Zoom Insights

Foster County MHMP: Steering Committee

J. Daniel Schwartz Accept Tentative Decline Propose New Time

Required 'fbalak@nd.gov'; 'Scott.Beumer@8ave.com'; '4wnblack@gmail.com'; 'Iris.Johnson@sendit.nodak.edu'; 'cedd@daktel.com'; 'Robert.Buskness@8ave.com'; 'richard.danielson@k12.nd.us'; 'Ed_Dankbar@cpr.ca'; 'adevereaux@nd.gov'; **+35 others**

Optional 'Riley Schafer'; Becky Utke; Mariann Doeling ND-Fargo; Jennifer Gast; Jodi Hovdenes ND-Carrington

Tuesday, September 28, 2021 18:00-21:00 Carrington City Library (87 8th Ave N, Carrington, ND 58421)

The next and final Steering Committee Meeting to update the Foster County Multi-Hazard Mitigation Plan will be held from:

6 to 9 p.m., Tuesday, September 28, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

- Food and beverage will be provided.
- The virtual option to the meeting is below.
- The agenda for the meeting will be made available at a later date.

J. Daniel Schwartz, MS
President/CEO

NEXUS PLANNING & CONSULTING LLC

dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
522 W Thayer Ave | Bismarck, ND 58501

Microsoft Teams meeting

REMINDER

of the next Foster County Multi-Hazard Mitigation Plan Update Steering Committee Meeting. Your participation is critical to ensure the county has access to grants through FEMA and other funding sources.

Time: 6 to 9 p.m., CST
Date: Tuesday, September 28, 2021
Location: Carrington City Library
Carrington, ND 58421

See you then,

Daniel Schwartz, Facilitator, Nexus Planning & Consulting
701-989-7970; dschwartz@nexusplanco.com

REMINDER

of the next Foster County Multi-Hazard Mitigation Plan Update Steering Committee Meeting. Your participation is critical to ensure the county has access to grants through FEMA and other funding sources.

Time: 6 to 9 p.m., CST
Date: Tuesday, September 28, 2021
Location: Carrington City Library
Carrington, ND 58421

See you then,

Daniel Schwartz, Facilitator, Nexus Planning & Consulting
701-989-7970; dschwartz@nexusplanco.com



Foster County MHMP: Steering Committee



J. Daniel Schwartz

No Response Required

Required fbalak@nd.gov; Scott.Beumer@8ave.com; 4wnblack@gmail.com; Iris.Johnson@sendit.nodak.edu; ceddd@daktel.com; Robert.Buskness@8ave.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; **+35 others**
 Optional Riley Schafer; Becky Utke; Mariann Doeling ND-Fargo; Jennifer Gast; Jodi Hovdenes ND-Carrington

Tuesday, October 12, 2021 18:00-21:00 Carrington City Library (87 8th Ave N, Carrington, ND 58421)

REMINDER!

The next and final Steering Committee Meeting to update the Foster County Multi-Hazard Mitigation Plan will be held from:

6 to 9 p.m., Tuesday, October 12, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

- Food and beverage will be provided.
- The virtual option to the meeting is below.
- The agenda for the meeting will be made available at a later date.

J. Daniel Schwartz, MS
 President/CEO



dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
 522 W Thayer Ave | Bismarck, ND 58501

Foster County MHMP: Infectious Disease - Animal, Human & Plants

J. Daniel Schwartz No Response Required

Required Kruse, Amber; Hilbert, Lisa D.; jodihovdenes@catholichealth.net; adevereaux@nd.gov; jeff.gale@ndsu.edu; cness@nd.gov

Optional fbalak@nd.gov; Kristy Konschak ND -Carrington; Tanya Munson ND -Carrington; Timothy Yager ND -Carrington

4.10 Infectious Disease - Foster.pdf 532 KB

Risk Assessment Scoring Worksheet.pdf 180 KB

Thursday, October 21, 2021 10:00-12:00 Carrington Ambulance Bay

All – I am sending this updated with the survey link included below, and also the scoring and ranking sheet for the meeting. Please forward the survey link to your staff and others in your respective office.

This meeting is to develop/finalize the Infectious Disease Profile for the Foster County Mitigation Plan Update.

- CVODI-19 has presented many challenges. If you have disease statistic data or other information, please send to me for inclusion in the updated profile.
- Attached is the draft profile for your review.

AGENDA

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Hazard/Threat Overview	See Projector History
Risk Assessment	See Handout
Vulnerabilities	Publicly-Owned Buildings Critical Facilities and Infrastructure Climate Change? New Development
Mitigation Projects	Review existing

Foster County MHMP: Severe Summer Weather & Severe Winter Weather

J. Daniel Schwartz

Required 'nmonson@daktel.com'; 'pworks@midconetwork.com'; 'kendwangen@eaton.com'; 'jjohn@nd.gov'; 'nakruse@nd.gov'

Optional 'adevereaux@nd.gov'

4.11 Severe Summer Weather - Foster.pdf (504 KB)

4.12 Severe Winter Weather - Foster.pdf (386 KB)

Wednesday, October 20, 2021 15:00-17:00 Foster County; - Foster County Shop

This meeting is to develop/finalize the Severe Summer Weather and Severe Winter Weather Profiles for the Foster County Mitigation Plan Update.

- Attached is the draft profiles for your review.

AGENDA

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Hazard/Threat Overview	See Projector History
Risk Assessment	See Handout
Vulnerabilities	Publicly-Owned Buildings Critical Facilities and Infrastructure Climate Change? New Development
Mitigation Projects	Review existing Develop New – Green Sheet Rank and Score with STAPLE – Yellow Sheet
Mitigation Survey	https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan

Foster County MHMP: Flood

J. Daniel Schwartz Accept Tentative Decline Propose New Time

Required pworks@midconetwork.com; kendwangen@eaton.com; netloss2@yahoo.com; zinks@daktel.com; pskadberg@daktel.com; ronstangeland@yahoo.com; haywire@daktel.com; dkoeplin@nd.gov

Optional adevereaux@nd.gov

4.7 Flood - Foster.pdf
368 KB

Wednesday, October 20, 2021 10:00-12:00 Foster County Courthouse - basement meeting room

This meeting is to develop/finalize the Flood Profile for the Foster County Mitigation Plan Update.

- Attached is the draft profile for your review. All highlighted text in the profile needs updating and simply serves as a place holder for the time being.

AGENDA

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Hazard/Threat Overview	See Projector History
Risk Assessment	See Handout
Vulnerabilities	Publicly-Owned Buildings Critical Facilities and Infrastructure Climate Change? New Development
Mitigation Projects	Review existing Develop New – Green Sheet Rank and Score with STAPLE – Yellow Sheet
Mitigation Survey	https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan

The screenshot shows an Outlook window titled "Mitigation Survey - Message (HTML)". The ribbon includes "File", "Message", "Developer", "Help", "Acrobat", and "Tell me what you want to do". The "Message" ribbon has sections for "Delete" (Delete, Archive), "Respond" (Reply, Reply All, Forward), "Teams" (Share to Teams), "Quick Steps" (Salary - Schwartz, To Manager, Team Email), "Move", "Tags", "Editing", "Immersive", "Language" (Translate), "Zoom", and "Add-in" (Zoom, Insights).

Mitigation Survey

J. Daniel Schwartz

To **+39 others**

Thu 10/21/2021 12:19

This message was sent with High importance.

If you have not done so already, please take a few minutes to complete the Foster County Mitigation Survey for the mitigation plan update.

<https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan>

Thank you!

J. Daniel Schwartz, MS
President/CEO

NEXUS PLANNING & CONSULTING LLC

dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
522 W Thayer Ave | Bismarck, ND 58501

Foster County MHMP: Public Hearing & Steering Committee Meeting - Meeting

File Meeting Help Acrobat Tell me what you want to do

Delete Respond Share to Teams Meeting Notes Calendar Salary - Schwartz To Manager Team Email Move Rules Tags Editing Immersive Zoom Insights

Foster County MHMP: Public Hearing & Steering Committee Meeting

J. Daniel Schwartz Accept Tentative Decline Propose New Time

Required 'fbalak@nd.gov'; 'Scott.Beumer@8ave.com'; '4wnblack@gmail.com'; 'iris.brandt@k12.nd.us'; 'cedd@daktel.com'; 'Robert.Buskness@8ave.com'; 'richard.danielson@k12.nd.us'; 'Ed_Dankbar@cpr.ca'; 'adeveraux@nd.gov'; **+39 others** Thu 10/21/2021 23:22

0 Table of Contents - Foster.pdf 108 KB	1 Introduction - Foster.pdf 135 KB
2 Planning Process - Foster2.pdf 58 KB	4 THIRA - Foster.pdf 561 KB
4.1 Civil Disturbance - Foster.pdf	4.2 Criminal, Terrorist or Nation-State Attack - Foster.pdf

Thursday, November 4, 2021 19:00-20:00 Carrington City Library (87 8th Ave N, Carrington, ND 58421)

Attached is the DRAFT 2021 Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan.

Please review the plan at your convenience and email me with any comments or revisions.

The public hearing to review the DRAFT 2021 Foster County Multi-Hazard Mitigation Plan is being held at 7 p.m., Thursday, November 4, 2021, at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

AGENDA

Mitigation Plan Draft Press Release - Message (HTML)

File Message Help Acrobat Tell me what you want to do

Delete Archive Reply Reply All Forward Share to Teams Quick Steps Move Tags Editing Immersive Translate Zoom Insights

Mitigation Plan Draft Press Release

J. Daniel Schwartz

To: adevereaux@nd.gov; jjohn@nd.gov; Kruse, Amber; Hilbert, Lisa D.; jwhitman@nd.gov; Jodi.hovdenes@commonspirit.org; carfire@daktel.com; cedd@daktel.com; +6 others

Fri 10/22/2021 14:56

This message was sent with High importance.

All,

Will you post the following narrative on your social media, please? Let me know once you do so I can document it for the plan.

Thank you!

Mitigation Plan Draft Available for Review

The draft of the 2021 Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan is now available for review on the Foster County and City of Carrington websites. A printed copy is also available at the Foster County Courthouse in the emergency manager's office.

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To submit feedback or a comment on the plan, please contact Daniel Schwartz at Nexus Planning & Consulting, LLC at 701-989-7970; dschwartz@nexusplanco.com.

J. Daniel Schwartz, MS
President/CEO

Mitigation Plan for website - Message (HTML)

File Message Help Acrobat Tell me what you want to do

Delete Archive Reply Reply All Forward Share to Teams Quick Steps Move Tags Editing Immersive Translate Zoom Insights

Mitigation Plan for website

J. Daniel Schwartz
To Jennifer Gast; 'bradsolberg@nd.gov'

Fri 10/22/2021 14:59

This message was sent with High importance.

00 2021 Foster County, ND MHMP-DRAFT.pdf
13 MB

Jennifer and Brad,

Can you help me get the following narrative and the attached draft plan on the city and county website, please?

Thanks.

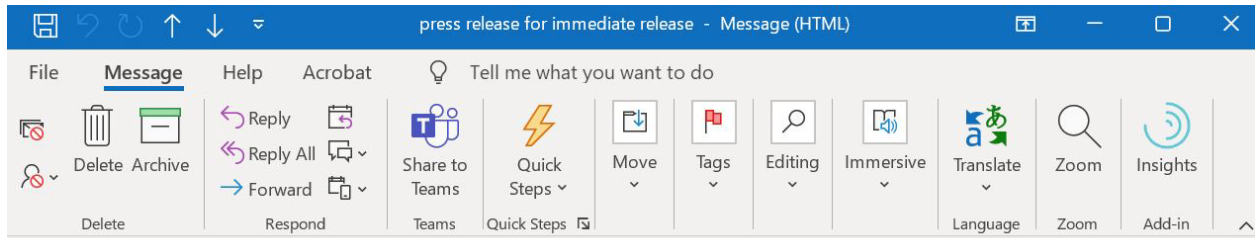
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press release for immediate release



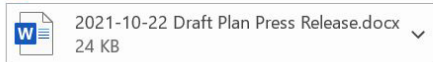
J. Daniel Schwartz

To: 'Warren Abrahamson'; 'fosterconews@daktel.com'

↩ Reply
↩↩ Reply All
➔ Forward
⋮

Fri 10/22/2021 15:07

This message was sent with High importance.



All,

Can you please post the following on your website and next earliest publication?

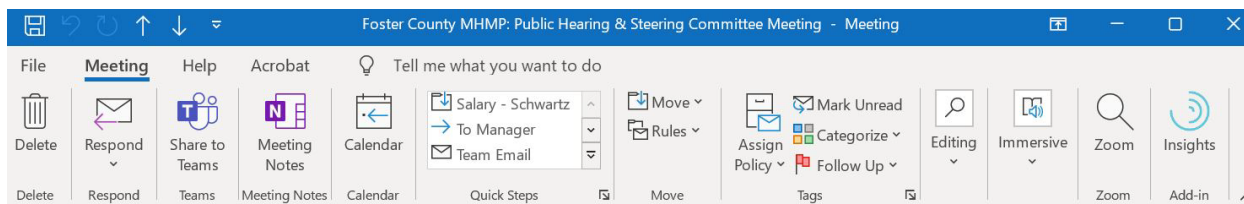
Please let me know of when I can expect it to be published. I need to document it for the mitigation plan.

Thank you!

J. Daniel Schwartz, MS
President/CEO



dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
522 W Thayer Ave | Bismarck, ND 58501



Foster County MHMP: Public Hearing & Steering Committee Meeting



J. Daniel Schwartz

No Response Required

Required fbalak@nd.gov; Scott.Beumer@8ave.com; 4wnblack@gmail.com; iris.brandt@k12.nd.us; cedd@daktel.com; Robert.Buskness@8ave.com; richard.danielson@k12.nd.us; Ed_Dankbar@cpr.ca; adevereaux@nd.gov; **+38 others**

Optional Jennifer Gast

Wed 11/3/2021 13:08

0 Table of Contents - Foster.pdf 108 KB	1 Introduction - Foster.pdf 136 KB
2 Planning Process - Foster2.pdf 59 KB	4 THIRA - Foster.pdf 561 KB
4.1 Civil Disturbance - Foster.pdf	4.2 Criminal, Terrorist or Nation-State Attack - Foster.pdf

Thursday, November 4, 2021 19:00-20:00 Carrington City Library (87 8th Ave N, Carrington, ND 58421)

REMINDER!!!

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Appendix 4 – Media Coverage

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Foster County Emergency Management

@FosterCoEM · Government Organization

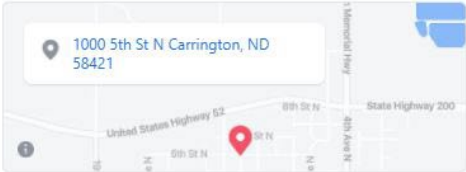
Call Now

Home About Events Videos More

Liked Message Search More

About

See All



- Disclaimer: This site is not monitored 24/7. to report emergency, please call 911. This page is for informational purposes only.
- Welcome to the Foster County Emergency Management page. Here I will post important weather related items, code RED alerts, messages from other governm... See More

532 people like this including 3 of your friends



577 people follow this

<http://www.fostercounty.com/>

(701) 652-2252

Send Message

adevereaux@nd.gov

Open Now
8:00 AM - 4:00 PM

Government Organization · Emergency Rescue Service · Government Building

Create Post

Photo/Video Check in Tag Friends

Foster County Emergency Management
1h · 🌐

The Steering Committee to update the Foster County Multi-Hazard Mitigation Plan will be held tonight from 6 to 9 p.m. at the Carrington City Library Meeting Room located at 87 8th Ave N in Carrington.

Food and beverage will be provided.
The meeting is open to the public.

Like Comment Share

Foster County Emergency Management
May 6 at 2:47 PM · 🌐

Load restrictions are now off for Foster County.

Like Comment Share

Foster County Emergency Management
April 28 at 10:03 AM · 🌐

Starting May 4th, we will be testing the warning sirens and will continue to test on the first Tuesday of the month through September. The tests will be between 1 pm – 2 pm. If severe weather is predicted, we will hold off testing until next appropriate day.

3 8 Shares


Like Comment Share

Like Comment Share

Write a comment...

Foster County Public Health
June 1 · 🌐

Your thoughts matter! Please take time to take this survey!
Please Share
<https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan>



SURVEYMONKEY.COM
Foster County, N.D. Multi-Hazard Mitigation Plan Update
Take this survey powered by surveymonkey.com. Create your own surveys for free.

Like Comment Share

Foster County Public Health

Social Media Post for mitigation meeting - Message (HTML)

File Message Help Acrobat Tell me what you want to do

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Social Media Post for mitigation meeting

J. Daniel Schwartz

To: adevereaux@nd.gov; jjohn@nd.gov; akruse@nd.gov; lhilbert@nd.gov; jwhitman@nd.gov; Jodi.hovdenes@commonspirit.org; carfire@daktel.com; cedd@daktel.com; iris.brandt@k12.nd.us; +5 others

Wed 6/9/2021 09:17

You replied to this message on 6/29/2021 10:53. This message was sent with High importance.

All,

If you are able, please post the following narrative on your respective social media page. This is for the mitigation meeting tonight at 6 p.m.

Thank you!

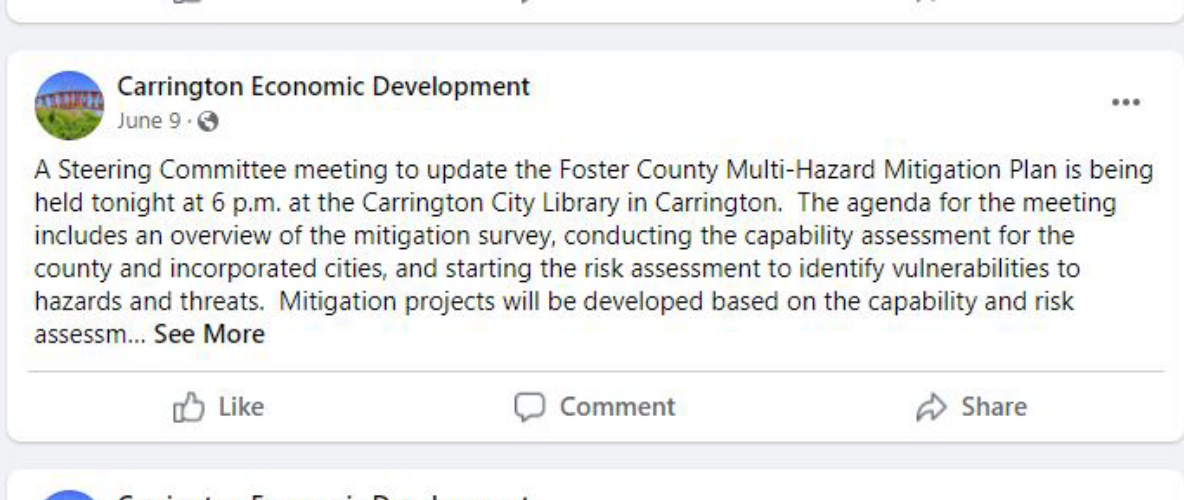
A Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan is being held tonight at 6 p.m. at the Carrington City Library in Carrington. The agenda for the meeting includes an overview of the mitigation survey, conducting the capability assessment for the county and incorporated cities, and starting the risk assessment to identify vulnerabilities to hazards and threats. Mitigation projects will be developed based on the capability and risk assessments.

The meeting is open to the public.

J. Daniel Schwartz, MS
President/CEO

NEXUS PLANNING & CONSULTING LLC

dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
522 W Thayer Ave | Bismarck, ND 58501



A screenshot of a Facebook post from Carrington Economic Development. The post is dated June 9 and is public. The text of the post describes a Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan, held at the Carrington City Library. The agenda includes an overview of the mitigation survey, a capability assessment, and a risk assessment. The post ends with "See More". Below the text are three interaction buttons: "Like", "Comment", and "Share".

Carrington Economic Development
June 9 · 🌐

A Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan is being held tonight at 6 p.m. at the Carrington City Library in Carrington. The agenda for the meeting includes an overview of the mitigation survey, conducting the capability assessment for the county and incorporated cities, and starting the risk assessment to identify vulnerabilities to hazards and threats. Mitigation projects will be developed based on the capability and risk assessm... **See More**

👍 Like 💬 Comment ➦ Share

1 Share

Like Comment Share

Write a comment...

Foster County Emergency Management
June 9 · 🌐


A Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan is being held tonight at 6 p.m. at the Carrington City Library in Carrington. The agenda for the meeting includes an overview of the mitigation survey, conducting the capability assessment for the county and incorporated cities, and starting the risk assessment to identify vulnerabilities to hazards and threats. Mitigation projects will be developed based on the capability and risk assessm... [See More](#)

1

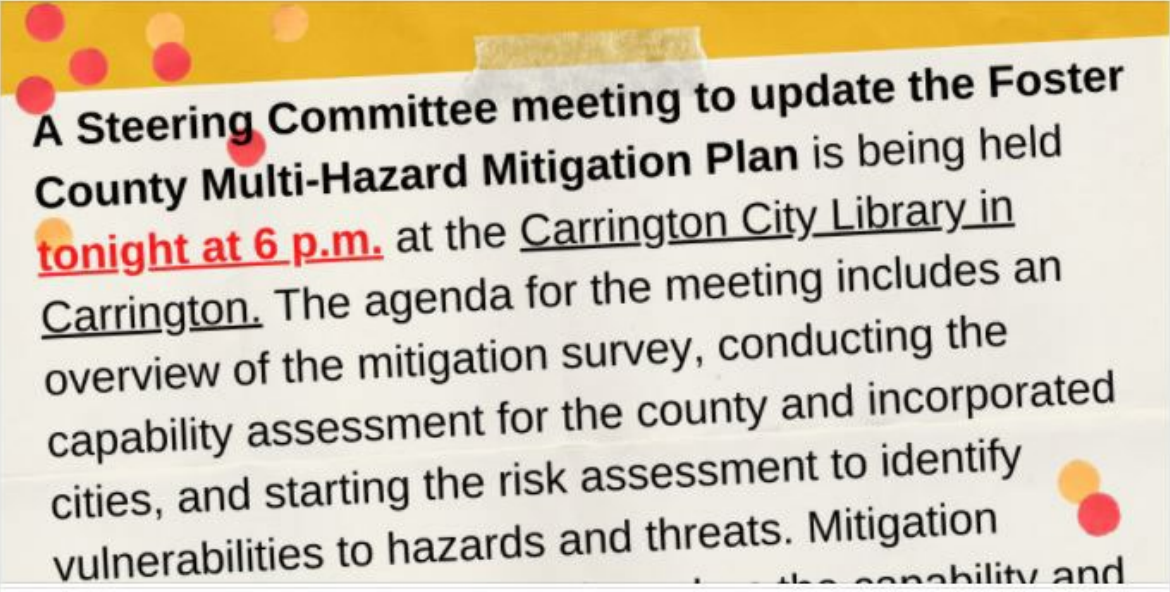
Like Comment Share

Write a comment...

Foster County Emergency Management

 Foster County Public Health
June 9 · 🌐

Important meeting tonight!

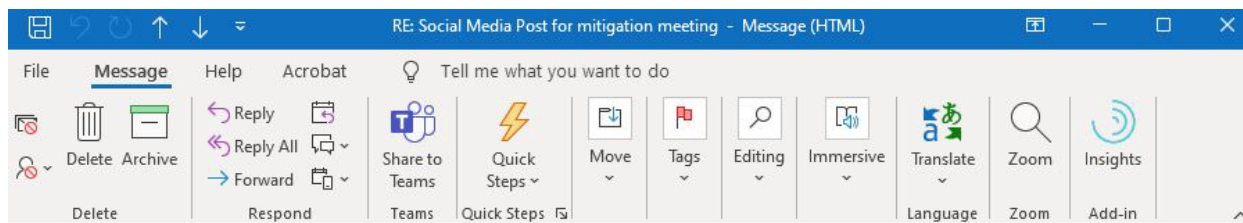


A Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan is being held **tonight at 6 p.m.** at the Carrington City Library in Carrington. The agenda for the meeting includes an overview of the mitigation survey, conducting the capability assessment for the county and incorporated cities, and starting the risk assessment to identify vulnerabilities to hazards and threats. Mitigation

Steering Committee Meeting
Foster County, ND Multi-Hazard Mitigation Plan Update
Carrington City Library, Carrington, ND
6 to 9 p.m., Wednesday, June 9, 2021

Sign-In	Please note all you represent See Database sheet – alphabetical by last name
Welcome & Introductions	Name and Agency
Mitigation Survey	16 responses as of April 8, 2021 https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan
Capability Assessment	Group Discussion See Handout & Projector

👍 Like 💬 Comment ➦ Share



RE: Social Media Post for mitigation meeting



J. Daniel Schwartz

↩ Reply
↩ Reply All
➔ Forward
⋮

To [adevereaux@nd.gov](#); [jcjohn@nd.gov](#); [akruse@nd.gov](#); [lhillbert@nd.gov](#); [jwhitman@nd.gov](#); [Jodi.hovdenes@commonspirit.org](#); [carfire@daktel.com](#); [cedd@daktel.com](#); [iris.brandt@k12.nd.us](#); **+5 others**

Tue 6/29/2021 10:54

i Follow up. Start by Monday, October 11, 2021. Due by Monday, October 11, 2021.
 You forwarded this message on 6/29/2021 10:55.

All,

If you are able, please post the following narrative on your respective social media page. This is for the mitigation tomorrow night.

Please let me know if you post this so I can go to your respective page and document the post.

Thank you!

A Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan is being held at 6 p.m. on Wednesday, June 30, 2021, at the Carrington City Library in Carrington. The agenda for the meeting includes an overview of the in-kind/local cost share, an update on the mitigation survey, a risk assessment workshop to identify vulnerabilities to hazards and threats, and review of the mitigation strategy.

The meeting is open to the public.

J. Daniel Schwartz, MS

President/CEO



dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
 522 W Thayer Ave | Bismarck, ND 58501





SAI, SEP 11

JunkFest 2021

Foster County Fair Grounds
Shopping · 2,184 people

☆ Interested

👍 1

👍 Like

💬 Comment

➦ Share



Write a comment...



Carrington Area Chamber of Commerce

June 29 · 🌐



A Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan is being held at 6 p.m. on Wednesday, June 30, 2021, at the Carrington City Library in Carrington. The agenda for the meeting includes an overview of the in-kind/local cost share, an update on the mitigation survey, a risk assessment workshop to identify vulnerabilities to hazards and threats, and review of the mitigation strategy.

The meeting is open to the public.

👍 1

1 Share

👍 Like

💬 Comment

➦ Share



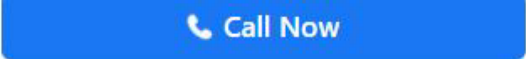
Write a comment...




Carrington Area Chamber of Commerce




June 28 · 🌐





 Call Now

 Liked  Message  







 Photo/Video  Check in  Tag Friends

 **Foster County Emergency Management** June 30 ·  ...

A Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan is being held at 6 p.m. on Wednesday, June 30, 2021, at the Carrington City Library in Carrington. The agenda for the meeting includes an overview of the in-kind/local cost share, an update on the mitigation survey, a risk assessment workshop to identify vulnerabilities to hazards and threats, and review of the mitigation strategy.

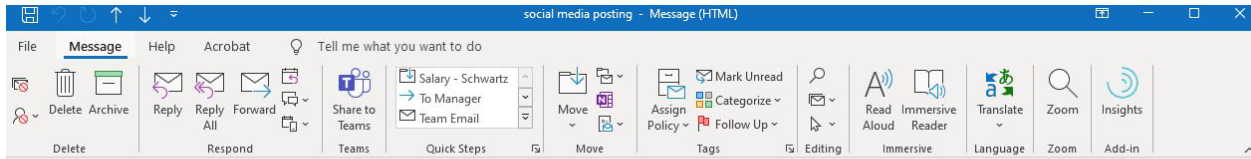
The meeting is open to the public.

 Like  Comment  Share

 **Foster County Emergency Management** June 10 ·  ...


Damaging high winds expected tonight. Make sure and prepare now.





social media posting

 **J. Daniel Schwartz** Reply Reply All Forward
 To: adevereaux@nd.gov; jjohn@nd.gov; akruse@nd.gov; lhilbert@nd.gov; jwhitman@nd.gov; Jodi.hovdenes@commonspirit.org; carfire@daktel.com; cedd@daktel.com; iris.brandt@k12.nd.us; Facebook and Twitter-; Robyn.sorum1@gmail.com; cityauditor@daktel.com; chambergal@daktel.com; cgtnpd@daktel.com
 Mon 10/11/2021 14:33

 You forwarded this message on 10/11/2021 14:33.
 This message was sent with High importance.

All,

If you are able, please post the following narrative on your respective social media page. This is for the mitigation tomorrow night.

Please let me know if you post this so I can go to your respective page and document the post. Or, please send me a screen shot.

Thank you!

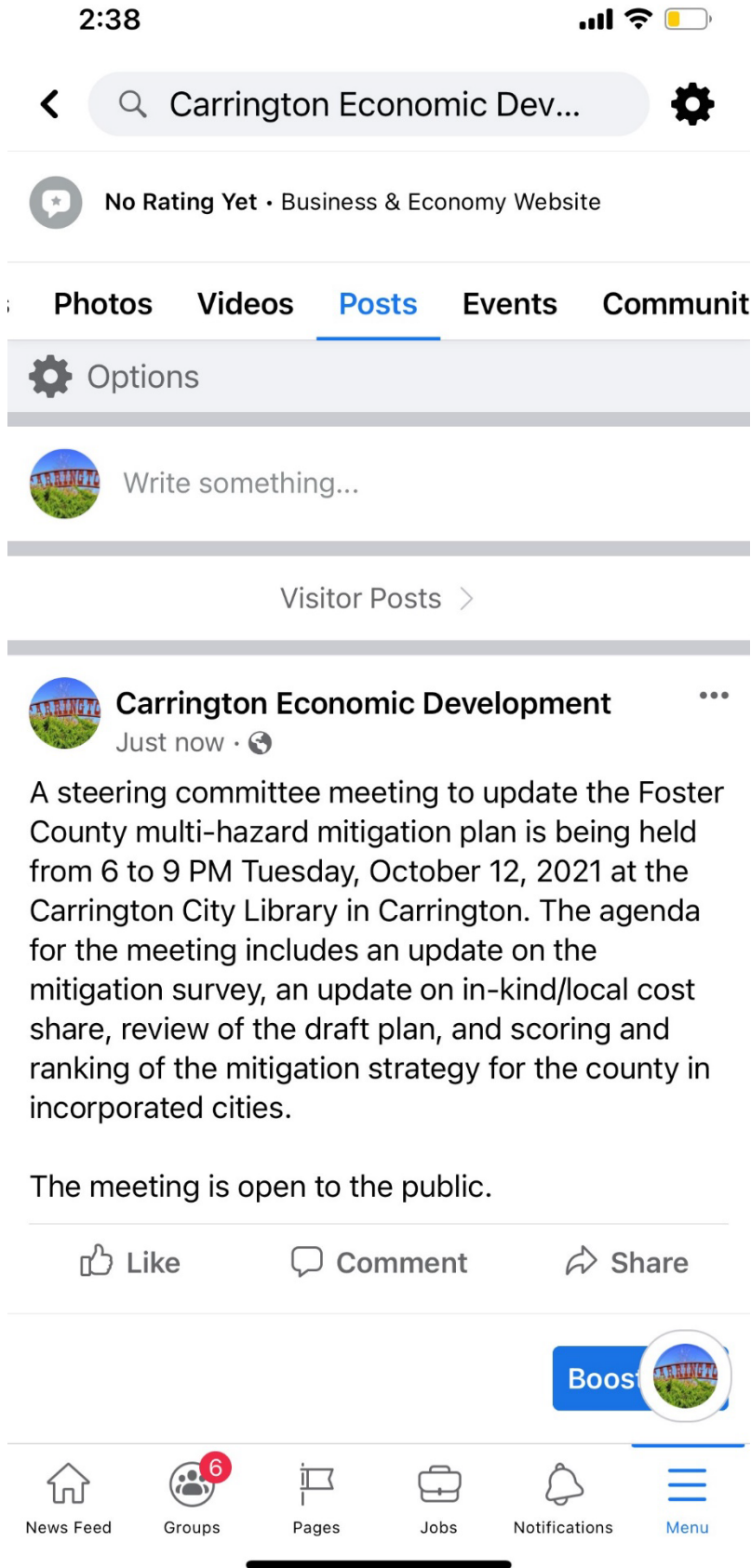
A Steering Committee meeting to update the Foster County Multi-Hazard Mitigation Plan is being held from 6 to 9 p.m. Tuesday, October 12, 2021, at the Carrington City Library in Carrington. The agenda for the meeting includes an update on the mitigation survey, an update on in-kind/local cost share, review of the draft plan, and scoring and ranking of the mitigation strategy for the county and incorporated cities.

The meeting is open to the public.

J. Daniel Schwartz, MS
 President/CEO



dschwartz@nexusplanco.com | D 701.989.7970 | C 612.750.5731
 522 W Thayer Ave | Bismarck, ND 58501



Mitigation Plan for website - Message (HTML)
Search

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Reply Reply All Forward


Share to Teams

Salary - Schwartz

Move Tags Editing Immersive

Translate Zoom Insights

Mitigation Plan for website



J. Daniel Schwartz
To: Jennifer Gast; bradsolberg@nd.gov

Reply Reply All Forward

Fri 10/22/2021 14:59

This message was sent with High importance.

00 2021 Foster County, ND MHMP-DRAFT.pdf 13 MB

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J. Daniel Schwartz, MS
President/CEO

Mitigation Plan Draft Press Release - Message (HTML)

File Message Help Acrobat

Delete Archive Reply Reply All Forward Share to Teams Salary - Schwartz To Manager Team Email Move Assign Policy Categorize Follow Up Immersive Translate Zoom Insights

Mitigation Plan Draft Press Release

J. Daniel Schwartz
 To: adevereaux@nd.gov; jjohn@nd.gov; Kruse, Amber; Hilbert, Lisa D.; jwhitman@nd.gov; Jodi.hovdenes@commonspirit.org; carfire@daktel.com; cedd@daktel.com; iris.brandt@k12.nd.us; wayne.shipman@k12.nd.us; robyn.sorum1@gmail.com; +3 others
 Fri 10/22/2021 14:56

This message was sent with High importance.

All,

Will you post the following narrative on your social media, please? Let me know once you do so I can document it for the plan.

Thank you!

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J. Daniel Schwartz, MS
 President/CEO



Carrington's Official Website

- [Quality of Life](#)
- [2021 City Fee & Rate Schedule](#)
- [Draft 2021 Foster County Multi-Hazard Mitigation Plan](#)

Announcements

-The last pickup for Brown Totes will be October 25th. They will resume in the spring of 2022. Thank you.

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Community Calendar

October 2021						
S	M	T	W	Th	F	S
26	27	28	29	30	1	2



FOSTER COUNTY

Departments Useful Links County Fair News

HOME / NEWS & UPDATES / MITIGATION PLAN

Mitigation Plan

To view the draft plan click [HERE](#).

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FOSTER COUNTY MITIGATION PLAN DRAFT AVAILABLE FOR REVIEW

Posted By: Warren Abrahamson October 22, 2021 @ 5:09 pm News







CARRINGTON, N.D. (NewsDakota.com) – The draft of the 2021 Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan is now available for review on the Foster County and City of Carrington websites.

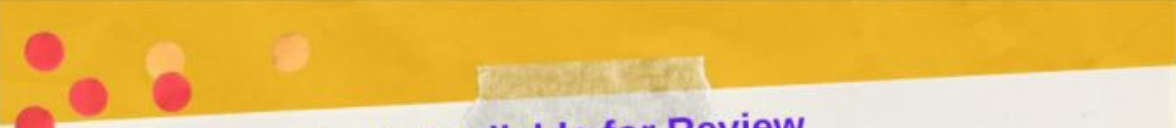
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The Steering Committee will review public comments received and participation by local

 Like
  Comment
  Share


Foster County Public Health
 October 25 at 4:51 PM · 🌐



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To submit feedback or a comment on the plan, **please contact Daniel Schwartz at Nexus Planning & Consulting, LLC at 701-989-7970; dschwartz@nexusplanco.com.**



 Like
  Comment
  Share

**Carrington Economic Development**

October 26 at 9:12 AM · 🌐

**Mitigation Plan Draft Available for Review**

The draft of the 2021 Foster County Multi-Jurisdictional Multi-Hazard Mitigation Plan is now available for review on the Foster County and City of Carrington websites. A printed copy is also available at the Foster County Courthouse in the emergency manager's office.


A public hearing to accept comments on the draft plan will be held from 7:00 to 7:30 p.m. on Thursday, November 4, 2021, at the Carrington City Library Meeting Room in Carrington. The public hearing will review the draft plan, results from the mitigation survey, and public comments received. The public hearing will officially close at 7:30 p.m. and will be followed by a Steering Committee meeting immediately thereafter.

The Steering Committee will review public comments received and participation by local jurisdictions and approve the draft plan to be submitted to the N.D. Dept. of Emergency Services (NDDes) and the Federal Emergency Management Agency (FEMA) for approval. Once the plan receives approval pending-adoption, each incorporated jurisdiction included in the plan must pass an adoption resolution before an official approval letter from FEMA is issued.

To submit feedback or a comment on the plan, please contact Daniel Schwartz at Nexus Planning & Consulting, LLC at 701-989-7970; dschwartz@nexusplanco.com.



WRITE A COMMENT




 **Carrington Area Chamber of Commerce**
October 26 at 8:54 AM · 🌐


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 Carrington Area Chamber of Commerce

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Foster County Emergency Management

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Appendix 5 - Meeting Summaries

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Emergency Management

Foster County

Aaron Devereaux – Emergency Manager/911 Coordinator

1000 5th St N, Carrington, ND 58421
Cell: 701.650.2085

adevereaux@nd.gov
Office: 701.652.2252

Agenda

Foster County Courthouse

Thursday, February 11, 2021 at 1630

- Call to order
- Review and approve minutes of last LEPC meeting
- Financial report: \$5,425.51

Old Business:

- Off-site meeting

New Business

- New members
- New Tier II Reporting site. northdakota.hazconnect.com
- New haz-Chem spill website. spill.nd.gov
- Daniel with NEXUS with MHMP

- Other Business
- Announcements
- Next meeting – May 13th, 2021
- Adjourn

agenda

Kickoff/Steering Committee Meeting

Foster County, ND Multi-Hazard Mitigation Plan Update

Microsoft Teams/Virtual

6:30 p.m., Wednesday, April 21, 2021

Sign-In	Please note all you represent See Database sheet – alphabetical by last name
Welcome & Introductions	Name and Agency
What is Mitigation?	See Presentation
Planning Process	Involvement and Participation Consultant Expectations Team Member Responsibility In-Kind/Local Cost Share Organization of Planning Process Steering Committee Review
Hazards/Threats	See Handout/Projector Overview and Rank
Mitigation Survey	See Projector
Adjourn	

agenda

Steering Committee Meeting

Foster County, ND Multi-Hazard Mitigation Plan Update

Carrington City Library, Carrington, ND

6 to 9 p.m., Wednesday, May 26, 2021

Sign-In	Please note all you represent See Database sheet – alphabetical by last name
Welcome & Introductions	Name and Agency
What is Mitigation?	See projector
Hazards/Threats	See Handout/Projector
Mitigation Survey	https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan
Mitigation Strategy	See Projector Update 2015 projects Open Forum – project identification
Planning Process Overview	Vulnerable Populations Outreach Strategy Hazard/Threat Profile Meetings Hazard History
Adjourn	

agenda

Hazard/Threat Profile Meeting: Adversarial Threats

Foster County, ND Multi-Hazard Mitigation Plan Update

Foster County Sheriff's Office

1 to 3 p.m., Wednesday, June 9, 2021

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Review of Threats	Civil Disturbance Criminal, Terrorist or Nation/State Attack Cyberattack
Hazard/Threat Overview	Civil Disturbance Criminal, Terrorist or Nation/State Attack Cyberattack History, Probability, Extent/Magnitude
Risk Assessment	See Handout
Vulnerabilities	Publicly-Owned Buildings Critical Facilities and Infrastructure New Development
Mitigation Projects	Develop New – Green Sheet Rank and Score with STAPLE – Yellow Sheet

agenda

Hazard/Threat Profile Meeting: Space Weather & Transportation Incident
Foster County, ND Multi-Hazard Mitigation Plan Update
Foster County Sheriff's Office
1 to 3 p.m., Wednesday, June 9, 2021

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Review of Threats	Civil Disturbance Criminal, Terrorist or Nation/State Attack Cyberattack
Hazard/Threat Overview	Space Weather Transportation Incident History, Probability, Extent/Magnitude
Risk Assessment	See Handout
Vulnerabilities	Publicly-Owned Buildings Critical Facilities and Infrastructure New Development
Mitigation Projects	Develop New – Green Sheet Rank and Score with STAPLE – Yellow Sheet

agenda

Steering Committee Meeting

Foster County, ND Multi-Hazard Mitigation Plan Update

Carrington City Library, Carrington, ND

6 to 9 p.m., Wednesday, June 9, 2021

Sign-In	Please note all you represent See Database sheet – alphabetical by last name
Welcome & Introductions	Name and Agency
Mitigation Survey	19 responses as of April 8, 2021 https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan
Capability Assessment	Group Discussion See Handout & Projector
Risk Assessment Workshop	DOT Exercise w/ Aerial Maps Risk Assessment Scoring Table and Worksheet Hazard/Threat Documentation
Mitigation Projects	Create, Review, Score, Rank and/or Revise Mitigation Project Template
Adjourn	

agenda

Steering Committee Meeting

Foster County, ND Multi-Hazard Mitigation Plan Update

Carrington City Library, Carrington, ND

6 to 9 p.m., Wednesday, June 30, 2021

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
In-Kind/Local Cost Share	See projector
Mitigation Survey	48 responses as of June 30, 2021 https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan
Risk Assessment Workshop	DOT Exercise w/ Aerial Maps Impacts list Impacts and Hazards Table – See Projector Risk Assessment Scoring Sheet and Packet
Mitigation Projects	Review, Score, Rank and/or Revise Mitigation Strategy Mitigation Project Template STAPLEE Scoring Sheet
Adjourn	

agenda

Steering Committee Meeting

Foster County, ND Multi-Hazard Mitigation Plan Update

Carrington City Library, Carrington, ND

6 to 9 p.m., Tuesday, October 12, 2021

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
In-Kind/Local Cost Share	<u>Have:</u> \$5,347.75 as of October 12, 2021 <u>Need:</u> \$8,566.67
Mitigation Survey	50 responses as of October 12, 2021 https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan
Draft Plan Review	See print outs
Risk Assessment Workshop	DOT Exercise w/ Aerial Maps Impacts list Impacts and Hazards Table – See Projector Risk Assessment Scoring Sheet and Packet
Mitigation Projects	Review, Score, Rank and/or Revise Mitigation Strategy Mitigation Project Template STAPLEE Scoring Sheet
Adjourn	

agenda

Hazard/Threat Profile Meeting: Flood

Foster County, ND Multi-Hazard Mitigation Plan Update

Foster County Courthouse, Carrington, ND

10 a.m. to 12 p.m., Wednesday, October 20, 2021

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Hazard/Threat Overview	See Projector History, Probability, Extent/Magnitude
Risk Assessment	See Handout
Vulnerabilities	Publicly-Owned Buildings Critical Facilities and Infrastructure Climate Change? New Development
Mitigation Projects	Review existing Develop New – Green Sheet Rank and Score with STAPLE – Yellow Sheet
Mitigation Survey	https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan

agenda

Hazard/Threat Profile Meeting: Severe Summer & Severe Winter Weather
Foster County, ND Multi-Hazard Mitigation Plan Update
Foster County Shop, Carrington, ND
3 to 5 p.m., Wednesday, October 20, 2021

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Hazard/Threat Overview	See Projector History, Probability, Extent/Magnitude
Risk Assessment	See Handout
Vulnerabilities	Publicly-Owned Buildings Critical Facilities and Infrastructure Climate Change? New Development
Mitigation Projects	Review existing Develop New – Green Sheet Rank and Score with STAPLE – Yellow Sheet
Mitigation Survey	https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan

agenda

Joint Jurisdictional Workshop

Foster County, ND Multi-Hazard Mitigation Plan Update
Glenfield Community Center, Glenfield, ND
6 to 9 p.m., Wednesday, October 20, 2021

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Mitigation Survey	https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan
Jurisdiction Profile	Profile and Inventory New and Future Development
Risk Assessment Workshop	DOT Exercise w/ Aerial Maps Risk Assessment Scoring Table and Worksheet Problem Statement Hazard/Threat Documentation
Mitigation Projects	Review existing Develop New – Green Sheet Rank and Score with STAPLE – Yellow Sheet
Adjourn	

agenda

Hazard/Threat Profile Meeting: Infectious Disease

Foster County, ND Multi-Hazard Mitigation Plan Update

Foster County Ambulance Bay, Carrington, ND

10 a.m. to 12 p.m., Thursday, October 21, 2021

Sign-In	Please note all you represent
Welcome & Introductions	Name and Agency
Hazard/Threat Overview	See Projector History, Probability, Extent/Magnitude
Risk Assessment	See Handout
Vulnerabilities	Publicly-Owned Buildings Critical Facilities and Infrastructure Climate Change? New Development
Mitigation Projects	Review existing Develop New – Green Sheet Rank and Score with STAPLE – Yellow Sheet
Mitigation Survey	https://www.surveymonkey.com/r/Foster-County-Mitigation-Plan

agenda

Public Hearing and Steering Committee Meeting

Foster County, ND Multi-Hazard Mitigation Plan

Carrington City Library, Carrington, ND

7 p.m. to 8 p.m., Thursday, November 4, 2021

Public Hearing

1. Welcome and Introductions
2. Public Comments
 - a. Review public and all comments
3. Mitigation Survey
4. Close Public Hearing

Steering Committee Meeting

1. Open Steering Committee Meeting
2. Motion to Approve Incorporation of Comments Received
3. Decision on Participation – Motion to approve all jurisdictions have met the requirement for participation in the planning process
4. Motion to submit plan to NDDDES to begin review process
5. Next Steps:
 - a. Submit plan to NDDDES
 - b. Respond to NDDDES (or FEMA) required changes/revisions
 - c. Obtain approval pending-adoption status
 - d. County and incorporated cities sign adoption resolutions
 - e. Resolutions sent to NDDDES/FEMA
 - f. Letter of approved plan received NDDDES and FEMA
 - g. Final copies of plan (hard copy and digital) and distribute

Appendix 6 - Definitions

1% flood (100-year flood) – A flood that has a 1-percent chance of being equaled or exceeded in any given year. This flood event is also referred to as the base flood. The term "100-year flood" can be misleading; it is not the flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1- percent chance of being equaled or exceeded each year. Therefore, the 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most federal and state agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management to determine the need for flood insurance.

0.2 % flood is a flood that has a 0.2-percent chance of being equaled or exceeded in any one year.

Adversarial Threat is an intentional action of an adversary, such as a threatened or actual chemical or biological attack or cyber event.

American Red Cross is a humanitarian organization that provides emergency assistance, disaster relief and education inside the United States. It is the designated U.S. affiliate of the International Federation of Red Cross and Red Crescent Societies.

Annualized Loss is the estimated long-term value of losses from potential future hazard occurrences of a specific type in any given single year in a specified geographic area. In other words, the average annual loss that is likely to be incurred each year based on frequency of occurrence and loss estimates. Note that the loss in any given year can be substantially higher or lower than the estimated annualized loss.

Asset – Any man-made or natural feature that has value, including but not limited to people, buildings, infrastructure (such as bridges, roads, and sewer and water systems), and lifelines (such as electricity and communication resources or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks).

Association of State Dam Safety Officials (ASDSO) is a national non-profit organization serving state dam safety programs and the broad dam safety community, which includes federal dam safety professionals, dam owners and operators, engineering consultants, emergency managers, manufacturers, suppliers, academia, contractors, and others interested in improving dam safety.

At-Risk is exposure values that include the entire building inventory value in census blocks that lie within or border the inundation areas or any area potentially exposed to a hazard based on location.

Base Flood is a flood that has a 1-percent probability of being equaled or exceeded in any given year. It is also known as the 100-year flood.

Base Flood Elevation (BFE) is the elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The BFE is used as the standard for the National Flood Insurance Program.

Blizzard is characterized by low temperatures, wind gusts of 35 mph or more and falling and/or blowing snow that reduces visibility to 0.25 miles or less for an extended period (three or more hours).

Building is defined as a structure that is walled and roofed, principally aboveground and permanently fixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.

Building Codes are regulations that set forth standards and requirements for construction, maintenance, operation, occupancy, use, or appearance of buildings, premises, and dwelling units. Building codes can include standards for structures to withstand natural disasters.

Capabilities (mitigation) are existing authorities, policies, programs, and resources available to accomplish hazard mitigation. Capabilities for mitigation are divided into four categories: administrative and technical, education and outreach, financial, and planning and regulatory.

- Administrative and Technical capabilities refer to the staff, their skill, and told the community has for mitigation planning and implementing specific mitigation actions.
- Education and Outreach capabilities refer to programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.
- Financial capabilities are the resources that a jurisdiction has access to or is eligible to use to fund mitigation actions.
- Planning and Regulatory capabilities are plans, policies and ordinances such as comprehensive plans, capital improvement programs, zoning ordinances, or building codes that assist in mitigating the impacts of hazards or threats.

Catastrophic Emergency or Disaster: A National Security emergency caused by any occurrence—natural disaster, attack by foreign powers, act of domestic or international terrorism, technological emergency, or other emergency—that seriously degrades or threatens the national security of the United States.

A mass casualty incident, dam failure, or other natural or technological emergency that causes an immediate and devastating disruption to life, property, and the environment; and immediately surpasses the ability of local and State capabilities to respond effectively to the disaster/emergency.

A combination of several related or unrelated emergencies/hazards, which when occurring individually, can be responded to effectively by local and State agencies, but when occurring simultaneously, surpass the response capabilities of local and State agencies.

Civil Disturbance are events arising due to political grievances, economic disputes or social discord, terrorism or foreign agitators.

Climate Change is a long-term shift in the statistics of the weather (including its averages). For example, it could show up as a change in climate normals (expected average values for temperature and precipitation) for a given place and time of year, from one decade to the next.

Community Assets are the people, structures, facilities, and systems that have value to the community.

Conservation Reserve Program (CRP) is a cost-share and rental payment program operating under the United States Department of Agriculture (USDA), administered by the USDA Farm Service Agency (FSA). The purpose of the CRP is to encourage farmers to convert highly erodible cropland and other environmentally sensitive areas to nature vegetative cover.

Criminal, Terrorist or Nation/State Attack is an armed assault, biological, chemical, explosive, food/food production, nuclear, radiological and/or vehicular attack.

Cyberattack is an attack or hijack of information technology infrastructure critical to the functions controlled by computer networks such as: operating, financial, communications, and trade systems.

Dam Failure is a sudden, rapid, and uncontrolled release of impounded water that will create a potential significant downstream hazard.

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people.

Emergency Services are rescue and protection organizations consisting of ambulance, fire and law enforcement services, which ensure public health and safety.

Exposure Analysis identifies the existing and future community assets located in identified hazard areas.

Farm Service Agency (FSA) is part of the USDA and handles implementation of farm conservation and regulation laws in the United States. The FSA was the agency formed after the Agricultural Stabilization and Conservation Service (ASCS) and other federal agencies merged.

Federal Emergency Management Agency (FEMA) is a federal agency responsible for coordination of government relief efforts for natural disaster assistance for state and local governments and provides aid to citizens of the United States.

Federal Hazard Mitigation Assistance Grants are grants to State and local governments to support mitigation projects. Specific funding availability varies from year to year, and some program verification may be required. The types of mitigation assistance grants are Flood Mitigation Assistance, Hazard Mitigation Grant Program, and Pre-Disaster Mitigation.

- Flood Mitigation Assistance (FMA) provides funds to mitigate the effects of flooding. FMA is available annually depending on appropriations. FMA can be used to fund mitigation projects, but not plans. The non-Federal share ranges from 10 percent to 25 percent. Applications for FMA grants are generally due to the State in August or September.
- Hazard Mitigation Grant Program (HMGP) is a post-disaster source of funding which can be used to mitigate any natural hazard and can be used for planning as well as for a project. The non-Federal share is 25 percent. Local jurisdictions must generally apply to the State for HMGP funds within a year of a disaster declaration.
- Pre-Disaster Mitigation (PDM) provides mitigation funding and can be used to mitigate any natural hazard and can be used for planning as well as for a project. The non-Federal share ranges from 10 percent to 25 percent. Applications for PDM funds are generally due to the State in August or September.

Federal Hazard Mitigation Officer (FHMO) is the FEMA employee responsible for representing the agency for each declaration in carrying out the overall responsibilities for hazard mitigation, including coordinating post-disaster hazard mitigation actions with other agencies of government at all levels.

Fire can be an urban fire (structure) and/or wildland fire (an unplanned or planned fire that gets out of control outside an urban setting).

Flash Flood – A flood occurring with little or no warning where water levels rise at an extremely fast rate.

Flood is an overflowing of a large amount of water beyond its normal confines, especially over what is normally dry land.

Flood Depth – Height of the flood water surface above the ground surface.

Flood Elevation – Height of the water surface above an established datum (for example, the National Geodetic Vertical Datum of 1929, North American Vertical Datum of 1988, or mean sea level).

Flood Hazard Area – Area shown to be inundated by a flood of a given magnitude on a map.

Flood Insurance Rate Map (FIRM) is a map of a community, prepared by the FEMA that shows both the special flood hazard areas and the risk premium zones applicable to the community.

Flood Insurance Study (FIS) is a study that provides an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations in a community or communities.

Flood Mitigation Assistance (FMA) Program is a program created as a part of the National Flood Insurance Report Act of 1994. FMA provides funding to assist communities and states in implementing actions that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other NFIP insurance structures, with a focus on repetitive loss properties.

Floodplain is any land area, including a watercourse, susceptible to partial or complete inundation by water from any source.

Freezing Rain is rain that falls as a liquid but freezes into glaze upon contact with the ground.

Frequency is how often a natural hazard or threat occurs measured over any given period.

Geologic Hazard is an earthquake, landslide, land subsidence, and other geologic/mining hazards.

Geology is the scientific study of the earth, including its composition, structure, physical properties, and history.

Goals are general guidelines that explain what you want to achieve. They are usually broad policy-type statements, long term in nature, and represent global visions.

Hailstorm is a storm associated with spherical balls of ice. Hail is a product of thunderstorms or intense showers. It is generally white and translucent, consisting of liquid or snow particles encased with layers of ice. Hail is formed within the higher reaches of a well-developed thunderstorm. When hailstones become too heavy to be caught in an updraft back into the clouds of the thunderstorm (hailstones can be caught in numerous updrafts adding a coating of ice to the original frozen droplet of rain each time), they fall as hail and a hailstorm ensues.

Hazard is a source of potential danger or an adverse condition that can cause harm to people or cause property damage. For this risk assessment, priority hazards were identified and selected for the pilot project effort. A natural hazard is a hazard that occurs naturally (such as flood, wind, and earthquake). A manmade hazard is one that is caused by humans (for example, a terrorist act or a hazardous material spill). Hazards are of concern if they have the potential to harm people or property.

Hazard Mitigation is defined as any cost-effective action(s) that have the effect of reducing, limiting, or preventing vulnerability of people, property, and the environment to potentially damaging, harmful, or costly hazards. Hazard mitigation measures, which can be used to eliminate or minimize the risk to life and property, fall into three categories. First, are those which keep the hazard away from life and property, e.g., dams or levees. Second, are those which keep life and property away from the hazard, e.g., land use practices. Third, are those that do not address the hazard at all, but rather reduce the impact of the hazard on victims, e.g., insurance and disaster relief.

Hazard mitigation measures must be practical, cost-effective, and environmentally and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the value of anticipated damages. If the cost of a flood control project exceeds the value of flooding damages that could be prevented, community warning, evacuation and other operational procedures may be the only available means of limiting the adverse impacts of a hazard. Such plans and procedures are not generally considered mitigation actions because they do nothing to reduce or limit the actual vulnerability of a community to a hazard. However, they may generate some savings in property losses. In addition, such actions are an important contribution to the protection of population.

Often, there are no economic means of avoiding the effects of future damages. This may occur when it is impossible to predict with any certainty the location, frequency, or severity of a hazard. This is generally the case with tornadoes.

The primary focus of hazard mitigation actions must be at the point at which capital investment decisions are made. Capital investments, whether for homes, roads, public utilities, pipelines, power plants, chemical plants/warehouses, or public works, determine to a large extent the nature and degree of hazard vulnerability of a community. Accordingly, mechanisms such as zoning ordinances, which can be used to restrict new development in other high hazard areas, or building codes, which can insure that new buildings are built to withstand the damaging forces or impacts of the hazards, are the most useful mitigation approaches.

The National Flood Insurance Program, for example, requires communities to adopt ordinances that control new development and substantial improvements in floodplains as a condition for making flood insurance available in the community.

Once capital facilities are in place, very few opportunities will occur over the useful life of those facilities to correct any errors that may have been made in terms of their location or quality of construction with respect to hazard vulnerability. One opportunity that occasionally presents itself, however, is the instant depreciation of structures and facilities that accompanies the occurrence of a disaster. To replace damaged facilities, new capital investment is required from such sources as insurance payments, governmental disaster assistance grants or loans, or other sources.

Hazardous Materials are any substance in any quantity or form that may pose an unreasonable risk to the safety, health, environment, and property of citizens.

Hazardous Material Release is the uncontrolled release of hazardous materials that pose an unreasonable risk to the safety, health, environment, and property of citizens. Hazardous material incidents can be categorized into two distinct groups – incidents of a transportation nature and those that occur at a stationary or fixed facility.

Hazard Mitigation Grant Program (HMGP) is a grant program authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.

Hazard Mitigation Assistance (HMA) is a grant program providing funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages.

Hazard Mitigation Plan means the plan resulting from a systematic evaluation of the nature and extent of vulnerability to the effects of hazards present in society and includes the actions needed to minimize future vulnerability to those hazards.

Hazard Mitigation Planning is the process to identify community policies and actions that can be implemented over the long-term to reduce risk and future losses to people and property from natural hazards.

Hazard Mitigation Survey Team (HMST) means the FEMA/State/Local survey team that is activated following disasters to identify immediate mitigation opportunities and issues to be addressed in the Section 409 Hazard Mitigation plan. The HMST may include representatives of other Federal agencies, as appropriate.

Hazard Profile is a description of the physical characteristics of a hazard, including a determination of various descriptors including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are recorded and displayed as maps.

Heavy Snow is snowfall accumulating to 4” or more in depth in 12 hours or less; or snowfall accumulating to 6” or more in depth in 24 hours or less.

High Plains Regional Climate Center is a regional center at the University of Nebraska-Lincoln working with the NCDC to provide real-time and historical climate data and products.

Historical Analysis uses information on impacts and losses from previous hazard events to predict potential impacts and losses in a similar type of future event.

Homeland Security Incident is any intentional human-caused incident, domestic or international, that causes mass casualties, large economic losses, or widespread panic in the country.

Household is a house and its occupants regarded as a unit.

Housing Unit is a residence such as a house, apartment, mobile home, or room(s) within a larger structure that provides space for occupants making up a single household to live and eat.

Ice Jam – An accumulation of ice in a river that acts as a natural dam and can flood low-lying areas upstream. They occur when warm temperatures and heavy rains cause rapid snow melt.

Ice Storm – Term used to describe occasions when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication.

Impact is the consequences or effects of a hazard on the community and its assets, or the resulting issue related to a hazard. Impacts can range from blocked roads from flooding or fallen trees to power outages.

Infectious Disease is an illness that is caused by an infectious agent, such as bacteria, virus, fungi or parasites and/or toxin microorganisms and is transmittable from an infected person, animal or plant to another person, animal or plant.

Infrastructure are the public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, transportation system (such as airports, heliports; highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways).

Interagency Hazard Mitigation Team (IHMT) means the mitigation team that is activated following flood related disasters pursuant to the July 10, 1980, Office of Management and Budget directive on Nonstructural Flood Protection Measures and Flood Disaster Recovery, and the subsequent December 15, 1980, Interagency Agreement for Nonstructural Damage Reduction.

Lightning is a visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds or between a rain cloud and the ground.

Likelihood is how probable a hazard or threat will happen.

Local Emergency Planning Committee (LEPC) is the county emergency planning committee. This group is comprised of individuals representing elected officials, public health and safety, media, community groups, and facility owners and operators.

Local Hazard Mitigation means the local government input to the planning and implementation of pre and post disaster mitigation activities. The local governmental officials, e.g., county and city commissioners, city and county planners, public works and facility directors or managers, etc., will

provide this input. Since hazard mitigation is a function of comprehensive emergency management, the overall local hazard mitigation planning effort is coordinated by the city/county emergency manager.

Magnitude is the measure of the strength of a hazard or threat occurrence. The magnitude (also referred to as severity) of a given hazard occurrence is usually determined using technical measures specific to the hazard. For example, ranges of wind speeds are used to categorize tornados.

Major Disaster Declaration is the post-disaster status requested by a state's governor when local and state resources are not sufficient to meet disaster needs. It is based on the damage assessment, and an agreement to commit state funds and resources to the long-term recovery. The event must be clearly more than the state or local government or tribal nation can handle alone.

Mass Casualty is an incident in which emergency medical services and resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties - the local emergency response/hospital capability, plus one fatality

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. Mitigation is acting *now*—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, insuring against risk).

Mitigation Actions are specific projects and activities that help achieve mitigation goals. The actions form the core of the plan and are key to the outcome of the planning process. Mitigation actions are organized into four categories: education and awareness programs, local plans and regulations, natural systems protection, and structure and infrastructure projects.

- Education and Awareness Programs are mitigation actions to inform and educate the public, elected officials, and property owners about hazards and potential ways to mitigate them.
- Local Plans and Regulations are mitigation actions that pertain to government authorities, policies, or codes that influence the way land and buildings are developed and built.
- Natural Systems Protection are mitigation actions that minimize damage and losses and preserve or restore the functions of natural systems.
- Structure and Infrastructure Projects are mitigation actions that involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area.

Mitigation Capability is a community-wide risk reduction project that includes, but are not limited to: efforts to improve the resilience of critical facilities and infrastructure, and key resource lifelines; risk reduction of specific vulnerabilities from natural hazards or acts of terrorism; and initiatives to reduce future risks after a disaster has occurred.

Mitigation Goals are general guidelines that explain what the community wants to achieve with the mitigation plan. Goals are broad, policy-type statements that are long-term, and represent visions for reducing or avoiding losses from identified hazards and threats.

Mitigation Objectives are strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific and measurable.

Mitigation Strategy is a set of actions serving as the long-term blueprint for reducing the potential losses identified in the risk assessment of a mitigation plan. The mitigation strategy describes how the community will accomplish the overall purpose, or mission, of the planning process. The mitigation strategy is comprised of three main components: mitigation goals, mitigation actions, and an action plan for implementation.

Multi-Hazard Mitigation Plan – A collaborative document in which hazards affecting the community are identified, vulnerability to hazards assessed, and consensus reached on how to minimize or eliminate the effects of these hazards. The plan that documents the process used for a systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards typically present in a state or community. The plan includes a description of actions to minimize future vulnerability to hazards. This plan should be developed with local experts and significant community involvement.

National Climatic Data Center (NCDC) maintains climate data archives and provides climatological services and data in the United States, making it available to the public, business, industry, government, and researchers.

National Inventory of Dams (NID) is a congressionally authorized database, which documents dams in the U.S. and its territories.

National Flood Insurance Program (NFIP) is a federal program to help property owners financially protect themselves from flooding since standard homeowners' insurance does not cover flooding. The program offers insurance to homeowners, renters, and business owners if their respective community participates in the program. City's participating in the NFIP must agree to adopt and enforce ordinances that meet or exceed the requirements from FEMA.

National Oceanic and Atmospheric Administration (NOAA) is a federal agency that focuses on the conditions of the oceans and the atmosphere, and provides daily weather forecasts, storm warnings and climate monitoring.

National Resources Conservation Service (NRCS) is a federal agency within the United States Department of Agriculture (USDA), formerly known as the Soil Conservation Service (SCS), and provides technical assistance to farmers, private landowners, and land managers. The NRCS aims to improve, protect, and conserve natural resources through cooperation with state and local agencies on privately owned lands.

National Weather Service (NWS) is a component of the National Oceanic and Atmospheric Administration (NOAA). NWS provides weather, water, and climate data, forecasts and warning for the protection of life and property and enhancement of the national economy.

Natural Hazard is a source of harm or difficulty created by an act of nature that is a meteorological, environmental or geological event.

Objectives define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific and measurable.

Ordinance is a law or regulation adopted by local or tribal government.

Planning is the act or process of making or carrying out plans; the establishment of goals, policies and procedures for a social or economic unit.

Plan Maintenance is a process to ensure the hazard mitigation plan remains an active and relevant document. Plan maintenance describes methods and schedules for monitoring, evaluating, and updating the plan, and identifying method for keeping the public involved.

Plan Update Committee or Planning Committee is the core group responsible for making decisions, guiding the planning process, and agreeing upon the final contents of a plan.

Population is a summation of the number of people living in a pre-defined geographical area.

Post-Disaster Mitigation – Mitigation actions taken after a disaster has occurred, usually during recovery and reconstruction.

Presidential Disaster Declaration is a post-disaster status that puts into motion long-term federal recovery programs, some of which are matched by state programs, and designed to help disaster victims, businesses, and public entities in the areas of human services, public assistance (infrastructure support), and hazard mitigation. If declared, funding comes from the President's Disaster Relief Fund and disaster aid programs of other participating federal agencies.

Preparedness are actions that strengthen the capability of government, citizens, and communities to respond to disasters.

Probability is the measure of the likelihood a natural disaster or man-made threat will occur.

Problem Statements summarize vulnerabilities or problems specific to an incorporated jurisdiction that support findings of the risk assessment.

Public Education and Outreach Programs – Any campaign to make the public more aware of hazard mitigation and mitigation programs, including hazard information centers, mailings, public meetings, etc.

Recovery are actions taken by an individual or community after a catastrophic event to restore order and lifelines in the community.

Regulation are broad regulatory powers by local jurisdictions to enable the enactment and enforcement of ordinances that deal with public health, safety, and welfare. These include building codes, building inspections, zoning, floodplain and subdivision ordinances, and growth management initiatives.

Repetitive Loss Property is an NFIP insured structure that has had at least two paid flood losses of more than \$1,000 each in any 10-year period since 1978.

Resiliency is the ability to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruptions due to natural hazards and manmade threats.

Resolutions are expressions of a governing body's opinion, will, or intention that can be executive or administrative in nature. Most planning documents must undergo a council resolution, which must be supported in an official vote by a majority of representatives to be adopted. Other methods of making a statement or announcement about an issue or topic include proclamations or declarations.

Risk is the potential for damage, loss, or other impacts created by the interaction of natural hazard with community assets. Risks can be involved in everything from economic, health, safety, environmental, security, business, human and emergency services, and financial obligations.

Risk Assessment is the product or process that collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision making.

Scenario Analysis asks “what if” an event occurred and predicts potential impacts and losses in terms of monetary costs, casualties, infrastructure down time, and other elements of risk.

Scour is the removal of streambed material caused by swift moving water from around a bridge abutment or pier.

Severe Summer Weather is extreme weather, typically between the months of May to September, is caused by atmospheric temperature imbalances and includes downbursts, strong winds, straight-line winds, extreme heat, hail, lightning, and tornados.

Severe Winter Weather is extreme weather, typically between the months of October to March, and may include blizzards, heavy snow, sleet, freezing rain, or a mix of these wintry forms of precipitation, and ice storms and extreme cold.

Shortage or Outage of Critical Materials or Infrastructure occurs when demand for a product exceeds supply. These shortages and outages may include a wide variety of resources including energy-related products, power transmission, medical products, food, and water.

Space Weather is conditions in the region of space close to the earth, especially the presence of electromagnetic radiation and charged particles emitted by the sun, that can affect human activity and technology.

Special Hazard Events and Losses Database for the United States (SHELDUS) is a county-level hazard data set for 18 different natural hazard events types in the United States Data and maps were compiled and geo-referenced by the Hazards & Vulnerability and Research Institute at the University of South Carolina. SHELDUS was affected by government sequestration and is no longer in operation.

Stakeholders are individuals or groups that affect or can be affected by a mitigation action or policy.

State Hazard Mitigation Officer (SHMO) is the representative of State Government who serves on the HMST and who is the primary point of contact with FEMA, other Federal agencies, and local units of government in the planning and implementation of post-disaster mitigation activities.

Steering Committee is the core group responsible for making decisions, guiding the planning process, and agreeing upon the final contents of a plan.

Structure is something constructed such as a single-family home, apartment building, commercial building or industrial building.

Structure Collapse occurs when the forces of gravity or other external forces overcome the structural integrity of a building.

Subject Matter Experts (SMEs) are stakeholders in the planning process that inform the planning team on specific topics and provide input from different points of view in the community. Examples of SMEs are representatives of businesses, academia, and neighboring jurisdictions.

Technological Threat is a hazard resulting from accidents or failures of systems and structures, such as hazardous materials spills or dam failures.

Threat (human-caused incident) is an intentional action of an adversary, such as a threatened or actual chemical or biological attack or cyber event.

Threat and Hazard Identification and Risk Assessment (THIRA) incorporates technological and human-caused threats in addition to natural hazards. The THIRA results in a set of capability targets for all stages of emergency management with a goal to identify, build and sustain needed capabilities to achieve security and resiliency.

Thunderstorm is a local storm produced by a cumulonimbus cloud and accompanied by lightning and thunder. It forms from a combination of moisture, rapidly rising warm air and a force capable of lifting air such as a warm and cold front, a sea breeze, or a mountain.

Topographic is a map that shows natural features and indicate the physical shape of the land using contour lines based on land elevation. These maps also can include man-made features (such as buildings and roads).

Tornado is violently rotating column of air extending from a thunderstorm to the ground.

Transportation Accident is any small or large-scale aircraft, bicycle, boat, pedestrian, railroad, or vehicular accident that involves injuries or mass casualties (*Mass casualty is your local emergency response/hospital capability, plus one fatality*)

United States Army Corps. of Engineers (USACE) is a U.S. federal agency under the Department of Defense and a major Army command made up of approximately 37,000 civilian and military personnel, making it one of the world's largest public engineering, design, and construction management agencies. Although generally associated with dams, canals and flood protection in the United States, USACE is involved in a wide range of public works throughout the world.

United States Census Bureau is the lead federal agency serving as the lead source of quality data about the people and economy of the United States.

United States Department of Agriculture (USDA) is a United States federal executive department responsible for development and executing policy on farming, agriculture, forestry and food derived by the federal government.

United States Drought Monitor is a weekly map of drought conditions that is produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln.

Urban Fire is the rapid oxidation of a material in the exothermic chemical process of combustion, releasing heat, light, and various reaction products impacting buildings and structures.

Vulnerability is the characteristics of community assets that make a community susceptible to damage from a given hazard.

Watershed is an area of land that drains down gradient (from areas of higher land to areas of lower land) to the lowest point; a common drainage basin.

Wildland Fire is an outdoor fire that is not controlled, supervised, or arranged.

Wildland Urban Interface (WUI) is the zone of transition between unoccupied land and human development. There are two types of WUI: intermix and interface. Intermix WUI refers to areas where housing and vegetation intermingle; WUI Interface refers to areas with housing in the vicinity of contiguous wildland vegetation.

Windstorm is a high-wind event occurring separately from tornadoes and severe thunderstorms.

Zoning Ordinance is the designation of allowable land uses and corresponding intensities for a local jurisdiction. Zoning ordinances consist of zoning narratives and a zoning map.

Appendix 7 - Mitigation Survey

Information from the Foster County, North Dakota Multi-Jurisdictional Multi-Hazard Mitigation Plan Survey was incorporated into the mitigation strategy for the county. It will also be used for future surveys to gather data from the public in the updating process of the county's mitigation plan. Some questions involved multiple answers from respondents. Therefore, the percent of responses for some questions may exceed 100 percent. See Appendix 3, Invitation Documentation and Appendix 4, Media Coverage for additional information. Results from the survey are found on the following pages. The follow key points highlight outreach efforts for the mitigation survey.

Development

- The draft survey was compiled between the plan contractor and the Foster County Steering Committee at the virtual kickoff meeting on April 21, 2021.

Outreach

- The survey link was included on the agenda for every Steering Committee Meeting.
- The survey link was included on the agenda for every hazard and threat profile meeting.

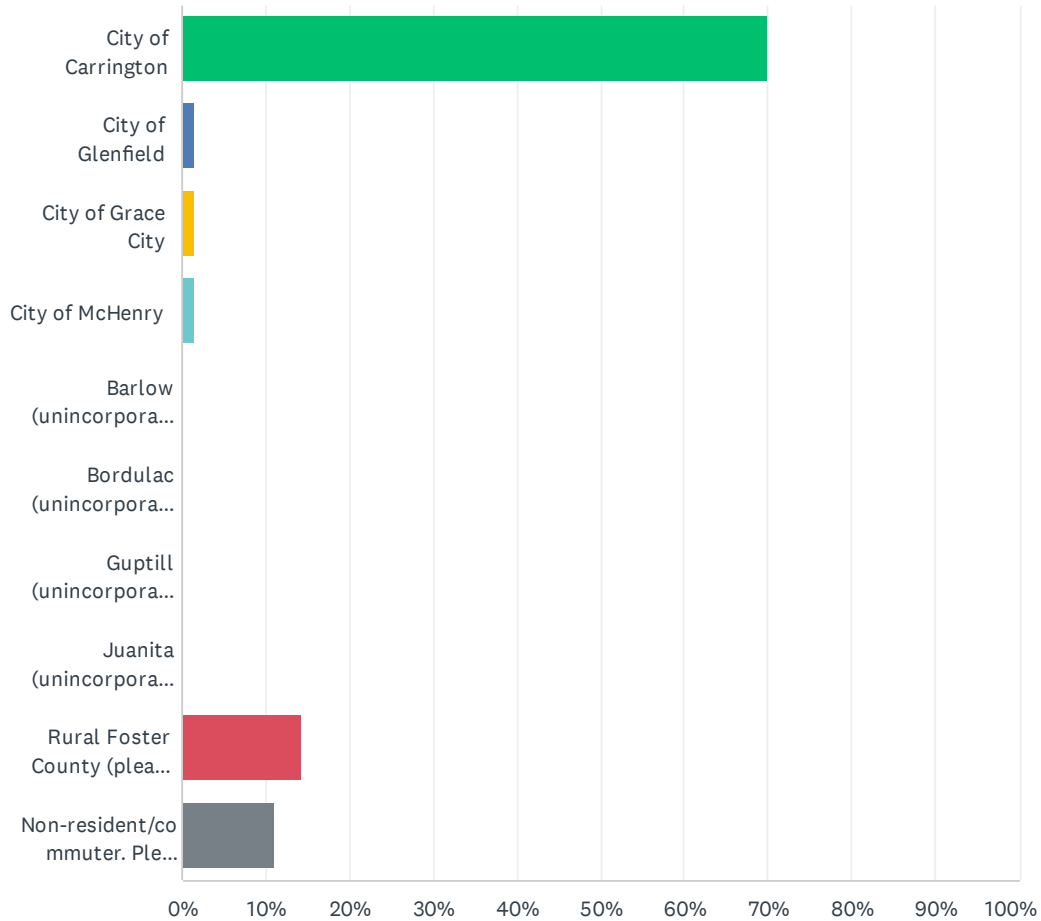
Response Timeline

- A total of 11 responses were received in May 2021.
- A total of 37 responses were received in June 2021.
- A total of two responses were received in July 2021.
- A total of 13 responses were received in October 2021.

A total of 63 completed surveys were received.

Q1 In what city/census-designated place/unincorporated community/township do you reside?

Answered: 63 Skipped: 0

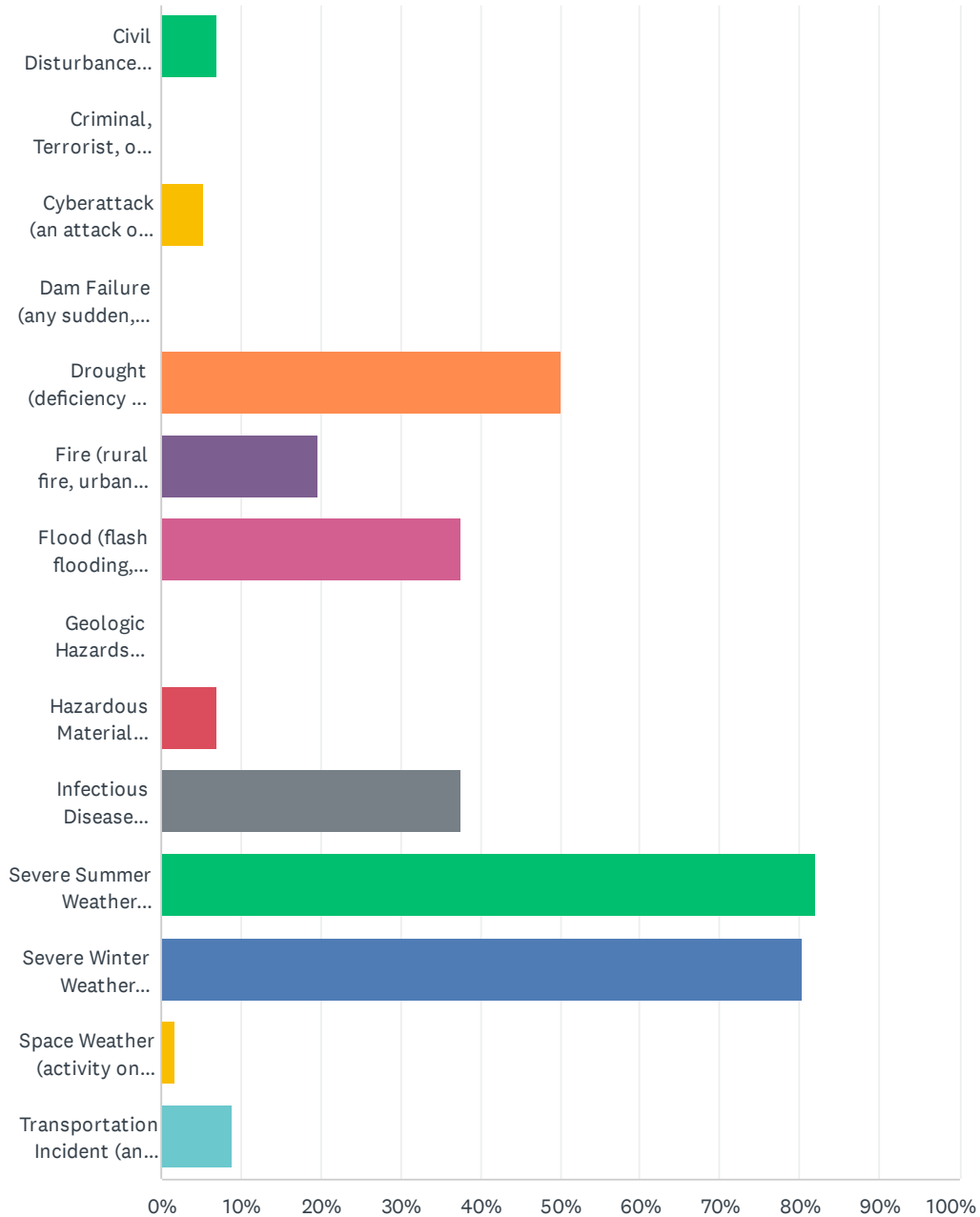


Foster County, N.D. Multi-Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
City of Carrington	69.84%	44
City of Glenfield	1.59%	1
City of Grace City	1.59%	1
City of McHenry	1.59%	1
Barlow (unincorporated)	0.00%	0
Bordulac (unincorporated)	0.00%	0
Guptill (unincorporated)	0.00%	0
Juanita (unincorporated)	0.00%	0
Rural Foster County (please list township or specific area in the comment box provided)	14.29%	9
Non-resident/commuter. Please specify below.	11.11%	7
TOTAL		63

Q2 Since living in your community, has anyone in your household been impacted by any of the follows natural hazards or man-made threats?
Select all that apply.

Answered: 56 Skipped: 7

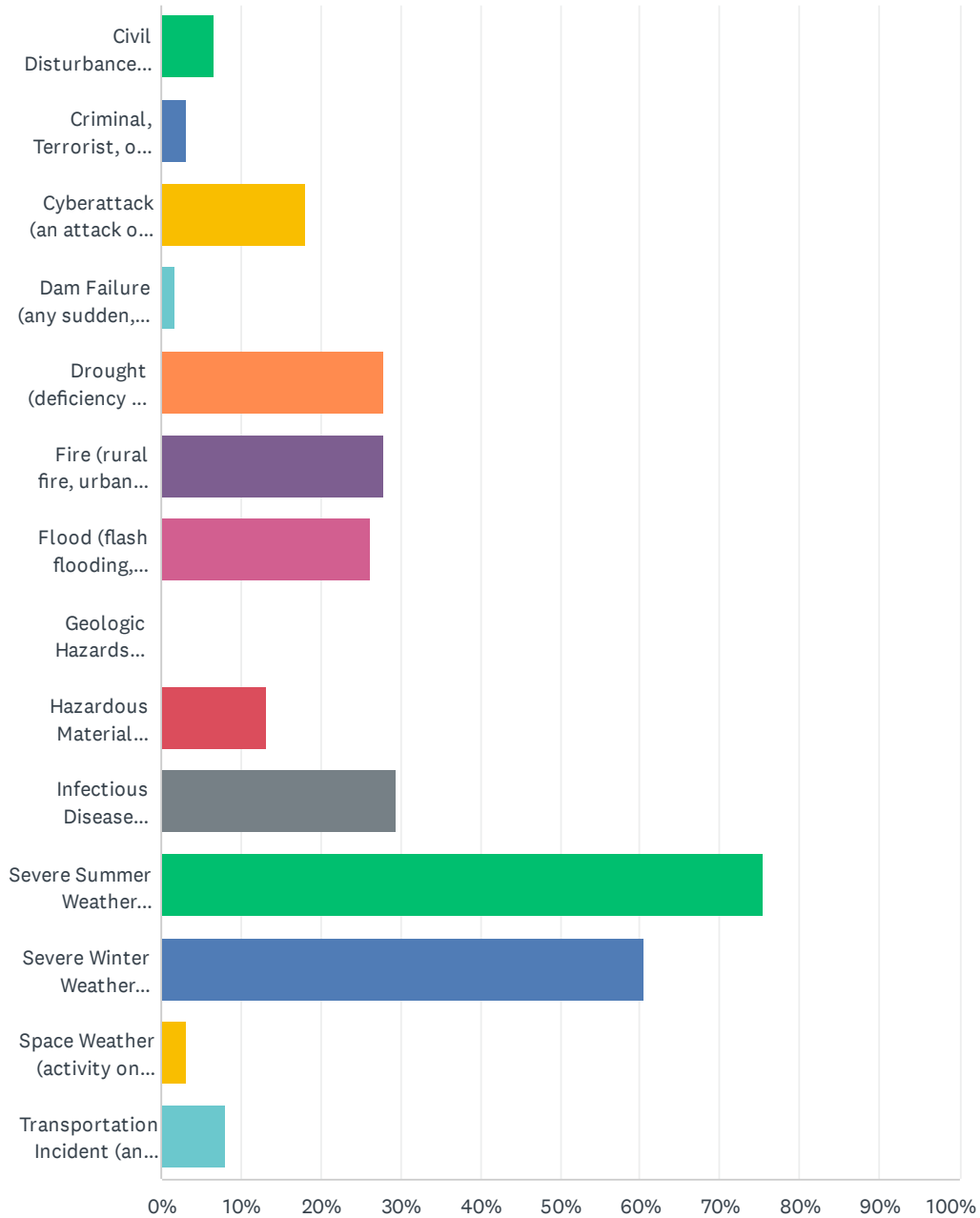


Foster County, N.D. Multi-Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
Civil Disturbance (events arising due to political grievances, economic disputes or social discord, terrorism or foreign agitators)	7.14%	4
Criminal, Terrorist, or Nation/State Attack (armed assault, biological, chemical, explosive, food/food production, nuclear, radiological and/or vehicular attacks)	0.00%	0
Cyberattack (an attack or hijack of information technology infrastructure critical to the functions controlled by computer networks such as: operating, financial, communications, and trade systems)	5.36%	3
Dam Failure (any sudden, rapid, and uncontrolled release of impounded water that threatens life and property downstream)	0.00%	0
Drought (deficiency in precipitation over an extended period of time)	50.00%	28
Fire (rural fire, urban fire, wildland fire)	19.64%	11
Flood (flash flooding, overland flooding, river flooding)	37.50%	21
Geologic Hazards (earthquake, landslide, land subsidence, and other geologic/mining hazards)	0.00%	0
Hazardous Material Release (any substance in any quantity or form that may pose an unreasonable risk to the safety, health, environment, and property of citizens)	7.14%	4
Infectious Disease (animals, people, plants)	37.50%	21
Severe Summer Weather (downbursts, strong or straight-line winds, extreme heat, hail, lightning, thunderstorms, tornadoes, etc.)	82.14%	46
Severe Winter Weather (blizzards, heavy snow, ice storms, extreme cold, etc.)	80.36%	45
Space Weather (activity on the surface of the sun, electromagnetic pulse)	1.79%	1
Transportation Incident (any small or large-scale bicycle, boat, pedestrian, vehicle, railroad, or aircraft accident that involves injuries or mass casualties)	8.93%	5
Total Respondents: 56		

Q3 Select the top 3 hazards/threats of concern to you and/or your household.

Answered: 61 Skipped: 2

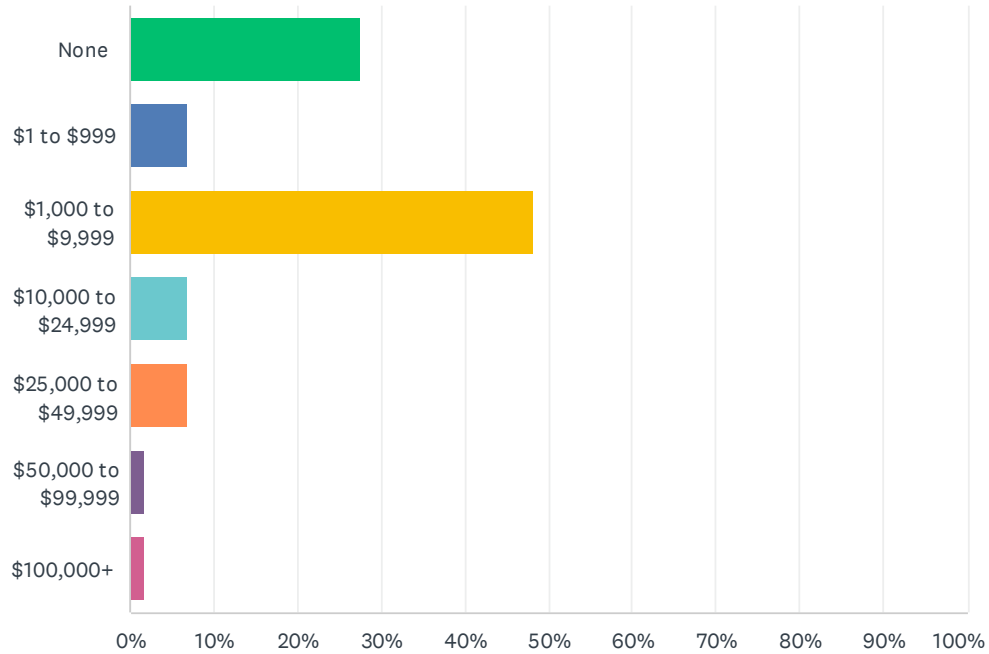


Foster County, N.D. Multi-Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
Civil Disturbance (events arising due to political grievances, economic disputes or social discord, terrorism or foreign agitators)	6.56%	4
Criminal, Terrorist, or Nation/State Attack –(armed assault, biological, chemical, explosive, food/food production, nuclear, radiological and/or vehicular attacks)	3.28%	2
Cyberattack (an attack or hijack of information technology infrastructure critical to the functions controlled by computer networks such as: operating, financial, communications, and trade systems)	18.03%	11
Dam Failure (any sudden, rapid, and uncontrolled release of impounded water that threatens life and property downstream)	1.64%	1
Drought (deficiency in precipitation over an extended period of time)	27.87%	17
Fire (rural fire, urban fire, wildland fire)	27.87%	17
Flood (flash flooding, overland flooding, river flooding)	26.23%	16
Geologic Hazards (earthquake, landslide, land subsidence, and other geologic/mining hazards)	0.00%	0
Hazardous Material Release (any substance in any quantity or form that may pose an unreasonable risk to the safety, health, environment, and property of citizens)	13.11%	8
Infectious Disease (animals, people, plants)	29.51%	18
Severe Summer Weather (downbursts, strong or straight-line winds, extreme heat, hail, lightning, thunderstorms, tornadoes, etc.)	75.41%	46
Severe Winter Weather (blizzards, heavy snow, ice storms, extreme cold, etc.)	60.66%	37
Space Weather (activity on the surface of the sun, electromagnetic pulse)	3.28%	2
Transportation Incident (any small or large-scale bicycle, boat, pedestrian, vehicle, railroad, or aircraft accident that involves injuries or mass casualties)	8.20%	5
Total Respondents: 61		

Q4 How much monetary damage has your household experienced due to the natural hazards and/or man-made threats in the last 5 years listed in questions 2 and 3?

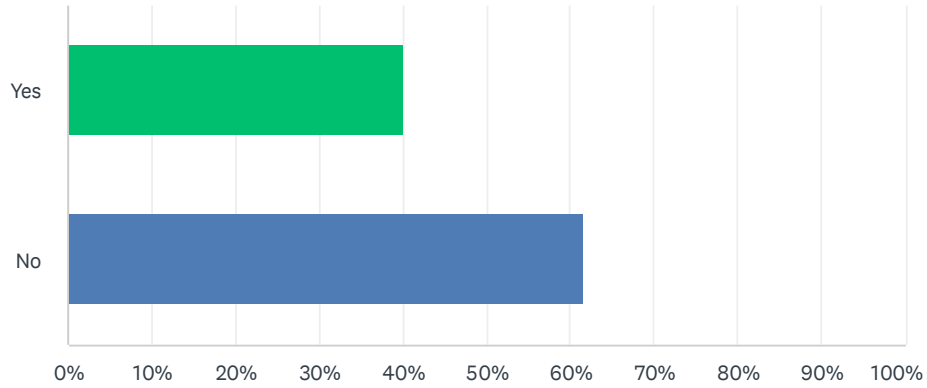
Answered: 58 Skipped: 5



ANSWER CHOICES	RESPONSES	
None	27.59%	16
\$1 to \$999	6.90%	4
\$1,000 to \$9,999	48.28%	28
\$10,000 to \$24,999	6.90%	4
\$25,000 to \$49,999	6.90%	4
\$50,000 to \$99,999	1.72%	1
\$100,000+	1.72%	1
TOTAL		58

Q5 Of the listed hazards you selected in Questions 2 and 3, do you have documentation of an event or incident you experienced? (i.e. photos, written correspondence, insurance claims, receipt(s) of repair costs, etc.)

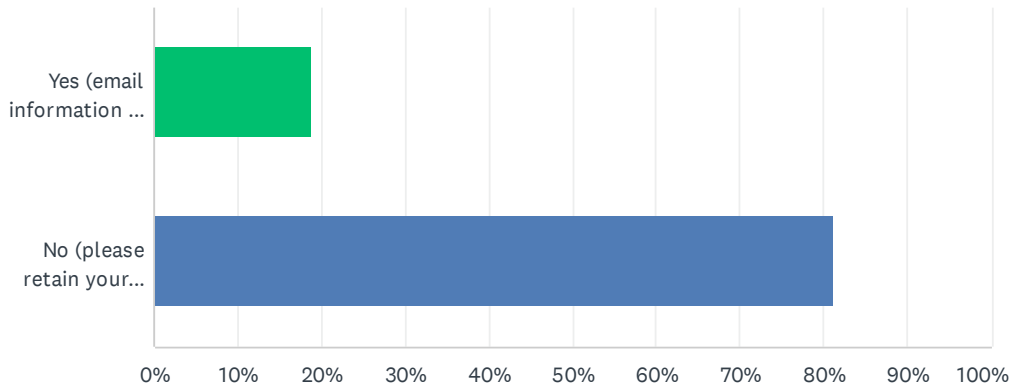
Answered: 60 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	40.00%	24
No	61.67%	37
Total Respondents: 60		

Q6 If you answered yes to Question 5, would you be willing to share your documentation with Foster County Emergency Management to enhance planning and grant application efforts?

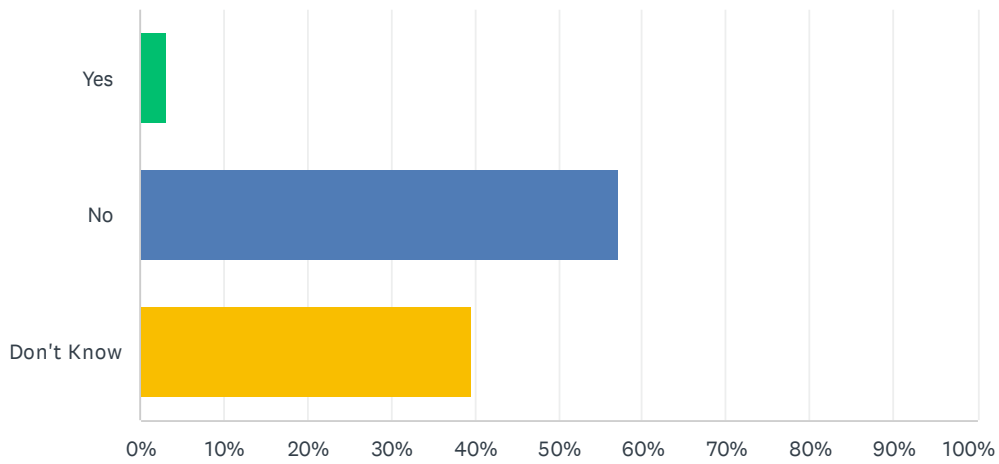
Answered: 32 Skipped: 31



ANSWER CHOICES	RESPONSES	
Yes (email information to adevereaux@nd.gov)	18.75%	6
No (please retain your records in case you change you mind in the future)	81.25%	26
Total Respondents: 32		

Q7 Is your home located in a floodplain?

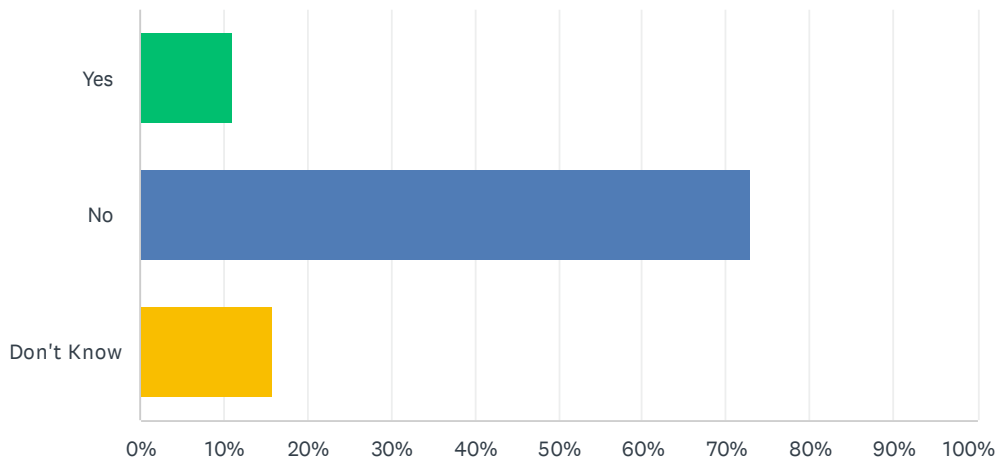
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES
Yes	3.17% 2
No	57.14% 36
Don't Know	39.68% 25
TOTAL	63

Q8 Do you have flood insurance?

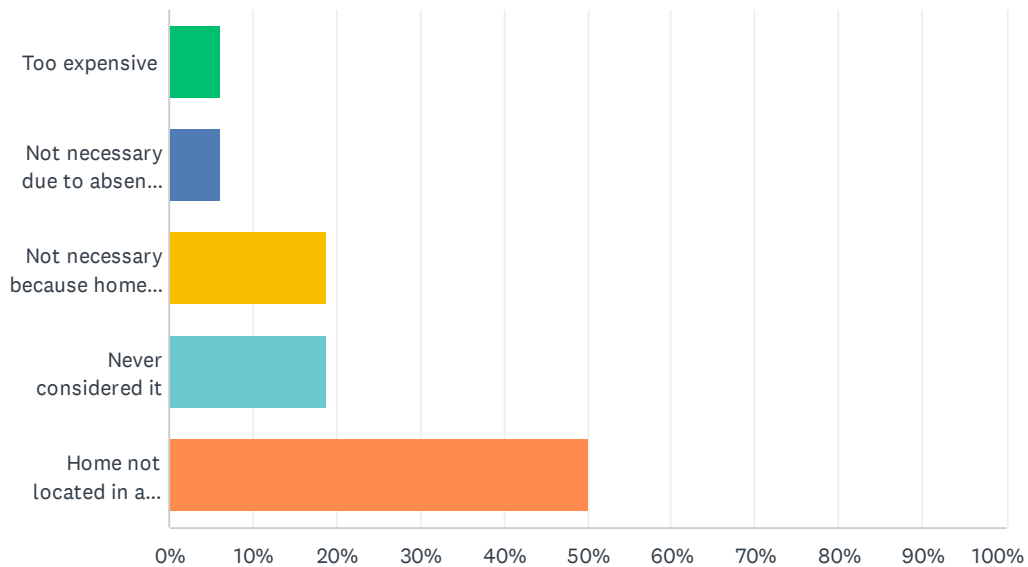
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	11.11%	7
No	73.02%	46
Don't Know	15.87%	10
TOTAL		63

Q9 If you answered no to flood insurance, please explain why?

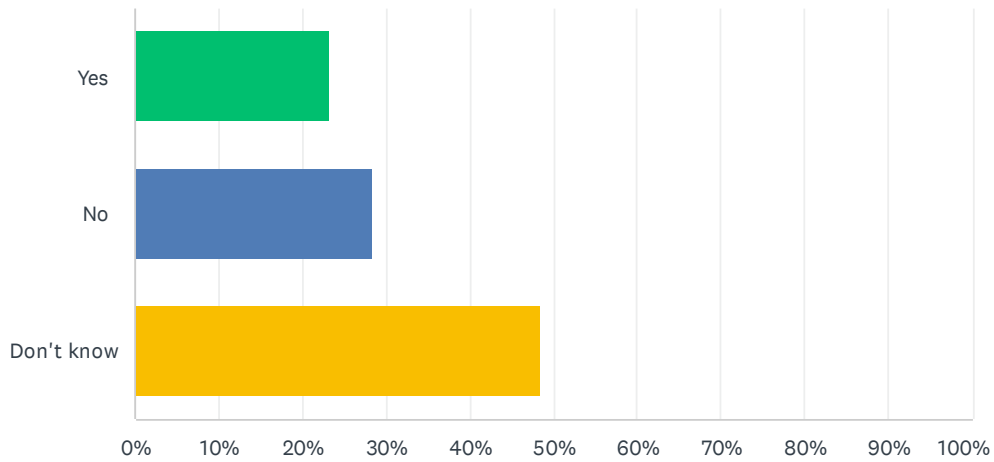
Answered: 48 Skipped: 15



ANSWER CHOICES	RESPONSES	
Too expensive	6.25%	3
Not necessary due to absence of flooding	6.25%	3
Not necessary because home is elevated or otherwise protected	18.75%	9
Never considered it	18.75%	9
Home not located in a floodplain	50.00%	24
TOTAL		48

Q10 In your respective community, has a critical facility or infrastructure (school, medical center, fire hall, ambulance hall, government facility, lift station, etc.) been impacted by power outages and would benefit from backup power? If yes, please identify the specific facility or infrastructure and its geographic location.

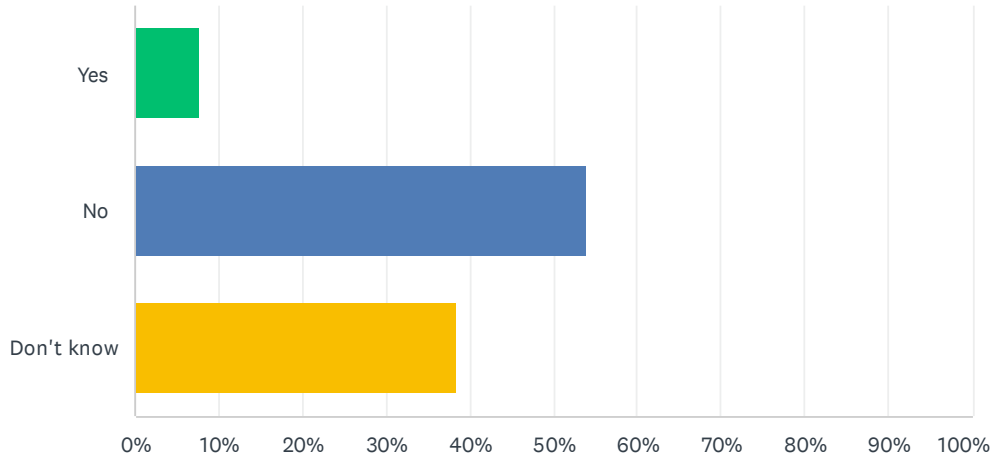
Answered: 60 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	23.33%	14
No	28.33%	17
Don't know	48.33%	29
TOTAL		60

Q11 If you answered yes to the previous question, do you have documentation of said power outages? (i.e. existing backup generator log, equipment failure documentation, costs for temporary relocation, etc.)

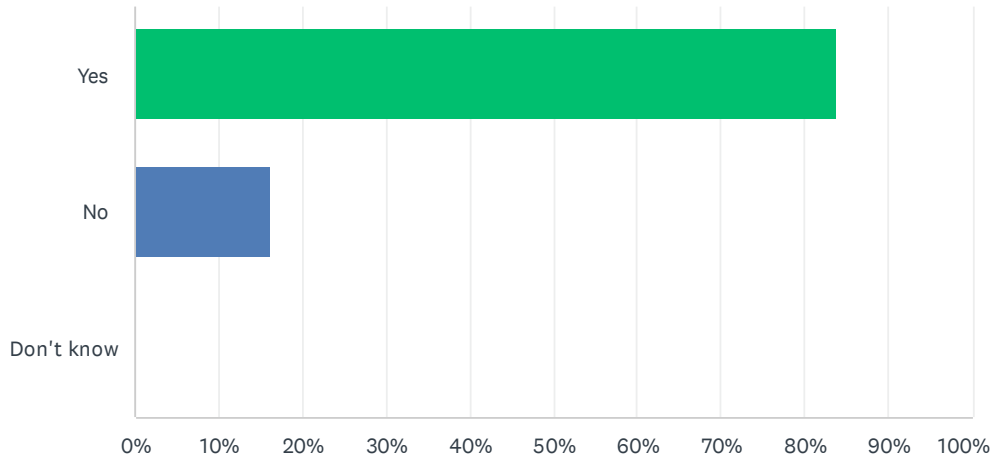
Answered: 39 Skipped: 24



ANSWER CHOICES	RESPONSES
Yes	7.69% 3
No	53.85% 21
Don't know	38.46% 15
TOTAL	39

**Q12 Were you or someone you know impacted directly by COVID-19?
(Loss of income/financial impact/unpaid leave, contracted the virus, had to care for a family member/friend, was in contact with someone that had the virus, etc.)**

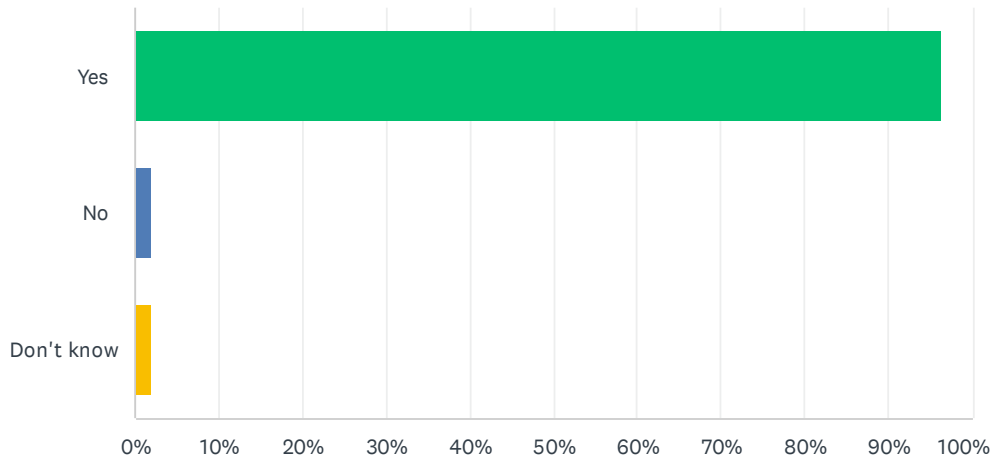
Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	83.87%	52
No	16.13%	10
Don't know	0.00%	0
TOTAL		62

Q13 If you answered yes to the previous question, did you or someone you know self-quarantine for 14 days?

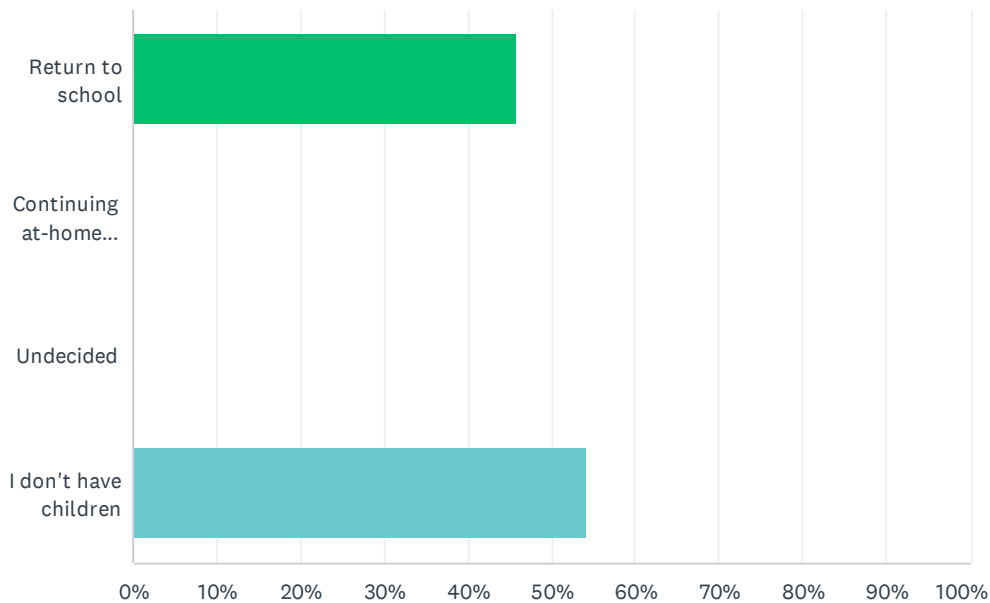
Answered: 54 Skipped: 9



ANSWER CHOICES	RESPONSES	
Yes	96.30%	52
No	1.85%	1
Don't know	1.85%	1
TOTAL		54

Q14 If you have children and they are enrolled in a public school system, are you allowing them to return to school in the fall or continuing at-home education?

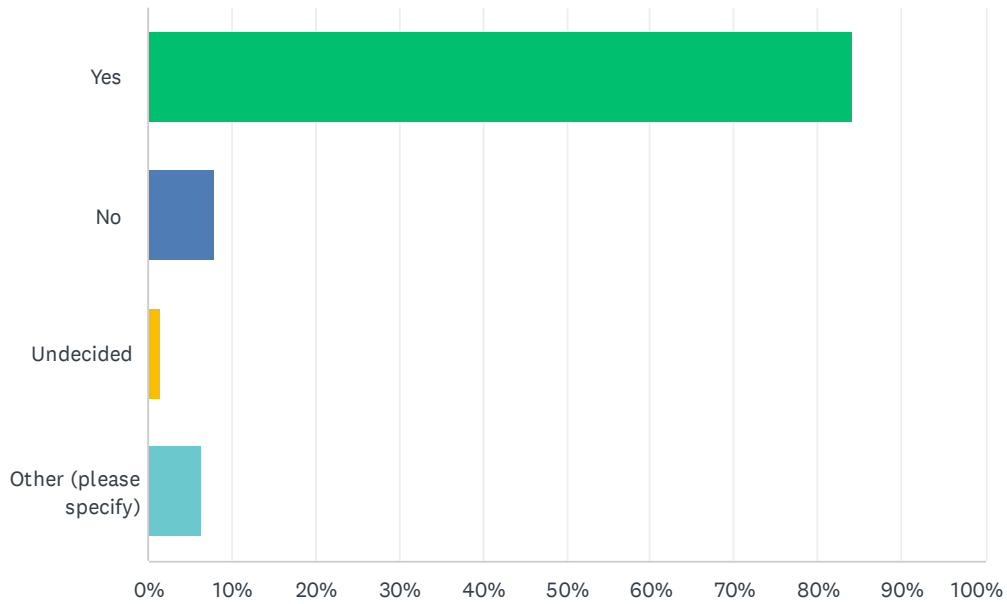
Answered: 59 Skipped: 4



ANSWER CHOICES	RESPONSES	
Return to school	45.76%	27
Continuing at-home education	0.00%	0
Undecided	0.00%	0
I don't have children	54.24%	32
TOTAL		59

Q15 Have you received your COVID-19 vaccination? If no, please explain why.

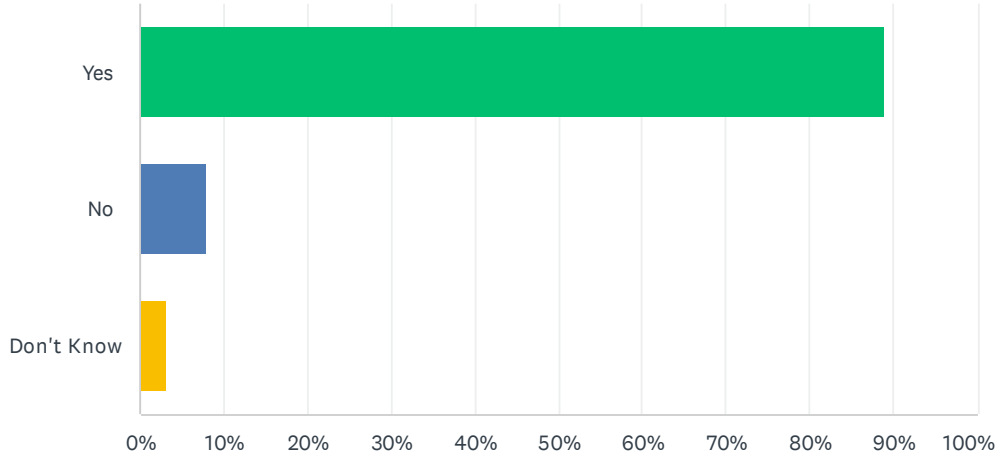
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	84.13%	53
No	7.94%	5
Undecided	1.59%	1
Other (please specify)	6.35%	4
TOTAL		63

Q16 Are you aware of the risk of a cyberattack to yourself and/or household?

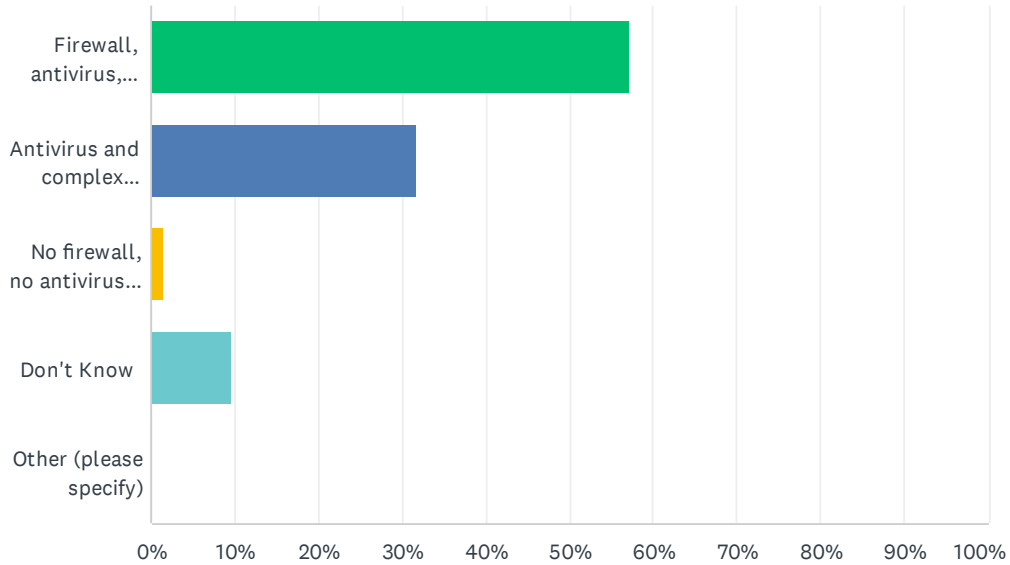
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	88.89%	56
No	7.94%	5
Don't Know	3.17%	2
TOTAL		63

Q17 What methods do you have in place to protect yourself/household from a cyberattack?

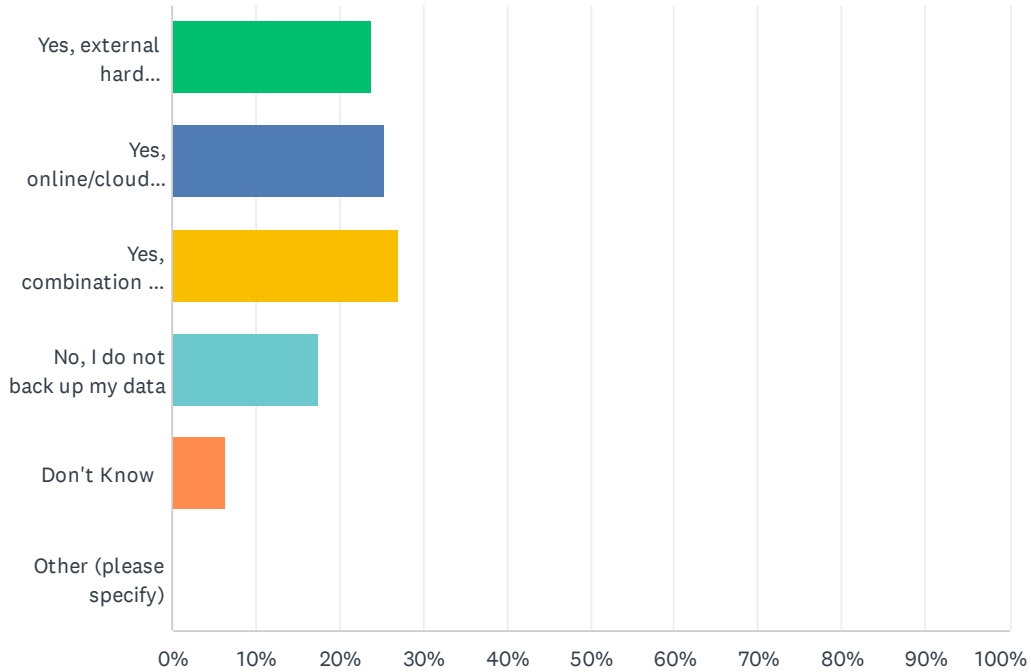
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES	
Firewall, antivirus, complex passwords	57.14%	36
Antivirus and complex passwords	31.75%	20
No firewall, no antivirus, simple passwords, no backing up of data	1.59%	1
Don't Know	9.52%	6
Other (please specify)	0.00%	0
TOTAL		63

Q18 Do you backup your computer data (files, photos, music, software, etc.)

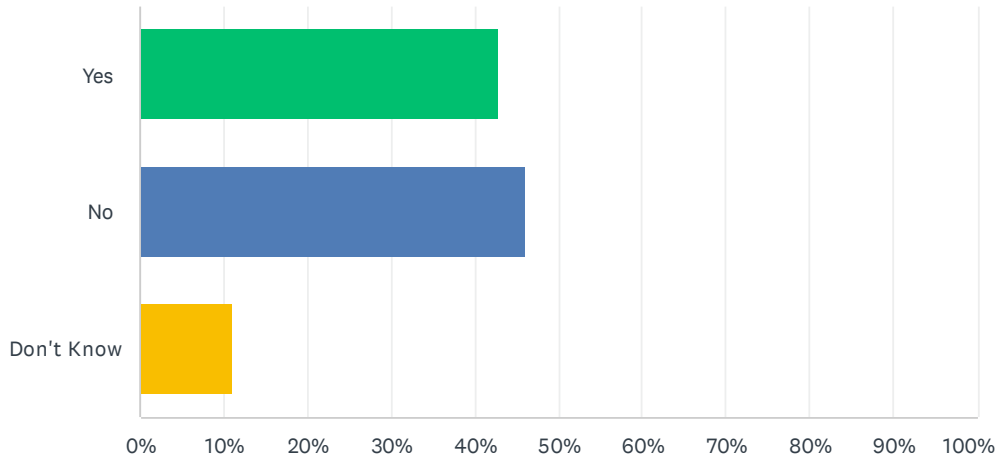
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, external hard drive/thumb drive/memory stick	23.81%	15
Yes, online/cloud-based	25.40%	16
Yes, combination of external Hard drive and online-cloud/based	26.98%	17
No, I do not back up my data	17.46%	11
Don't Know	6.35%	4
Other (please specify)	0.00%	0
TOTAL		63

Q19 Have you taken any actions to improve resiliency (ability to protect and readily recover) of your home/neighborhood or community to natural hazards and man-made threats? (i.e. improved drainage, generator, structural improvements)

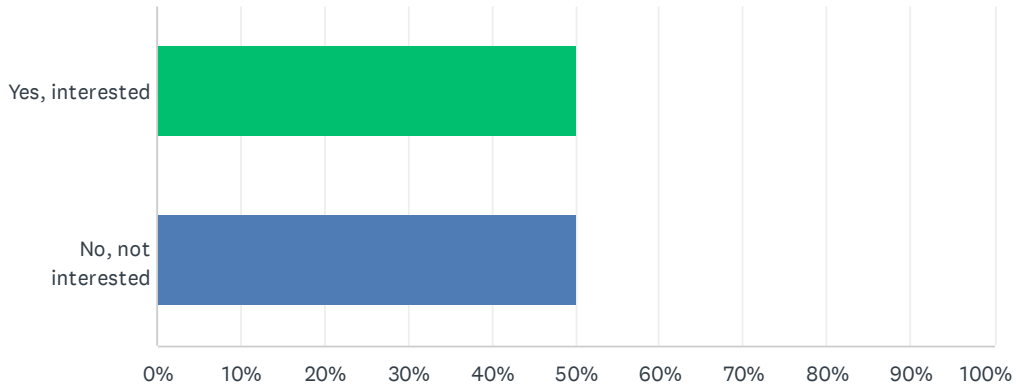
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES
Yes	42.86% 27
No	46.03% 29
Don't Know	11.11% 7
TOTAL	63

Q20 Would you be interested in information on protecting your household against natural hazards and man-made threats? Answering 'yes, interested' to this question will not automatically sign you up to receive information.

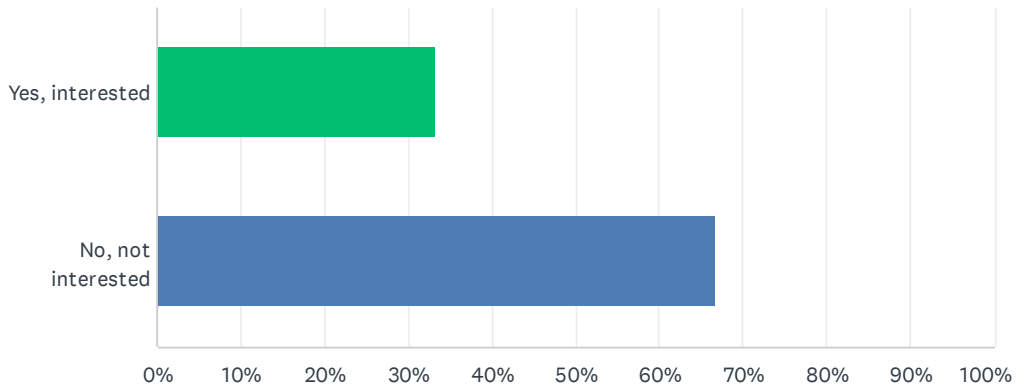
Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES
Yes, interested	50.00% 31
No, not interested	50.00% 31
TOTAL	62

Q21 Would you like to receive information on how to shelter-in-place? Answering 'yes, interested' to this question will not automatically sign you up to receive information.

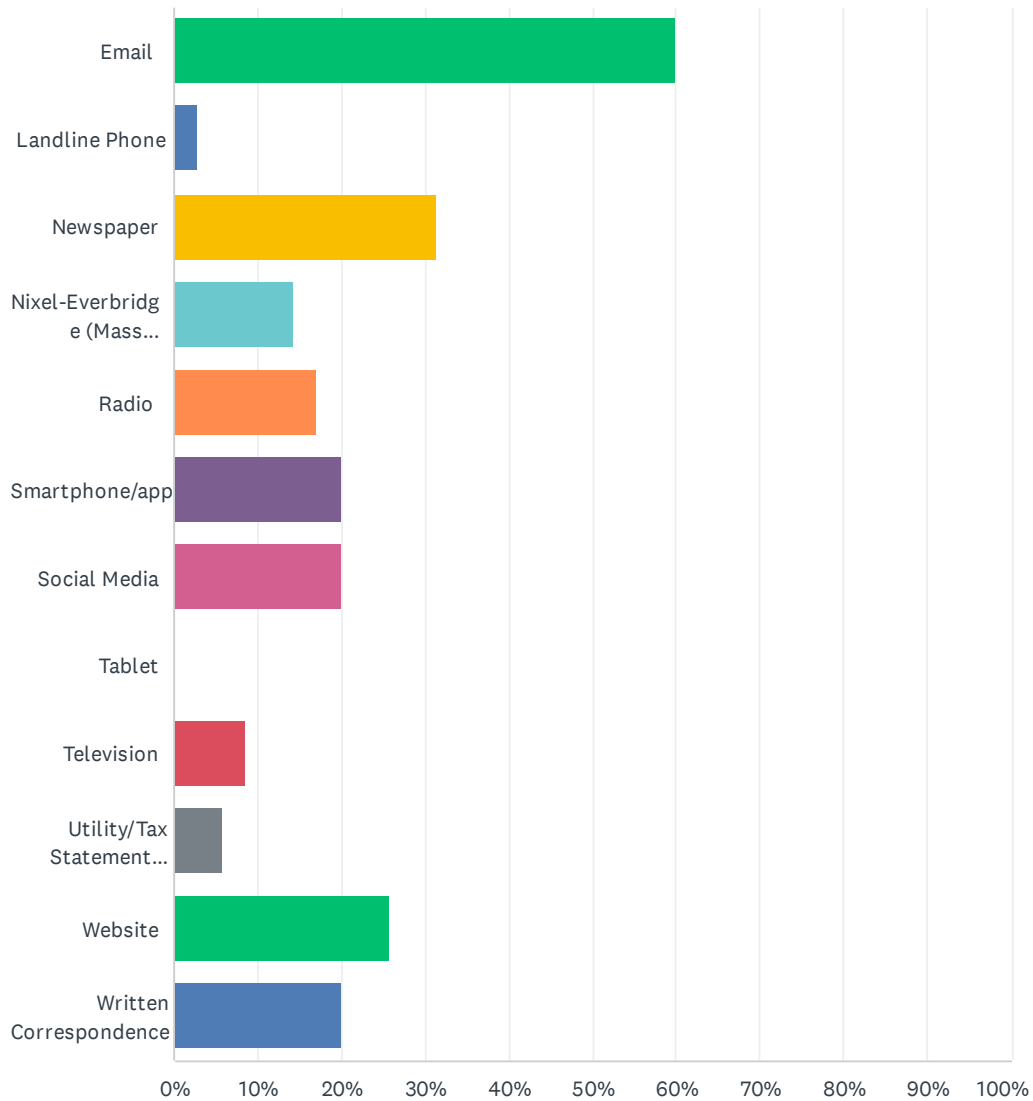
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, interested	33.33%	21
No, not interested	66.67%	42
TOTAL		63

Q22 If you answered yes to Questions 20 and 21, how would you like to receive that information? Check all that apply.

Answered: 35 Skipped: 28

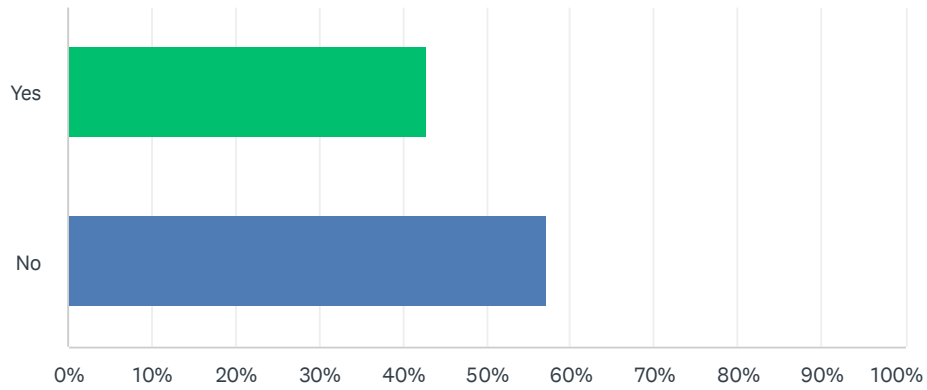


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ANSWER CHOICES	RESPONSES	
Email	60.00%	21
Landline Phone	2.86%	1
Newspaper	31.43%	11
Nixel-Everbridge (Mass Notification System)	14.29%	5
Radio	17.14%	6
Smartphone/app	20.00%	7
Social Media	20.00%	7
Tablet	0.00%	0
Television	8.57%	3
Utility/Tax Statement Insert	5.71%	2
Website	25.71%	9
Written Correspondence	20.00%	7
Total Respondents: 35		

Q23 Do you have any emergency kit? An emergency kit is comprised of water, food, battery-powered radio, flashlight, first aid kit, whistle, dust mask, tools, maps, cell phone, toiletries, etc.

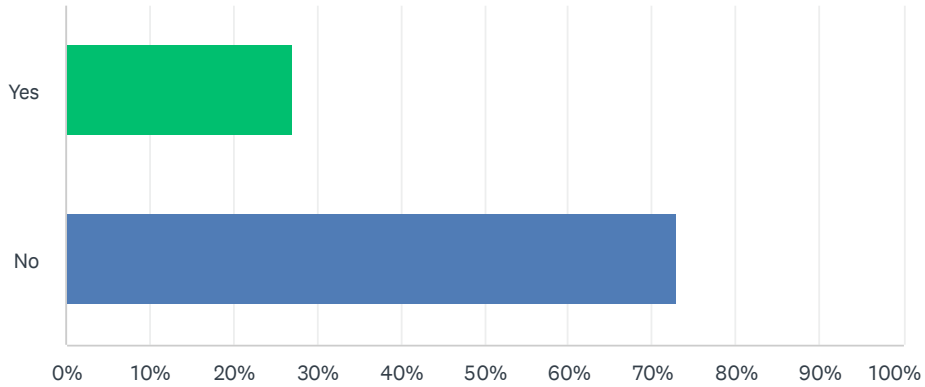
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES
Yes	42.86% 27
No	57.14% 36
TOTAL	63

Q24 If you answered yes to the previous question, does it include a 7-day supply of your personal/individual medicinal needs?

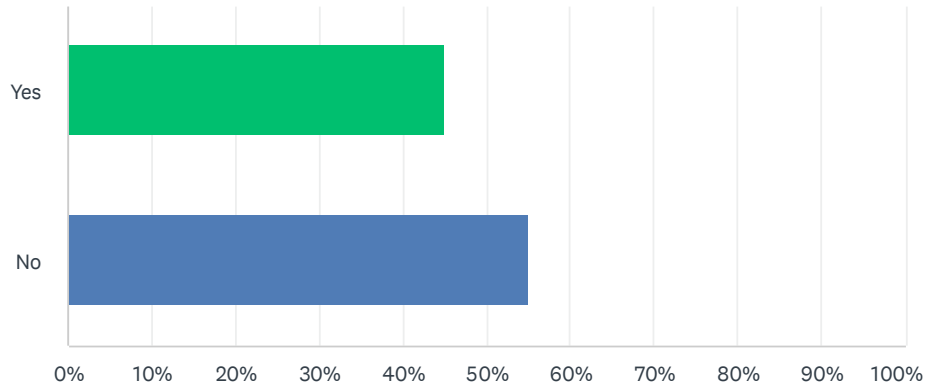
Answered: 37 Skipped: 26



ANSWER CHOICES	RESPONSES	
Yes	27.03%	10
No	72.97%	27
TOTAL		37

Q25 From your experience, do roadways become regularly blocked from flooding, severe summer weather or severe winter weather in Foster County? (i.e. snow drifts, overland flooding, fallen tree branches, etc?) If yes, please indicate the name of the roadway and general description of the concern in the space provided below.

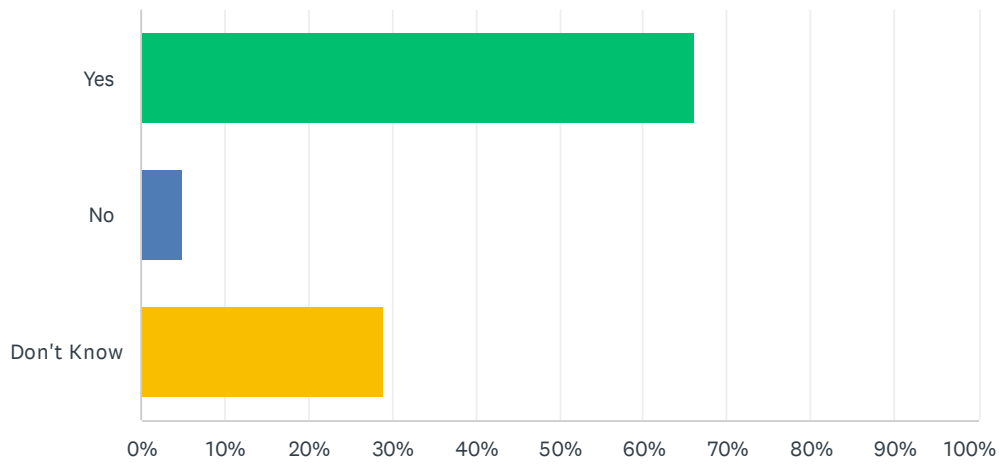
Answered: 60 Skipped: 3



ANSWER CHOICES	RESPONSES
Yes	45.00% 27
No	55.00% 33
TOTAL	60

Q26 Does your community have a designated storm shelter?

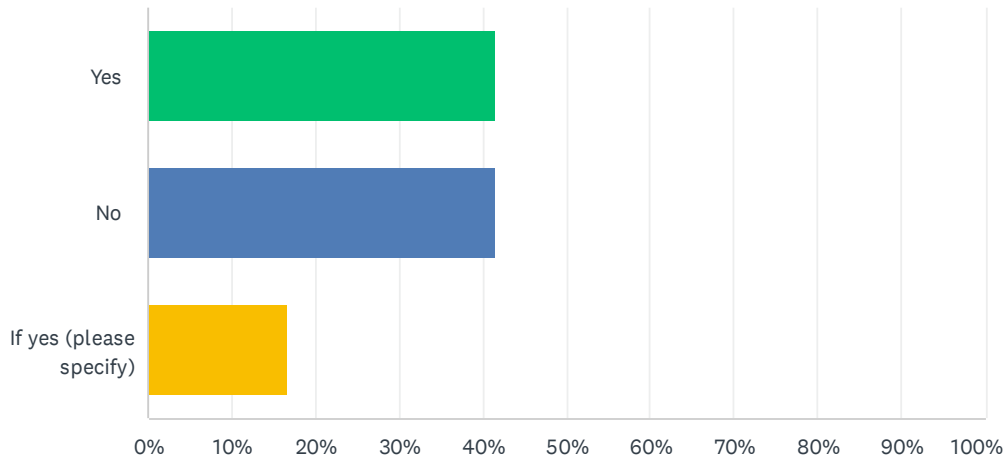
Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES
Yes	66.13% 41
No	4.84% 3
Don't Know	29.03% 18
TOTAL	62

Q27 If you answered no to the previous question, is there a structure in your community capable of serving as a designated storm shelter?

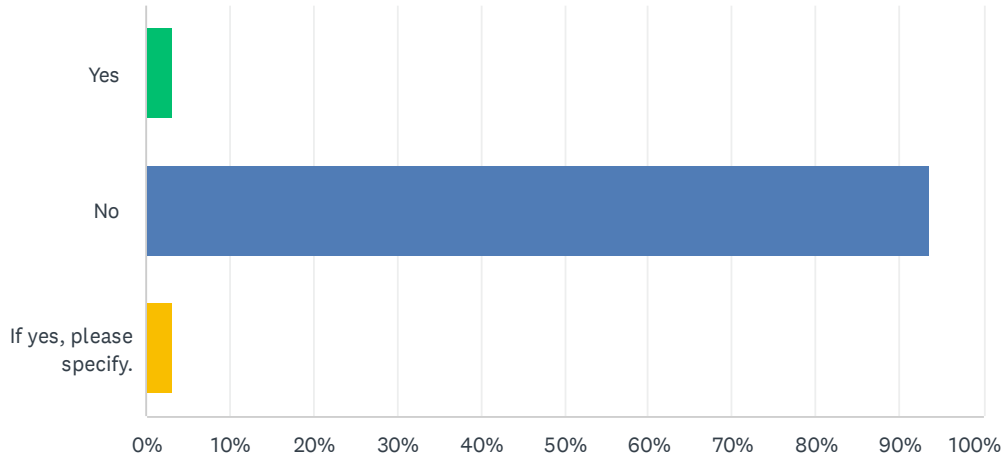
Answered: 12 Skipped: 51



ANSWER CHOICES	RESPONSES	
Yes	41.67%	5
No	41.67%	5
If yes (please specify)	16.67%	2
TOTAL		12

Q28 Does anyone in your household have special needs or impaired mobility? (i.e. need continuous electric power for medical equipment and/or medicinal care, requires special evacuation assistance, etc.)

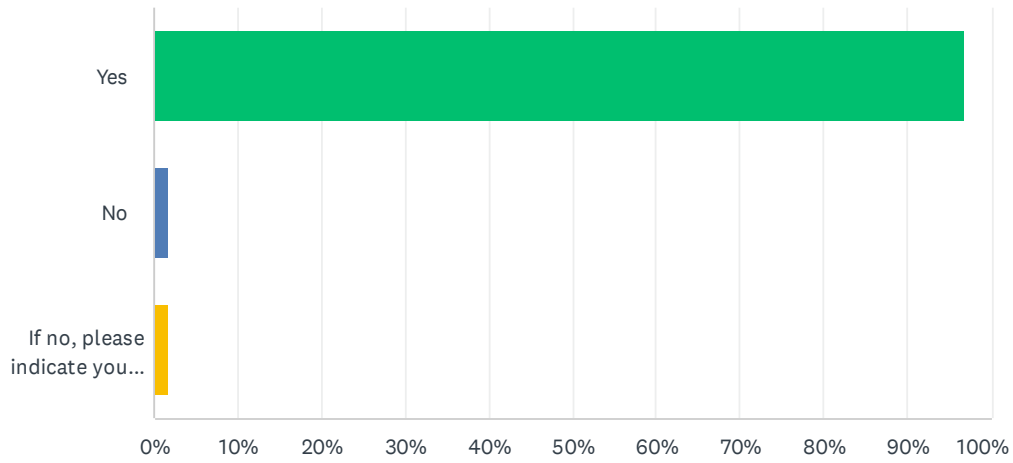
Answered: 63 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	3.17%	2
No	93.65%	59
If yes, please specify.	3.17%	2
TOTAL		63

Q29 Is English the primary language spoken in your household? If not, please specify.

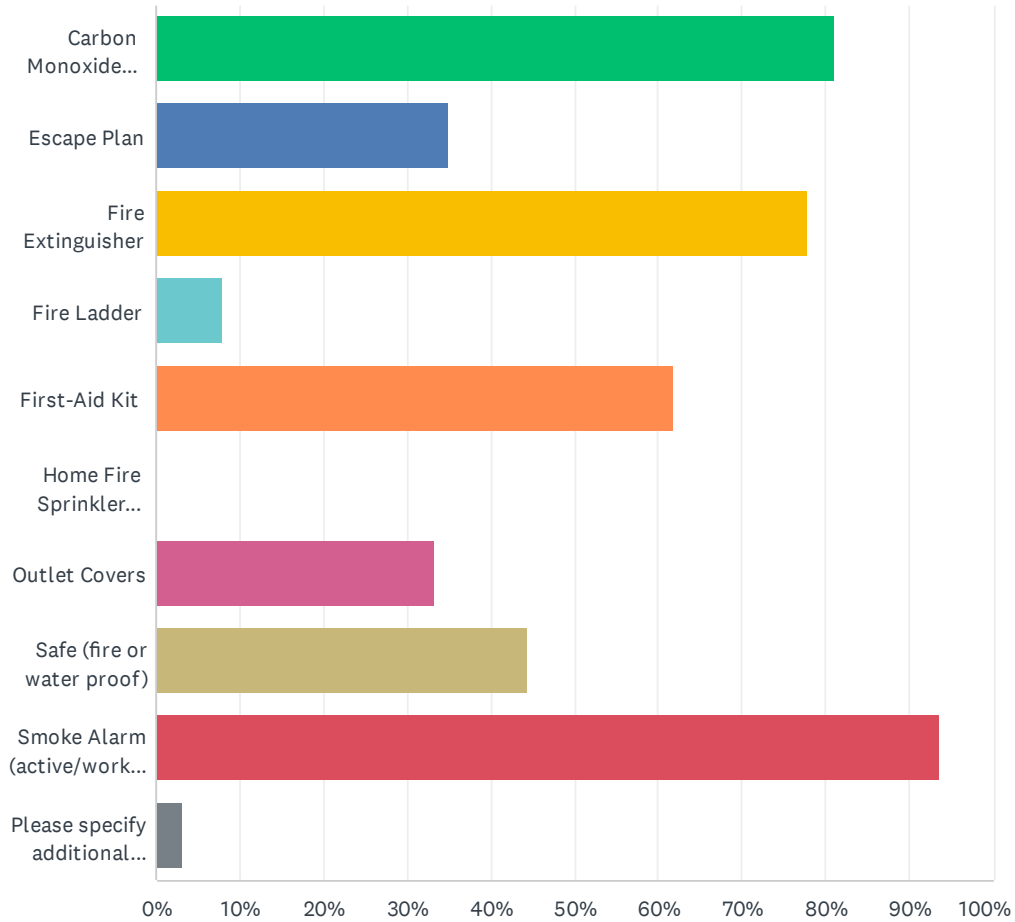
Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	96.77%	60
No	1.61%	1
If no, please indicate your preferred language.	1.61%	1
TOTAL		62

Q30 In terms of fire safety, please indicate which of the following your household currently has to protect against fire hazards. Mark all that apply.

Answered: 63 Skipped: 0

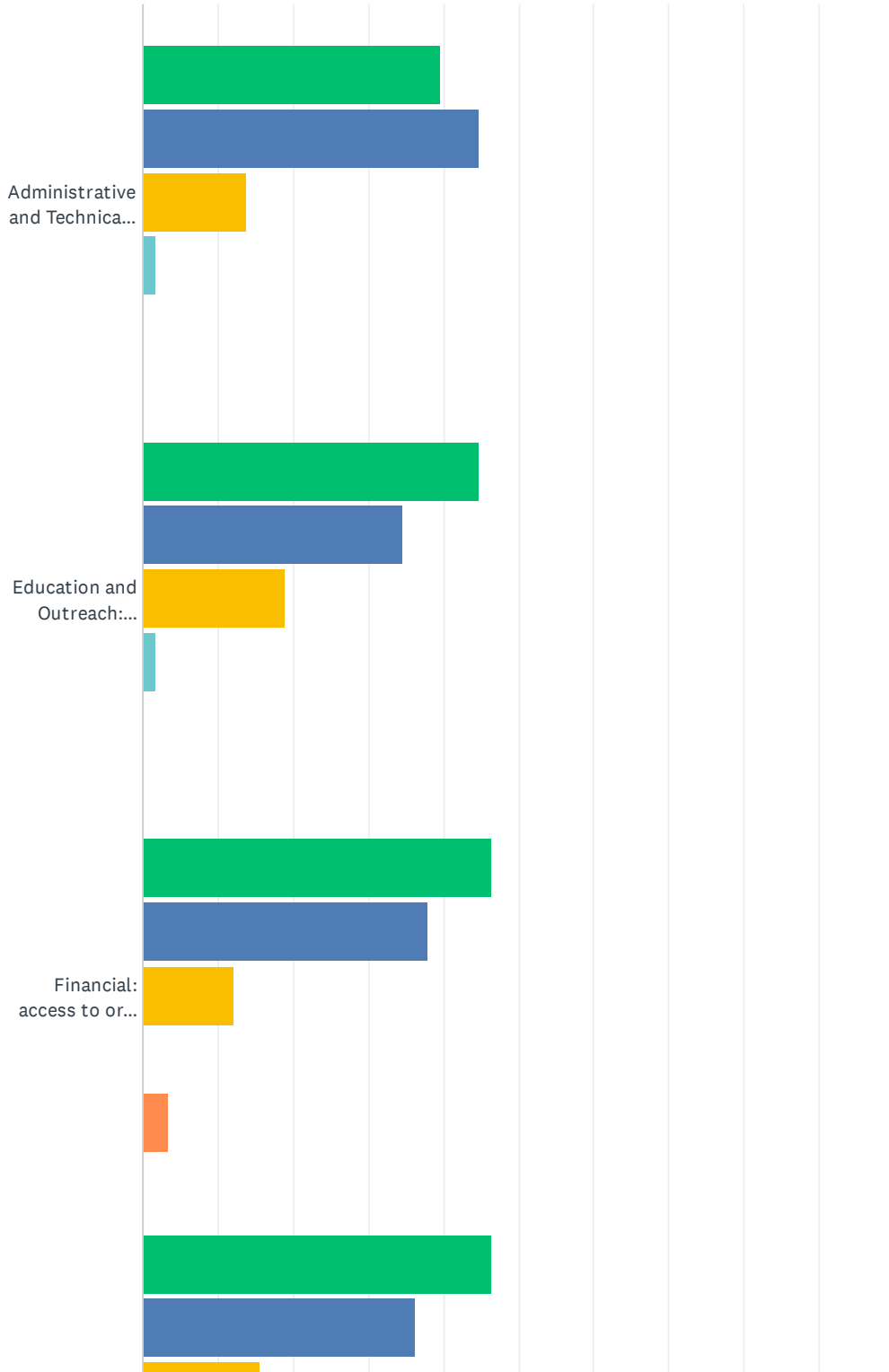


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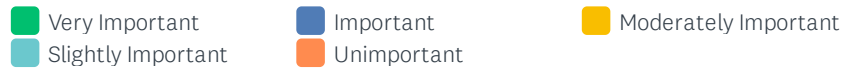
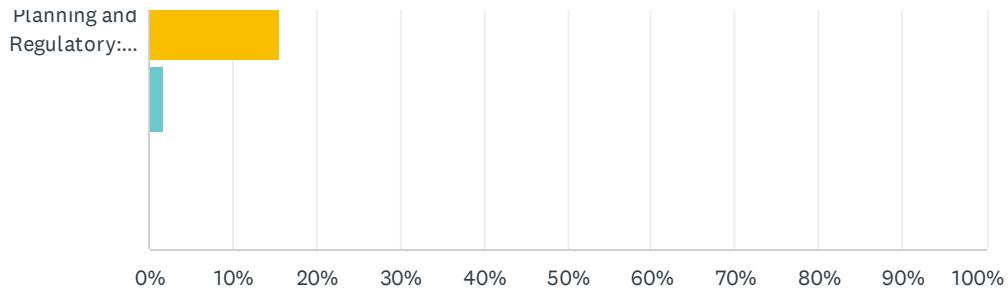
ANSWER CHOICES	RESPONSES	
Carbon Monoxide Detector	80.95%	51
Escape Plan	34.92%	22
Fire Extinguisher	77.78%	49
Fire Ladder	7.94%	5
First-Aid Kit	61.90%	39
Home Fire Sprinkler System	0.00%	0
Outlet Covers	33.33%	21
Safe (fire or water proof)	44.44%	28
Smoke Alarm (active/working)	93.65%	59
Please specify additional items you feel are necessary.	3.17%	2
Total Respondents: 63		

Q31 Mitigation capabilities reduce risk to natural hazards and man-made threats. Capabilities fall into one of the following four broad categories. Please rank the importance for improvement or expansion of each category for your community.

Answered: 58 Skipped: 5



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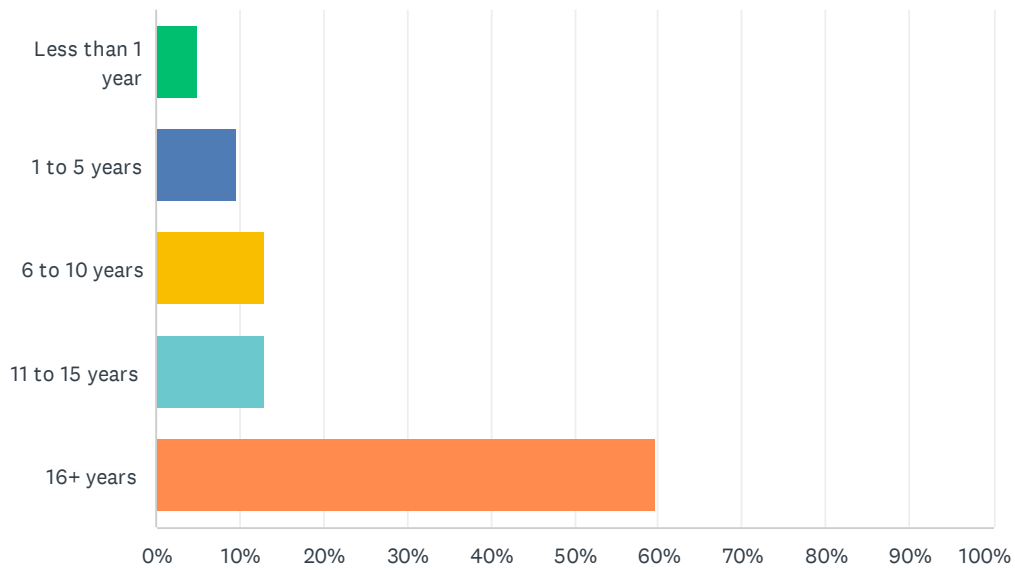
	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	UNIMPORTANT	TOTAL	WEIGHTED AVERAGE
Administrative and Technical: jurisdictional staff and their skills to implement mitigation actions/projects	39.66% 23	44.83% 26	13.79% 8	1.72% 1	0.00% 0	58	4.22
Education and Outreach: education and outreach programs to educate the public on hazards	44.83% 26	34.48% 20	18.97% 11	1.72% 1	0.00% 0	58	4.22
Financial: access to or eligibility to allocate resources for funding of mitigation projects	46.55% 27	37.93% 22	12.07% 7	0.00% 0	3.45% 2	58	4.24
Planning and Regulatory: jurisdictional plans, policies, codes, and ordinances in place to prevent/reduce the impacts of hazards	46.55% 27	36.21% 21	15.52% 9	1.72% 1	0.00% 0	58	4.28

Q32 In your opinion, what other steps can your local government take to reduce or eliminate losses to human life and property from natural hazards and manmade threats?

Answered: 20 Skipped: 43

Q33 How long have you resided in your current community?

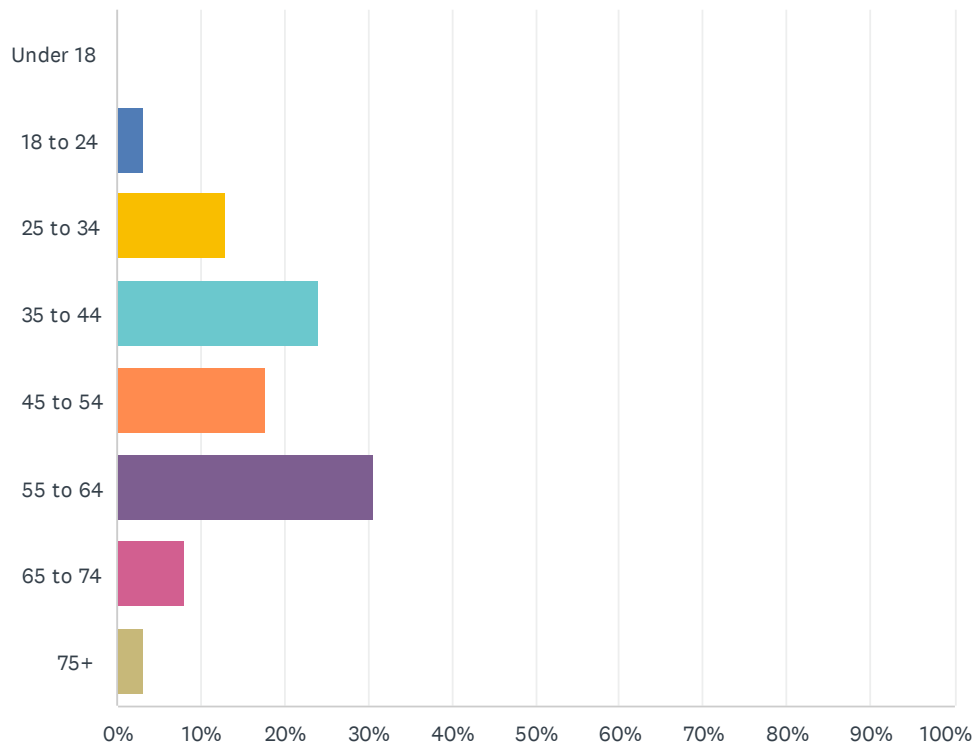
Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES
Less than 1 year	4.84% 3
1 to 5 years	9.68% 6
6 to 10 years	12.90% 8
11 to 15 years	12.90% 8
16+ years	59.68% 37
TOTAL	62

Q34 What is your age?

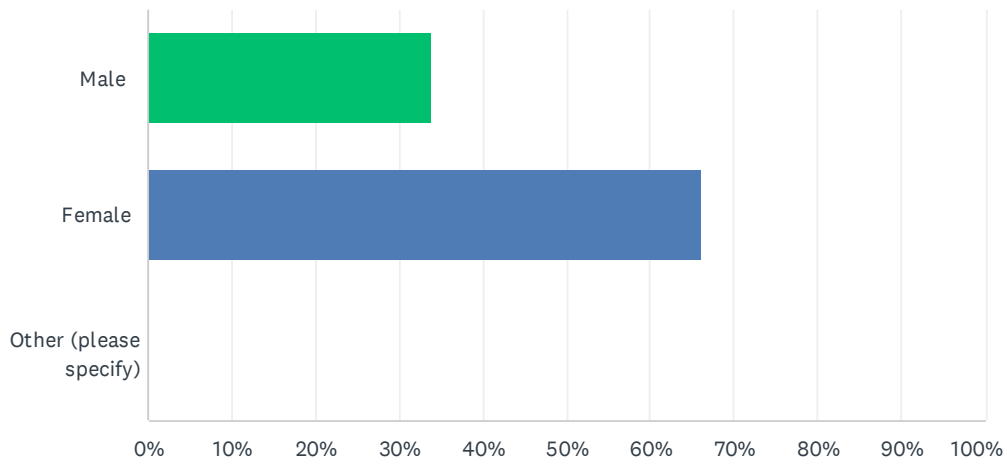
Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES	
Under 18	0.00%	0
18 to 24	3.23%	2
25 to 34	12.90%	8
35 to 44	24.19%	15
45 to 54	17.74%	11
55 to 64	30.65%	19
65 to 74	8.06%	5
75+	3.23%	2
TOTAL		62

Q35 What is your gender?

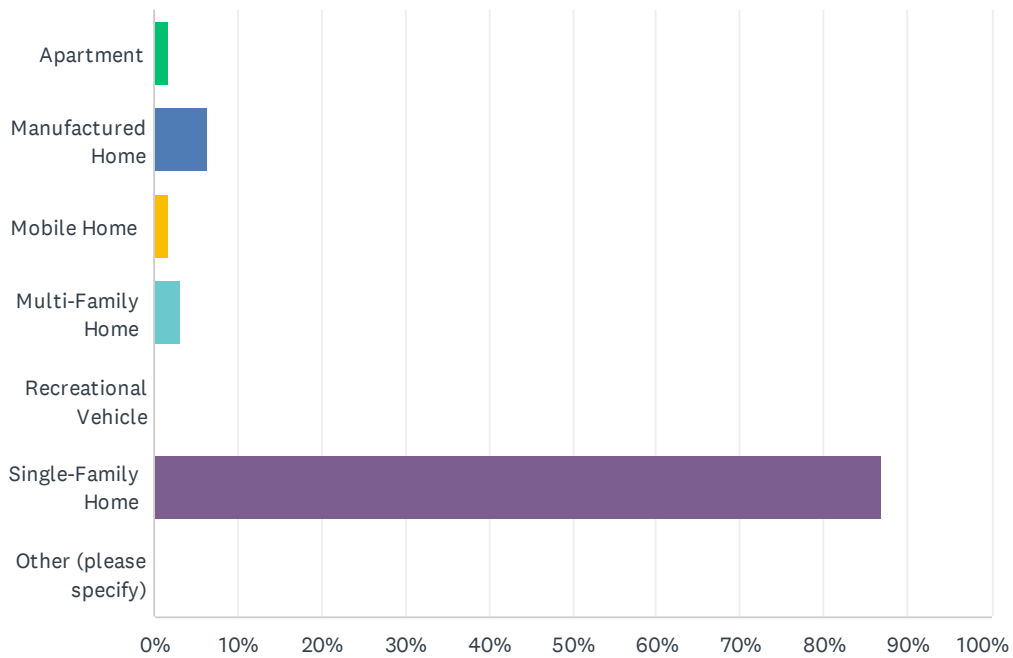
Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES	
Male	33.87%	21
Female	66.13%	41
Other (please specify)	0.00%	0
TOTAL		62

Q36 What type of housing do you occupy?

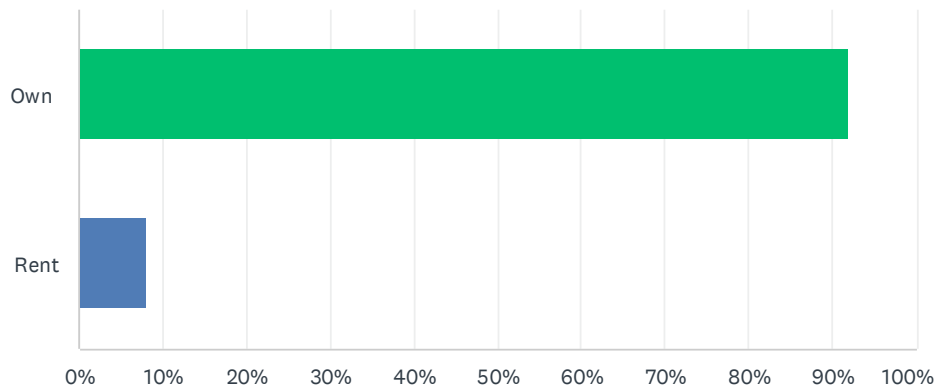
Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES	
Apartment	1.61%	1
Manufactured Home	6.45%	4
Mobile Home	1.61%	1
Multi-Family Home	3.23%	2
Recreational Vehicle	0.00%	0
Single-Family Home	87.10%	54
Other (please specify)	0.00%	0
TOTAL		62

Q37 Do you own or rent your housing?

Answered: 62 Skipped: 1



ANSWER CHOICES	RESPONSES	
Own	91.94%	57
Rent	8.06%	5
TOTAL		62

Appendix 8 – Future Plan Update

This appendix serves as a placeholder for information gathered through completed Mitigation Progress Report Forms, or other means of documentation, by constituents of Foster County. The completed forms and additional documentation will be used to update the Foster County, North Dakota Multi-Jurisdictional Multi-Hazard Mitigation Plan over the next five years.

- The Mitigation Progress Report Form can be found in Chapter 10, Plan Maintenance.
- A copy of the form can also be obtained by contacting the Foster County Office of Emergency Management and requesting a copy at the contact information below.

Foster County, North Dakota

Office of Emergency Management

Aaron Devereaux, Emergency Manager

1000 5th. St. N

Carrington, ND 58421

Office: (701) 652-2252

Email: adevereaux@nd.gov