Turtle Mountain Band of Chippewa Indians/Rolette County Joint Multi-Hazard Mitigation Plan

Including the Communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John

Revised in 2023 with assistance from:

HEARTLAND CONSULTING GROUP, LLC

701-934-5173

EXECUTIVE SUMMARY

On October 30, 2000, the President signed into law the Disaster Mitigation Act of 2000. Among its other features, the Disaster Mitigation Act of 2000 established a requirement that in order to remain eligible for Federal Disaster Mitigation grant funds, local and state governments must develop and adopt Multi-Hazard Mitigation Plans. On February 26, 2002, the Federal Emergency Management Agency published an Interim Final Rule that set forth the guidance and regulations under which such plans are to be developed. The Interim Final Rule provides detailed descriptions of both the planning process for states and local governments and the plan contents that emerge from the planning process. The Rolette County Multi-Hazard Mitigation Plan was developed in 2019 and approved by the state and FEMA. The Turtle Mountain Band of Chippewa Indians (TMBCI) had their Multi-Hazard Mitigation Plan approved by FEMA in 2011. The TMBCI's five-year plan expired in 2016 leaving the TMBCI without a viable Multi-Hazard Mitigation Plan.

It is the intent of the Turtle Mountain Band of Chippewa Indians/Rolette County Joint Multi-Hazard Mitigation Planning Committee to have the Turtle Mountain Band of Chippewa Indians/Rolette County Joint 2023 Multi-Hazard Mitigation Plan adopted by the tribe, county and the six communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John. In 2019, it was set as a joint goal between the Turtle Mountain Band of Chippewa Indians and Rolette County to continue to work together over the next five years to develop a memorandum of understanding between the county and the tribe to develop a joint Multi-Hazard Mitigation Plan that will be inclusive of Rolette County and the TMBCI, and the communities within the county. That goal has been reached. The joint committee also has the intent of the Turtle Mountain Band of Chippewa Indians/Rolette County Joint Multi-Hazard Mitigation Plan be approved by the state and FEMA. The Interim Final Rule specifies that jurisdictions must update their Multi-Hazard Mitigation Plans every five years.

Hazard mitigation is defined by FEMA as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." Mitigation creates safer communities by reducing loss of life and property damage. Hazard mitigation planning is the process through which hazards that threaten communities are identified and profiled, likely impacts of those hazards are assessed, and mitigation strategies to lessen those impacts are identified, prioritized, and implemented. The results of a three-year, congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of $6.54 in avoided future losses in addition to saving lives and preventing injuries (Pew Charitable Trust, 2018). This plan demonstrates the commitment to reducing risks from hazards and serves as a tool to help decision makers direct and coordinate mitigation activities and resources, including local land use policies by Rolette County, the TMBCI, and the Communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John. This plan update entailed a comprehensive re-evaluation

of all parts of the plan, including hazard profiles, risk assessment, mitigation goals, strategies, and mitigation priorities.

The major hazards – infectious disease and pest infestations; drought; flood; hazardous material release; criminal, terrorist, nation/state attack; civil disturbance; severe summer weather; cyber-attack; fire (wild and urban); severe winter weather; dam failure; transportation incident; space weather; and geologic hazards – are each profiled in terms of their hazard description, history, probability, The major hazards – infectious disease and pest infestations; drought; flood; hazardous material release; criminal, terrorist, nation/state attack; civil disturbance; severe summer weather; cyber-attack; fire (wild and urban); severe winter weather; dam failure; transportation incident; space weather; and geologic hazards – are each profiled in terms of their hazard description, history, probability, magnitude, geographic location, vulnerabilities, loss estimates, and data limitations and other factors. The vulnerabilities to critical facilities, critical infrastructure, structures, the population, economic, ecologic, historic, and social values, and future development are evaluated for each hazard.

Based on the probability and extent of potential impacts identified in the risk assessment, the prioritizations of hazards as developed by the Joint Multi-Hazard Mitigation Planning Committee within the TMBCI and Rolette County are as follows: (Note that individual jurisdictions have their own prioritizations based on the hazards and vulnerabilities specific to their locations. Their priorities can be found in Section 4.15)

Turtle Mountain Band of Chippewa Indians and Rolette County Joint Hazard Prioritizations

Level/Class	**Hazard**
High Hazard Class A	Severe Summer Weather Severe Winter Weather Flood Fire (wild and urban)
Moderate-High Hazard Class B	Infectious Disease and Pest Infestations Hazardous Material Release Dam Failure Transportation Incidents
Moderate Hazard Class C	Civil Disturbance Cyber attacks Criminal, Terrorist, Nation Attack
Low Hazard Class D	Geologic Hazards Space Weather Drought

Rolette County conducted a Threat and Hazard Identification Risk Assessment (THIRA) in 2018. The THIRA process identified the most likely hazards to occur in Rolette County as:

1. Flood
2. Fire/Wildland Turtle Mountains
3. Severe Summer Weather
4. Severe Winter Weather
5. Hazardous Materials Release
6. Mass-Casualty (School Bus Accident)
7. Pandemic
8. School Security/Active Shooter
9. Terrorism/Canadian Border
10. Wind Towers
11. Cyber Terrorism
12. Communications/I Phones/Mobile Radios/HAM Radio

On December 1, 2022, the leaders of the Multi-Hazard Mitigation Planning Team developed these hazard priorities in order.

1. Flood
2. Wildland & Structure Fire
3. Severe Winter Weather
4. Severe Summer Weather
5. Cyberattack
6. Infectious Disease
7. Drought
8. Hazardous Material
9. Dam Failure
10. Space Weather
11. Terrorist/Criminal Attack
12. Geological Hazard
13. Civil Disturbance
14. Transportation

There are more similarities than differences in hazard prioritization between the Multi-Hazard Mitigation Planning Committee and the THIRA hazard prioritization even though some of the terminology has changed.

The following goals are outlined in the plan's mitigation strategy, based on the results of the risk assessment:

Goal 1: Promote the use of mitigation measures that reduce the impacts of hazards.

Goal 2: Minimize losses from natural and human-caused hazards.

Goal 3: Save lives, reduce injuries, and protect property.

Goal 4: Protect the environment.

Goal 5: Work as a group in developing the Multi-Hazard Mitigation Plan to better the county and the Tribe.

Associated with each of the goals are objectives and mitigation actions ranging from adopting building codes to burying electric infrastructure to community education. The mitigation projects are prioritized based on STAPLEE criteria to determine if a project is socially acceptable, technically feasible, administrative possible, politically acceptable, legal, economical (cost/benefit), and environmentally sound. An implementation plan outlines the suggested course of action, given the limited resources available to TMBCI, Rolette County and the jurisdictions. The TMBCI and Rolette County Emergency Management Offices are responsible for the implementation and maintenance of the plan. Other recommended activities, such integrating this plan into a variety of tribal, county, city, and township plans, regulations, and documents, will further the goals of hazard mitigation in Rolette County and on the TMBCI Reservation.

The Turtle Mountain Band of Chippewa Indians/Rolette County Joint Multi-Hazard Mitigation Plan exceeds the requirements of a local hazard mitigation plan as outlined in the Interim Final Rule published in the Federal Register on February 26, 2002, at Title 44 of the Code of Federal Regulations, Part 201 as part of the Disaster Mitigation Act of 2000. This plan has been approved by the State of North Dakota and the Federal Emergency Management Agency as a Hazard Mitigation Plan, and therefore, the tribe, county and communities may be eligible for federal mitigation funds. This plan serves as a guide for understanding the major hazards facing the TMBCI and Rolette County and the jurisdictions and provides a strategy for preventing or reducing some of the impacts.

The TMBCI has a number of ordinances and codes that speak to their capacity to implement mitigation actions pre- and post-disaster. The tribe also manages multiple grants and cooperative agreements each year. Applicable codes and ordinances include the TMBCI Financial Management Policies and Procedures Manual, Title 35 Title to Fish, Wildlife, Timber & Archeological Resources, Title 15, Chapter 15.02 Building and Construction, and Title 31, Chapter 31.04 Zoning Agency Authority.

TABLE OF CONTENTS

Appendices

1. INTRODUCTION

Turtle Mountain Band of Chippewa Indians (TMBCI) and Rolette County are confronted daily with the possibility of a serious incident of emergency proportions. Natural and human-caused hazards pose a constant threat to the health, welfare, and security of people and property. The cost of response to and recovery from disasters is so high and life is so precious that attention must turn to mitigating their effects and impacts before they occur or re-occur.

Historically, mitigation activities have been the most neglected programs within emergency management. Since the priority to implement mitigation activities is generally low in comparison to the perceived threat, some important mitigation measures take time to implement. Mitigation success can be achieved, however, if accurate information is portrayed through complete hazard identification and impact studies, followed by effective mitigation salesmanship and strong government leadership. It is possible to break the cycle of recurring damage and loss.

The TMBCI and Rolette County Joint Multi-Hazard Mitigation Plan represent a coordinated effort and ongoing commitment to mitigate potential losses and damages caused by the hazards. This plan establishes the county and tribal mitigation planning system, which is related to the county and tribal disasters, emergency preparedness, and operational planning mission. The plan identifies opportunities and suggestive actions that could reduce the impact of future disasters or emergencies.

1.1 Purpose

Rolette County, the TMBCI and the communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John, the townships, and the unincorporated communities recognize that hazards, both natural and human-caused, threaten their communities. Rather than wait until disaster strikes, the jurisdictions can take proactive measures to prevent losses and lessen the impact from these hazards. Actions taken to reduce or eliminate the long-term risk from hazards are defined as mitigation. Disaster mitigation is an investment that can save lives and property.

The purpose of this Joint Multi-Hazard Mitigation Plan is to:

- Fulfill federal, state, county and tribal hazard mitigation planning responsibilities.
- Promote pre and post disaster mitigation measures, including 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 and tribe are exposed.
- Eliminate or minimize conditions that would have an undesirable impact on the citizens, economy, environment, and well-being of the county and tribe.
- Serve as a consolidated, comprehensive source of hazard and risk information.
- Educate the communities, including government leaders and the public, on their vulnerabilities.

- Prioritize and promote cost-effective mitigation solutions.
- Provide guidance to organizations and agencies, tribal and county wide, regarding hazard mitigation.
- Support requests for grant funding.
- Encourage long-term community sustainability.

Effective mitigation planning promotes a broader understanding of the hazards threatening the communities and provides a clearer vision and competitive edge for future mitigation grant funding. By integrating mitigation concepts into local thinking, the communities will find many more opportunities for disaster resistance beyond grant funding. For example, the consideration of disaster mitigation when designing new facilities or subdivisions will result in cost-effective solutions and greater disaster resistance, thus saving the communities money in the long-term and contributing to the communities' sustainability.

1.2 Scope and Organization

1.2.1 Scope

The scope of the TMBCI and Rolette County Joint Multi-Hazard Mitigation Plan is county and tribal wide. In this document when TMBCI and Rolette County Joint Multi-Hazard Mitigation Plan is stated, it is inclusive of Rolette County, the TMBCI, incorporated communities, unincorporated communities and the townships that rely on county and tribal zoning practices. The plan is not necessarily limited to federal, state, tribal or locally declared disasters, emergencies, or grants. Anytime local situations and incidents produce a requirement for mitigation actions, activities, and strategies, they will be developed and incorporated into the plan.

The TMBCI and Rolette County Joint Multi-Hazard Mitigation Plan is organized into sections that describe the planning process, assets and community inventory, risk assessment/hazard profiles, mitigation strategies, actions and implementation, and plan maintenance. Appendices containing supporting information are included at the end of the plan.

This plan, particularly the risk assessment section, outlines each hazard in detail and how it may affect TMBCI and Rolette County and the jurisdictions. The mitigation strategy outlines long-term solutions to possibly prevent or reduce future damages. Additional threats and hazards may exist that were not apparent to local government or participants through the development of this plan, and certainly, disasters can occur in unexpected ways. Although any and all threats and hazards cannot be fully mitigated, hopefully, this plan will help the communities understand the threats and hazards better and become more disaster resistant.

The funding of the hazard mitigation strategies and actions may be local funding or may include grant funding. Grant funding comes from a variety of sources but usually funding is from the state. They include, but are not limited to:

Disaster Funded Mitigation Assistance

Hazard Mitigation Grant Program (HMGP): Provides grants to States, Tribes, and local entities to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. Projects must provide a long-term solution to a problem, for example, elevation of a home to reduce the risk of flood damages as opposed to purchasing supplies to fight the flood. In addition, a project's potential savings must be more than the cost of implementing the project. Funds may be used to protect property or to purchase property that has been subjected to, or is in danger of, repetitive damage. The amount of funding available for the HMGP under a disaster declaration is limited. The program may provide a state or tribe with up to 20 percent of the total disaster grants awarded by FEMA. The cost-share eligibility requirement for this grant is 75 percent federal/25 percent non-federal.

Building Resilient Infrastructure and Communities, (BRIC)

The BRIC program aims to categorically shift the federal focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience. Examples of BRIC projects are ones that demonstrate innovative approaches to partnerships, such as shared funding mechanisms, and/or project design.

For example, an innovative project may bring multiple funding sources or in-kind resources from a range of private and public sector partnerships. Or an innovative project may offer multiple benefits to a community in addition to the benefit of risk reduction.

Through BRIC, FEMA continues to invest in a variety of mitigation actives with an added focus on infrastructure projects benefitting disadvantaged communities, nature-based solutions, climate resilience and adaption, and adopting hazard resistant building codes.

Flood Mitigation Assistance Programs (www.fema.gov)

The Flood Mitigation Assistance (FMA) program provides funds for projects to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP) on an annual basis.

There are three types of FMA grants available to Applicants:

- Planning Grants - to prepare flood mitigation plans
- Project Grants - to implement measures to reduce flood losses, such as elevation, acquisition, or relocation of NFIP-insured structures
- Management Cost Grants - for the grantee to help administer the FMA program and activities

Eligible Applicants

- States
- Territories
- Commonwealths
- Indian Tribal Government

Eligible Sub Applicants

- State Agencies
- Indian Tribal Governments
- Local Governments/Communities

1.2.2 Organization

This plan is organized around FEMA's mitigation planning process and is divided into six chapters:

Chapter 1 Introduction explains the purpose, organization, scope, authority of the plan, and provides a general overview and history of Rolette County and the Turtle Mountain Band of Chippewa Indians.

Chapter 2 Planning Process explains the planning process, including how the plan was prepared, who was involved, and how it was integrated with other related planning efforts.

Chapter 3 Assets at Risk/Future Development includes critical facilities and infrastructure; population; buildings; economic ecologic, historic, and social values; land use; new development; and future development.

Chapter 4 Risk Assessment features the risk assessment, which identifies the type and location of threats and hazards that can affect Rolette County and the TMBCI, analyzes vulnerability to the hazards identified at the county and tribal level, and serves as the factual basis for the mitigation strategy.

Chapter 5 Mitigation Strategy provides the County's and Tribe's mitigation blueprint. Specifically, it includes goals and objectives and local mitigation actions. It also presents the mitigation funding sources, project prioritization, and project implementation.

Chapter 6 Plan Monitoring and Maintenance includes the County's and Tribe's approach to plan monitoring, plan evaluation, plan updates, plan update process, implementation through existing programs, and public involvement.

Appendices include information and documentation on participation, meeting summaries and agendas, glossary and acronyms, FEMA Crosswalk reference document, FEMA and NDDES Approval letters and jurisdictional adoption documentation.

1.3 Authorities

The TMBCI and Rolette County Joint Multi-Hazard Mitigation Plan has been prepared by TMBCI and Rolette County Joint Planning Committee pursuant to the Disaster Mitigation Act (DMA) of 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by adding a new section, Section 322 – Mitigation Planning. The requirements of such are outlined in the Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201, with some additional amendments. This legislation requires all local governments to have an approved Hazard Mitigation Plan in place by November 1, 2004 to be eligible to receive Hazard Mitigation Grant Program (HMGP) and other types of disaster and mitigation funding.

The North Dakota Century Code, Chapter 37-17.1, as amended, requires the North Dakota Department of Emergency Services (www.nd.gov/des) to support and plan for mitigation activities. The North Dakota Department of Water Resources (www.nd.gov/swc) is responsible for promoting flood insurance and flood mitigation activities. The State of North Dakota has its own Multi-Hazard Mitigation Plan that is linked to this countywide plan.

TMBCI, Rolette County and the communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John have adopted this Multi-Hazard Mitigation Plan by resolution (see Appendix F for copies of the resolutions). These governing bodies have the authority to promote mitigation activities in their jurisdictions.

The execution of this mitigation plan is the responsibility of the various local government leaders and other elected and appointed officials that are in the position to make decisions capable of reducing or eliminating the threat or potential impact on life, property, and the environment. State and local emergency management officials are available to assist chief executives in initiating and carrying out plan initiatives. This plan does not replace existing preparedness and operational plans currently in use by state, tribal or local governments. Instead, this Multi-Hazard Mitigation Plan provides valuable mitigation strategies, which can serve to strengthen or improve the effectiveness of state and local emergency operational plans.

1.4 Turtle Mountain Band of Chippewa Indians and Rolette County Jurisdictional Overview

TMBCI and Rolette County are located in north central North Dakota as shown in Figure 1. Rolette County is comprised of approximately 939 square miles and is bordered by the counties of Bottineau, Pierce, and Towner, and the Canadian Province of Manitoba. Rolla is the official county seat. Communities in the county are Dunseith, Mylo, Rolette, Rolla, and St. John. There are thirty townships in the county. The Turtle Mountain Band of Chippewa Indians Reservation is located entirely in Rolette County –

measuring 6 miles north-south and 12 miles east-west which is 72 square miles or 46,080 acres. An additional 31,000 acres of tribal and individual trust lands surround the reservation in Rolette County. The community of Belcourt is also located in the county on the TMBCI Reservation.

Figure 1A, Rolette County and TMBCI Location

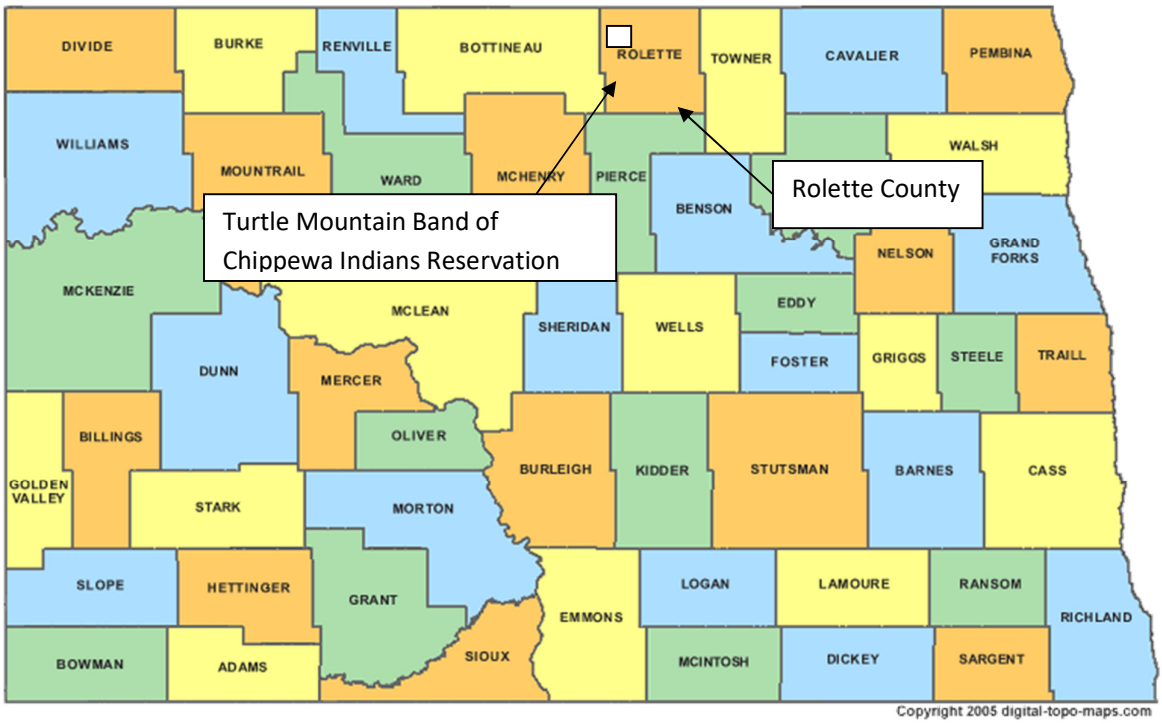


Figure 1B, Rolette County Townships

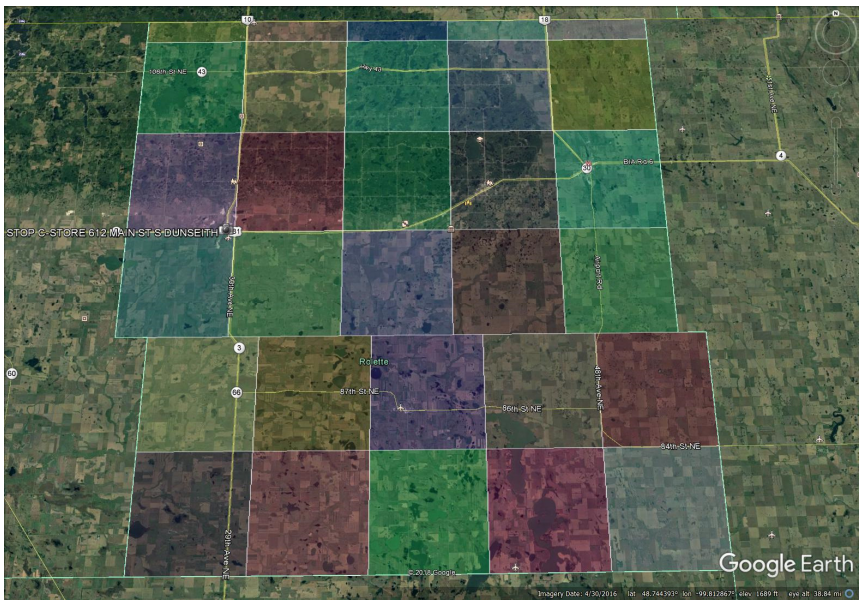
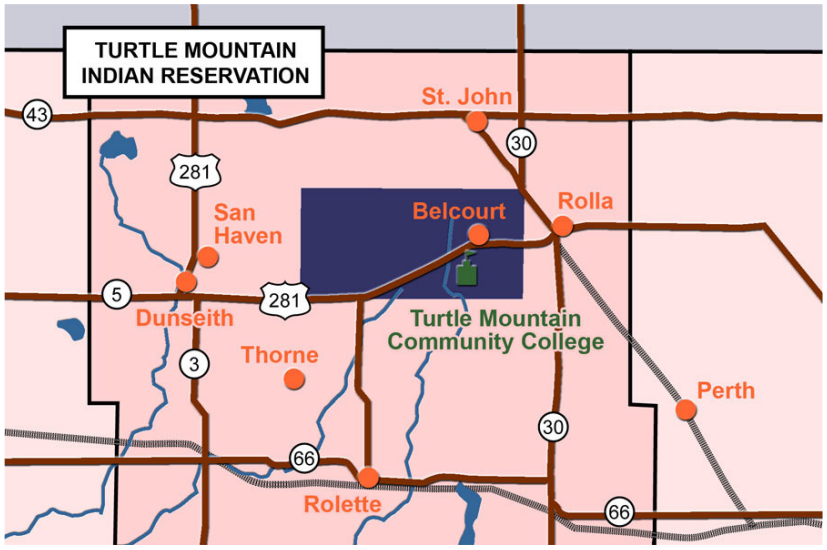


Figure 1C, TMBCI

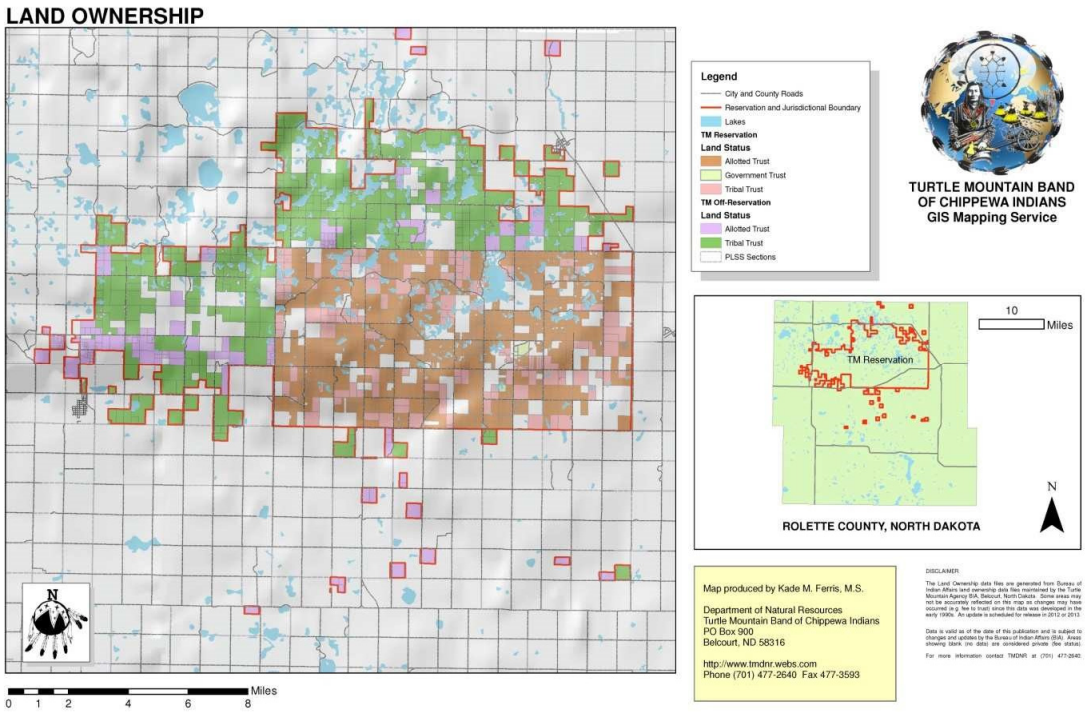


TMBCI Land Ownership:

There are three types of land ownership on the Turtle Mountain Reservation: allotted land, tribal land, and other land. Allotted land tracts were allotted to the Indians in 1887 by the federal government, much like a homestead, through the General Allotment Act, also known as the "Dawes Act". The allotted tracts are subject to the trust restrictions imposed by the U.S. Government; however, the restrictions may be removed by the Secretary of the Interior under certain circumstances. Tribal trust land is owned by the TMBCI and falls under the management of the Tribal Council for the benefit of the tribal members. Other land consists of fee or patent land. Included in this category is the property upon which the Bureau of Indian Affairs (BIA) agency resides in Belcourt, North Dakota.

The Turtle Mountain Reservation boundaries encompass 72,255 acres. This includes the 36,000 acres (over 56 square miles) of tribal trust land off-reservation in Rolette County. The TMBCI and tribal members hold another 6,698 acres in trust at Trenton, ND, and there are individual allotments at other locations throughout North Dakota and other states.

Figure 1D, TMBCI Land Ownership



The following data which gives a good picture of demographics of TMBCI and Rolette County was compiled by the United States Census Bureau.

DEMOGRAPHICS	MOST RECENT DATA
Total population	14,437 (2020)
Median age	31 (2020)
Percent of American Indian	76.7% (2020)
Percent of White	18.3% (2020)
Real median household income	$30,040 (2020)
Population with a disability	2,302 (2020)
AGING	
Total older adult population (age 65+)	1,697 (2020)
Seniors below the federal poverty level (age 65+)	277 (2020)
Age 65+ with a disability	224 (2020)

CHILDREN AND YOUTH	
Total youth population (under 18 years of age)	4,714 (2020)
Children below the federal poverty level (under 18 years of age)	1,665 (2020)
EARLY CHILDHOOD	
Total young child population (under 5 years of age)	8.8% (2020)
Young children enrolled in preschool (age 3-4)	196 (2020)
ECONOMY	
Total employed population	5,218 (2020)
Total agriculture, forestry, fishing, hunting, and mining (includes oil and gas extraction)	418 (2020)
Transportation and Warehousing	164 (2020)
Finance and insurance, and real estate and rental and leasing	263 (2020)
Professional, scientific, and management, and administrative and waste management services	127 (2020)
Educational services, and health care and social assistance	2,168 (2020)
Arts, entertainment, and recreation, and accommodation and food services	511 (2020)
Other services including public administration	620 (2020)
Medium household income	$46,481 (2020)
Number of households	4,402 (2020)
Households below the federal poverty level	1,076 (2020)
HEALTH	
Residents with health insurance	10,164 (2020)
HOUSING	
Housing units with a mortgage	637 (2020)
Housing units without a mortgage	2,512 (2020)
Other	
Adults with a bachelor's degree or higher (age 25+)	1,521 (2020)
Number of adults working (age 16-64)	9,710 (2020)

Notes: The United States Census Bureau has compiled 2,795 pieces of data concerning the Rolette County/TMBCI population. The table above is only a small sample of the data available.
Source: US Census Bureau, 2020; data.census.gov.

Retail sales in 2017 were $111,755,000 (US Census Bureau Quick Facts 2020). The market value of agricultural products sold in 2017 was $91,542,000 making agriculture the leading economic factor in Rolette County and on the TMBCI.
Source: http://www.agcensus.usda.gov/). The value of merchant wholesale sales was 103,586,000 in 2012 while manufacture's shipments are withheld (US Census Bureau 2012).

Rolette County is home to the International Peace Gardens. The International Peace Gardens have approximately 33,500 visitors from May to September each year. A monthly breakdown of visitor numbers is:

May - 1,553 = about 50 per day

June - 6,722 = about 224 per day

July - 13,709 = about 422 per day

August - 9,093 = about 100 per day

September - 2,377 = about 79 per day

It is estimated there are approximately 50-100 staff members and their family members that live there during the summer.

On top of those numbers the International Music Camp (IMC) hosts several weeks of residential programming, and we have a population that lives at the camp during this time frame. Campers for all weeks, other than adult camp, are ages 10-18 years old. During Adult Camp the campers are all ages 21 and up. Quite a few of them are 60+. Our oldest camper, for that we have had, is 98 years old. The 2022 dates for the IMC population estimates that would be on top of the International Peace Garden's daily visitors.

The IMC hosts a camp clean up and prep weekend on the third week in May (30-40 adult volunteers to clean and prep buildings Thursday–Sunday).

The IMC Resident Dates
- -Opening Up Camp Week: 15 staff (last week of May, first week of June)
- -Fiddle Week: 80 campers and faculty & 25 staff (first week of June)
- -Staff Training Week: 50 staff (second week of June)
- - Week 1 of regular summer programming - 325 campers and faculty & 50 staff (third week of June)
- - Week 2 of regular summer programming - 325 campers and faculty & 50 staff (fourth week of June)

- Week 3 of regular summer programming - 350 campers and faculty & 50 staff (first week of July)
- Week 4 of regular summer programming - 350 campers and faculty & 60 staff (second week of July)
- Week 5 of regular summer programming - 380 campers and faculty & 60 staff (third week of July)
- Week 6 of regular summer programming (Last full week of July) - 450 campers and faculty & 60 staff (July 24-30, 2022)
- Adult Camp - Saturday of Week 6-Wednesday of following week - 250 adult campers (21 and older, mostly seniors) & 40 staff (July 30-August 2, 2022)
- Wednesday-Friday of that same week we pack up for the summer - 40 staff (first week of August)
- The last few staff members leave on Saturday of that week. (August 6, 2022)
- The IMC also hosts fall retreats that have around 250 students and faculty and up to 10 staff members during the last full week of September.

Source: Christine Baumann, International Music Camp Director

1.4.1 Geography

The last Great Ice Age, which began about 1.6 million years ago, dramatically affected the geology and life of North Dakota, Rolette County and on the TMBCI Reservation. Glaciers advanced into North Dakota from Canada on numerous occasions and extended as far south as the Missouri River during the last major glacial advance. When the glaciers melted, the sediment incorporated in the ice was deposited. Artifacts indicate that the first people to reside in North Dakota were here about 11,000 years ago. They were big game hunters preying on mammoths and other large mammals. The climate became warmer and drier between 8,500 and 4,500 years ago, the kinds of plants and animals that live in North Dakota today became established at that time. The glacial anticyclone depicts how Rolette County and the Turtle Mountain Band of Chippewa Indians Reservation was formed. The ice sheet pushed huge quantities of glacial till into what is now Rolette County and the TMBCI Reservation. The glacial deposits in the Rolette County and on the TMBCI Reservation area range from 0 to 800 feet thick and average about 165 feet thick. Generally, the thickness of the glacial sediment increases to the northeast, but the thickest glacial deposits are in the buried river valleys. Rolette County which includes the TMBCI Reservation is located on the Glaciated Plains, an area of undulating to flat topography. This area is characterized by high-relief collapsed hummocky topography. Associated landforms include numerous ice-contact deposits, lake plains, and collapsed fluvial plains. Surficial deposits throughout Rolette County are predominantly till and glaciofluvial deposits, but lake sediments, colluvium, and recent alluvium and landslide deposits are also present. The most important economic resources in Rolette County and on the TMBCI RESERVATION, other than soil and water, are sand and gravel.

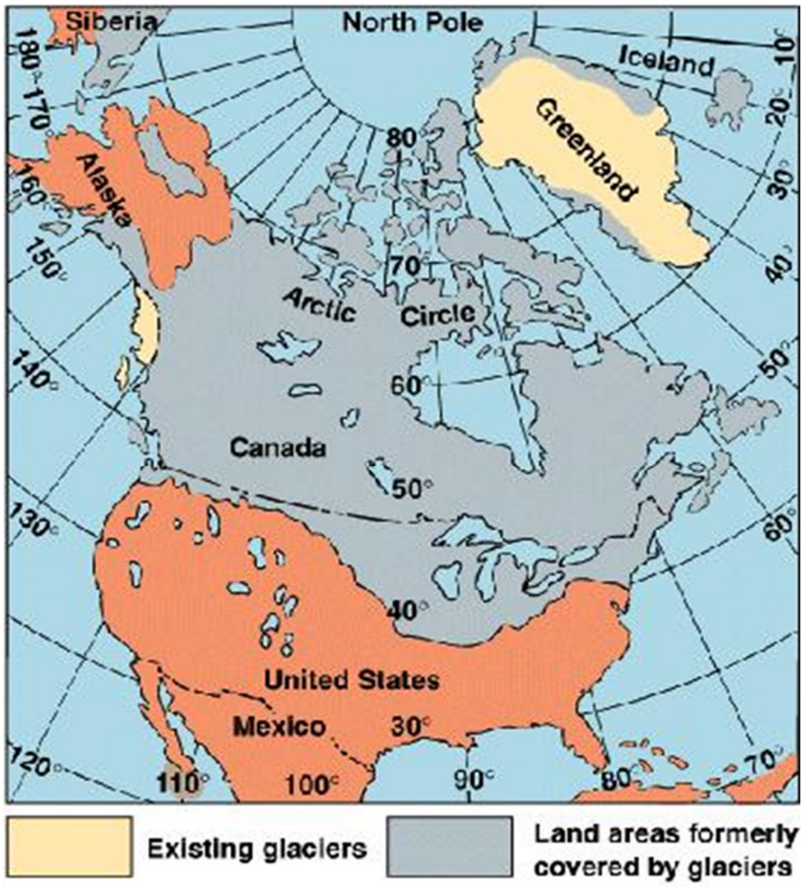
Western Rolette County features the Turtle Mountains which is forested terrain rising 300-400 feet above the surrounding countryside. The Turtle Mountains are also located in southwestern Manitoba and eastern Bottineau County. The Turtle Mountains were

formed when the glacier advancing southward was carrying an excessive amount of glacial till and the glacier overrode the till depositing it one place, thus the Turtle Mountains were formed. One might compare this phenomenon to sweeping dirt or snow with a push broom. When the sweepings become excessive the sweepings are deposited. The Turtle Mountains extends 20 miles north to south and 40 miles from east to west.

The International Peace Garden is a big, beautiful park and garden in the Turtle Mountains. It is straddling the border and celebrating the peace between the U.S. and Canada. The park plants over 150,000 flowers each year and was established during the Great Depression to give jobs through the Civilian Conservation Corps.

Figure 1.4B below is showing the locations of Pleistocene continental glaciers in the Northern Hemisphere.

Figure 1.4B Pleistocene Continental Glaciers



Source: http://higheredbcs.wiley.com

Figure 1.4C Laurentide Ice Sheet

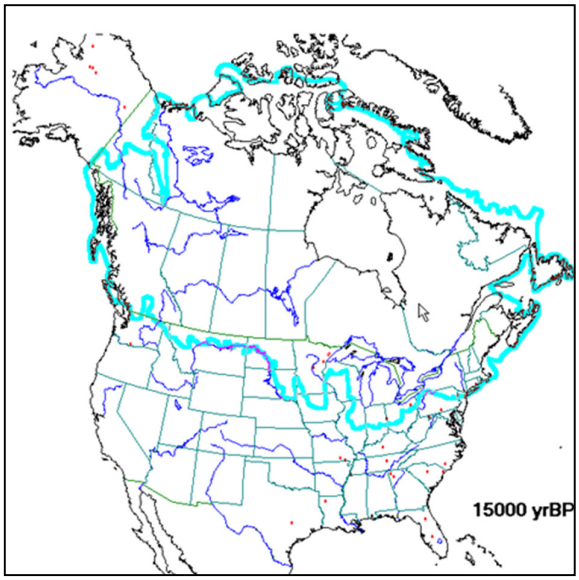
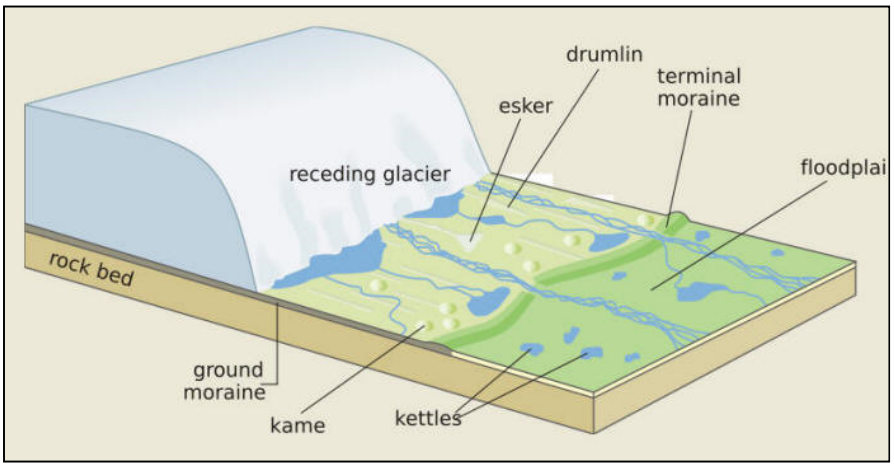


Figure 1.4C to the right outlines in blue the extent of the Laurentide Ice Sheet 15,000 years ago. Geologists have found material left by the ice throughout this area, proving that virtually all of Canada and most of North Dakota including all of Rolette County and the TMBCI Reservation were once covered by thick glacial ice.

Source: www.ncdc.noaa.gov

Figure 1.4D outlines the glacial deposits and depicting their formation as glaciers retreated. These glacial features are common in Rolette County and on the TMBCI Reservation.

Figure 1.4D Glacial Deposit Formation



Source: Hans Hillewart, 2014

Figure 1.4E below depicts the surface geology of North Dakota and how it was influenced by glacial activity. One can see how Rolette County fits into the whole picture of the state. As a result of the continental glacial activity, Rolette County and the TMBCI Reservation has a variety of Geologic Units described in table 1.4A.

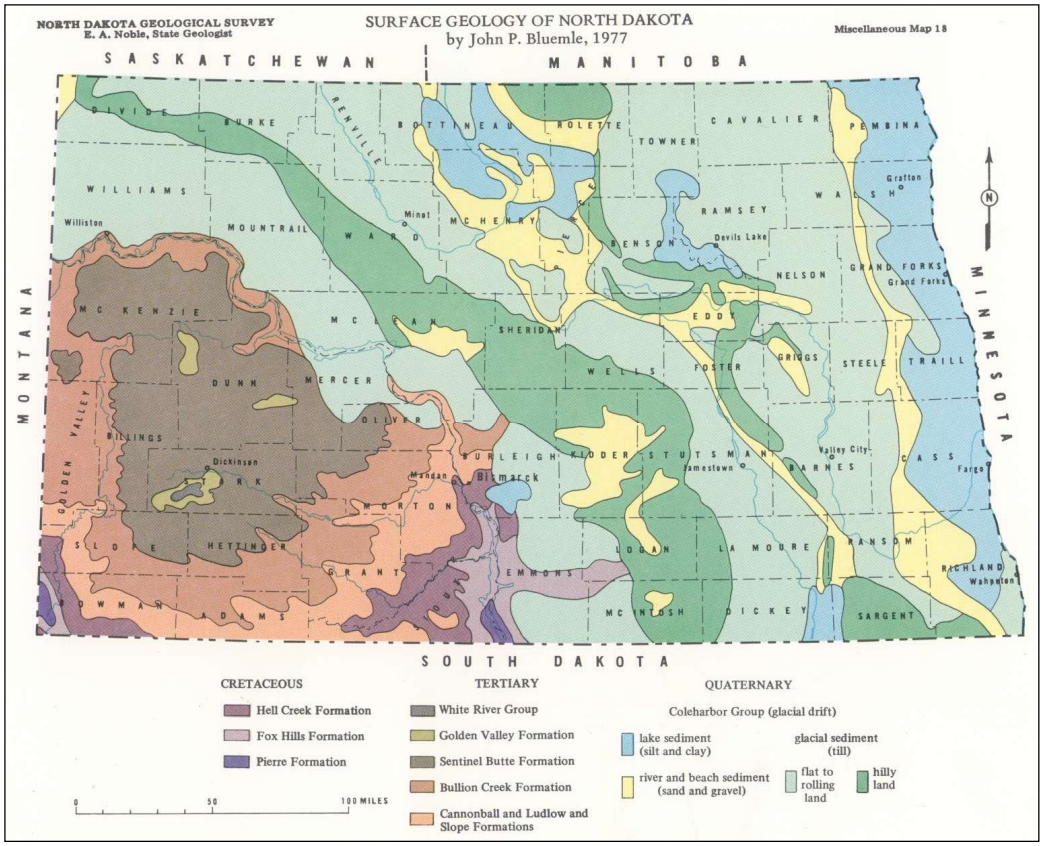
Table 1.4A, Geologic Units

Type of Geologic Unit	Geologic Unit Description
Glacial Sediment- Flat to rolling land.	This unit covers eastern Rolette County. It consists of unbedded, unsorted mixture of clay, silt, sand, pebbles and a few cobblers and boulders as thick as 100 feet. This area is consistent with the rest of the Drift Prairie the east and southeast of Rolette County.
Glacial Sediment- Hilly Land	This unit covers a portion of northern and western Rolette County and the TMBCI Reservation. It is the Turtle Mountains of North Dakota and Manitoba. It consists of unbedded, unsorted mixture of clay, silt, sand, and pebbles, and a few cobbles and boulders; as thick as 100 feet.
Coleharbor Formation- River Sediment- Uncollapsed River Sediment	This unit covers the area south of the Turtle Mountains in Rolette County. It consists of moderately well sorted cross-bedded sand and plane-bedded gravel, including sediment of melt-water and other rivers; as thick as 100 feet. Flat-bedded sediment of gently sloping plains and terraces, commonly with braided-channel scars characterize this area.
Oahe Formation- Pond Sediment	This unit covers southwestern Rolette County. It consists of dark, obscurely bedded clay and silt; typically, a few yards thick; in modern ephemeral ponds.

Source: United States Geological Survey

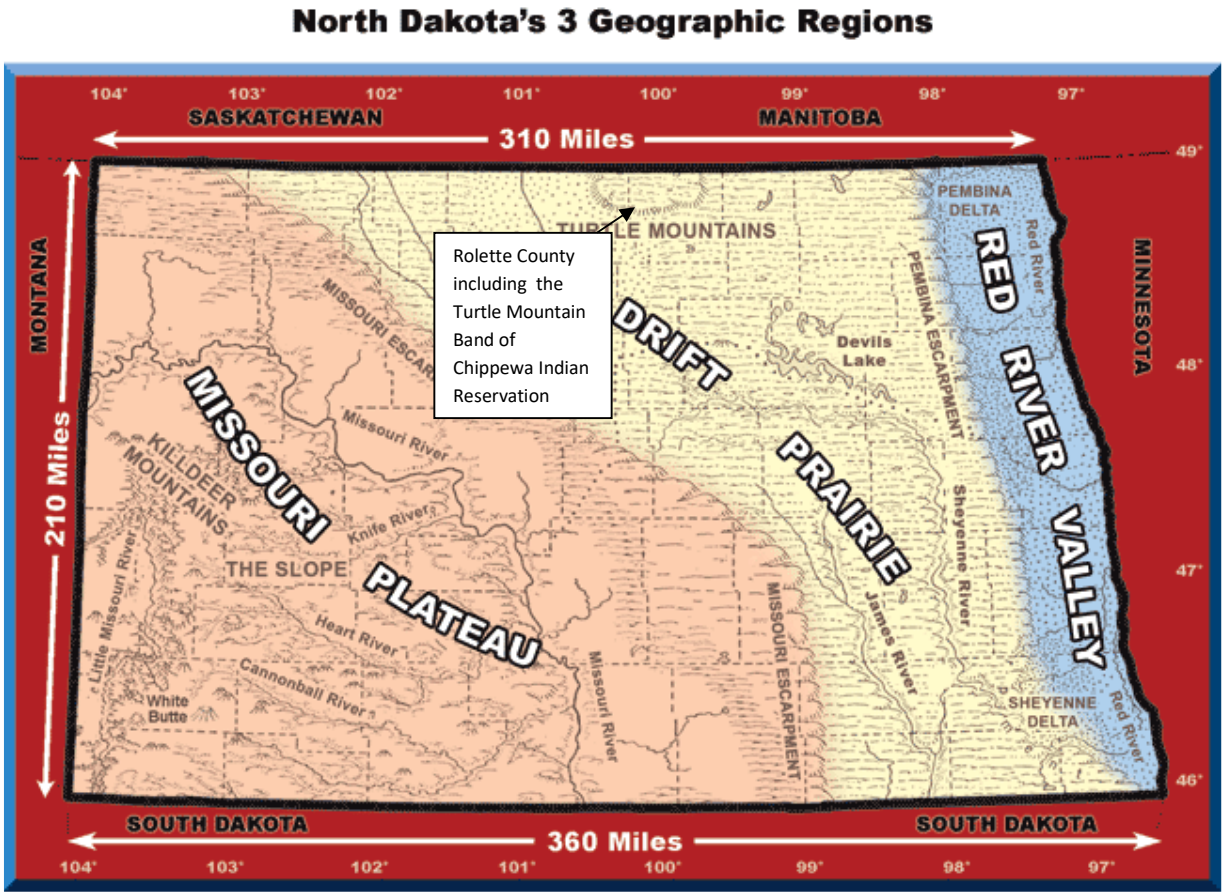
In figure 1.4E one can see that the majority of Rolette County is glacial sediment while the southwestern part of the county is river and beach sediment. The TMBCI Reservation is glacial sediment.

Figure 1.4E North Dakota Surface Geology



Source: North Dakota Geological Survey, 2014

Figure 1.4.H, North Dakota's Geographical Regions



http://ndstudies.gov/legendary_maps_charts

Rolette County in north central North Dakota is located in 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. This plain is undulating to rolling, with occasional hills rising 150 to 200 feet above the general surface.

Glacial drift covers the entire area except along a few deeply eroded valleys where Cretaceous shale is exposed. Rolette County and the TMBCI are in the Red River drainage basin, with drainage mainly westward toward the Souris River or southward toward the Devils Lake Basin. Major Rivers include Willow Creek, Wolf Creek and Ox Creek. Rolette County and the Turtle Mountain Band of Chippewa Indians Reservation is part of the Hudson Bay drainage versus the southwestern part of the state that is the Gulf of Mexico drainage.

Source: http://www.swc.state.nd.us

The area is poorly drained and is characterized by numerous prairie potholes.

In addition to the larger Lakes such as Willow Lake, thousands of small ponds or prairie potholes contain water for only a few days or weeks at a time after a rain or in the spring when the snow melts. Source: North Dakota, the Northern Prairie State

The TMBCI Reservation is situated in the north-central portion of Rolette County, North Dakota. The Turtle Mountains (locally referred to as "Turtle Island" or *Makinak-wajdu* in the Ojibwa language) are an anomalous "island" within the Northern Glaciated Plains eco-region. Unlike the surrounding prairies, the Turtle Mountains have an undulating landscape and abundant wetlands which receives about 10 inches more precipitation annually – thus supporting a forest cover of aspen, birch, burr oak, elm, and ash. The forest soils are erodible and poorly suited for cropland, though there is some clearing for pastureland.

Before European settlement, and the resultant changes to the regional landscape, it is believed that over 160 wildlife species were resident or seasonal to the Turtle Mountain ecosystem, and hundreds of native fish species lived in the local lakes and streams. Some of the animal species that would have been common (many of which are still common)—prehistorically and historically—include fur bearing mammals such as beaver, muskrat, eastern cottontail, and game animals, including elk, moose, mule deer, white-tailed deer, pronghorn antelope, and bison. Bird and waterfowl species include mallard, Canada goose, sharp-tailed grouse, golden eagle, and bald eagle.

Due to modern agriculture, regional vegetation communities have changed considerably in some of the more developed areas of the Turtle Mountains. Common grass species include bluegrass, blue grama, western wheatgrass, and bluestem grasses, as well as various forbs, shrubs, and herbaceous plant species. Tree species common to the Turtle Mountains include green ash, quaking aspen, paper birch, and burr oak.

In general, the tribe's members have a rich cultural and ethnic heritage consisting of varying degrees of

Chippewa/Ojibwa, Cree, and French-Canadian ancestry. Some of the members self-identify as the Michif (Metis) which means mixed-blood. Unlike many of the reservations on the Great Plains, which can contain hundreds of thousands of acres and general small resident populations, the TMBCI occupies one of the most condensed reservations in the nation, with approximately 15.2 people per square mile[1]. Despite this high population, the reservation is considered rural and has limited access to many of the goods and services available in larger communities. The nearest metropolitan center is Minot, located 120 miles west. Many tribal members travel there for shopping and or other professional services. The reservation is also located close to the international border with Canada – located approximately nine miles north.

The Turtle Mountain Region of North Dakota and Manitoba, Canada, is one of great cultural and natural significance. Visitors enter the region via the International Peace

[1] U.S. Census Bureau, 2009

Garden on the border between North Dakota and Canada. The garden commemorates the commitment by both countries to remain at peace. The state's oldest and largest Chippewa Reservation is located nearby, and a National Scenic By-Way (Hwy 43) runs through the Turtle Mountains from St. John to the International Peace Garden. It also proceeds west of the junction of Hwy 43 and Hwy 281 into Bottineau County.

The Turtle Mountain Reservation itself is relatively small – measuring 6 miles north-south and 12 miles east-west (approximately 46,080 acres). An additional 31,000 acres of tribal and individual trust lands surround the reservation in Rolette County (Figure 1). Most tribal members live in scattered home sites on tribal and trust lands in the Turtle Mountains. Concentrations of tribal members also live in the communities of Belcourt, Rolla, Dunseith, St. John and Rolette.

1.4.2 Climate

General

Climate is the average of weather conditions, as a factor in the environment. Climate underlies the production, distribution and exchange of commodities derived from both the plant and animal kingdoms; it influences methods of agriculture and the way of life of the citizens of Rolette County and the TMBCI Reservation. Rolette County and the TMBCI Reservation are located in the higher mid-latitudes. This results in incoming solar radiation being direct during the summer months and indirect during the winter months. The pattern of four different distinct seasons (spring, summer, fall, and winter) is characteristic of the middle latitudes. The length of day and night is also affected by the mid-latitude location. (National Weather Service, 2014)

Latitude is not the only factor that affects the climate of Rolette County and the TMBCI Reservation. The Rocky Mountains to the west in Montana serve as a barrier between North Dakota and the Pacific Ocean blocking moist Pacific air from reaching the state reducing the potential rainfall and moderate temperatures we would otherwise experience. Furthermore, the Rocky Mountains serve as a funnel for cold arctic air to slide east of the Rockies onto the Great Plains (including Rolette County and the TMBCI Reservation) giving Rolette County and the TMBCI Reservation cold winter temperatures. (National Weather Service, 2014)

Temperature

Rolette County and the TMBCI Reservation truly represent a continental climate with cold winters and hot summers. Summers are warm and pleasant with warm days and cool nights. The average air temperature in July in Rolla is recorded as 78.5 degrees Fahrenheit with the average temperature in January at 15.6 degrees Fahrenheit. The highest recorded temperature was 100 degrees Fahrenheit on June 4, 2021, at 2:52 pm. The record low temperature set for Rolette County is -41 degrees Fahrenheit set on January 28, 2004, at 7:35 am. The record high temperature for North Dakota is held by Steele, the Kidder County Seat. The record

is 121 degrees Fahrenheit set on July 6, 1936, while the record low for North Dakota was -60 degrees Fahrenheit on February 15, 1936.

Source: ND DAWN, National Weather Service - http://www.crh.noaa.gov/bis/ and http://www.crh.noaa.gov/fgf/

Precipitation

Rolette County's average annual precipitation is 19.0 inches resulting in a semi-aired climate. The average annual precipitation on the TMBCI Reservation is somewhat higher because of the higher elevation in the Turtle Mountains. The total precipitation is not large, but more than three-fourths of the annual precipitation typically falls during the growing season. About half of the precipitation typically falls during May, June, and July. February typically is the driest month with only 0.43 inches of precipitation while June typically is the wettest with 3.27 inches of precipitation. ndawn.ndsu.nodak.edu. The most rainfall that fell in one day was 3.45 inches on September 23, 2015. The largest hailstone reported was 3.0-inch diameter which fell on August 3, 2016, 10.7 miles northwest of San Haven.

Source: National Weather Service – ND DAWN, http://www.crh.noaa.gov/fgf/, http://www.crh.noaa.gov/bis/

Wind and Tornadoes

The average wind velocity is 9.75 miles per hour. The most common single wind direction is the Northwest, but the county and the TMBCI Reservation gets winds from every direction of the compass. For nearly seven months, the wind is predominantly from the west (September 1-February 28 and June 10-July 31. The highest wind gust recorded was 85 mph on June 25, 2011 11.2 miles west of Nanson causing a roof to be torn off a barn.

Historically 16 tornadoes have been recorded with the strongest being an EF3 which occurred on July 7, 2008. -West and northwest of Belcourt it was an EF1-EF2 with damage with around 70 structures (around 315 PM). EF3 damage was found in Rolla where 12 homes were destroyed and 18 homes were damaged (around 330 PM). There was one injury around Belcourt, and two around Rolla. The tornado weakened as it moved east of Rolla, where EF2 damage was found. This tornado crossed into Towner County, ND. It had a 140-mph estimated speed. An F2 tornado occurred on May 20, 1965, which was on the ground for 4 miles and was 50 yards wide. There were no deaths and no injuries.

Sources: ndawn.ndsu.nodak.edu.,
http://www.weather.gov/media/bis/North_Dakota_County_Statistics.pdf

TABLE 1.4.2A, NATIONAL WEATHER SERVICE MONTHLY NORMALS AS REPORTED BY NDDAWN AT ROLLA

Month	Max Temp (°F)	Min Temp (°F)	Avg Air Temp (°F)	Heating DD (°F)	Cooling DD (°F)	Precip (inch)
January	16	-3	6	1823	0	0.45
February	20	1	10	1581	0	0.42
March	30	12	21	1357	0	0.80
April	49	26	38	826	0	1.04
May	62	38	50	467	0	2.49
June	70	49	59	201	30	3.66
July	75	54	65	79	68	2.98
August	75	52	63	108	61	2.45
September	64	42	53	369	7	1.71
October	50	29	40	792	0	1.31
November	32	15	24	1238	0	0.84
December	19	1	10	1711	0	0.52
Averages:	47	26	37	879	14	
Totals						18.67

Source: NDDAWN.ndsu.nodak.edu

Climate Conclusion

Rolette County and the TMBCI Reservation experience a typical continental climate with cold winters and warm summers. Precipitation is just below average for North Dakota. The factors that make up the climate of Rolette County and the TMBCI Reservation result in sometimes violent and damaging weather systems. Included among these are high winds, tornadoes, thunderstorms, floods, excessive heat, excessive cold, blizzards, drought, hail, sleet, and freezing rainfall. The frequency of these severe weather events and damages are explained in Section 4.

1.5 County History

Rolette County is located in east central North Dakota with an area of 939 square miles. The county was created by the 187-73 territorial legislature and named for Joseph Rolette Jr., a fur trader and politician from Pembina. The county government was organized on October 14, 1884.

1.6 Turtle Mountain Band of Chippewa Indians Tribal History

The Chippewa tribal group is one of the largest and most widespread North American aboriginal groups—with populations located throughout much of the north-central United States and southern Canada. Present-day communities can be found in the states of Michigan, Wisconsin, Minnesota, North Dakota, and Montana, and in the provinces of Ontario, Manitoba, and Saskatchewan. In Canada, over 130 First Nation groups contain at least some measure of Chippewa membership, while there are 22 federally recognized Chippewa bands in the United States.

An Algonquin speaking people, the Chippewa share a common Woodlands cultural and linguistic legacy with such groups as the Ottawa, Potawatomi, Menominee, and Cree. Some Chippewa groups, such as the Plains Chippewa of the Turtle Mountain Reservation, speak a more modified form of the Ojibwa language that can more rightly be classified as Saulteaux or Nakawe, which is more Cree-like than eastern Ojibwa language. Michif—the Métis creole language developed during the fur trade—is also prevalent in the Canadian Prairie Provinces and in North Dakota and Montana groups[2].

The migration of the Turtle Mountain Chippewa to North Dakota almost certainly began prior to (or during) the early to middle eighteenth century, following a succession of earlier migrations by the greater Chippewa cultural group from their aboriginal origins in the eastern United States and Canada into the northern and southern regions surrounding Lake Superior. According to oral tradition this migration took place in the century prior to European colonization in the Great Lakes region during the late seventeenth century.

During the early nineteenth century (1800-1820), a cultural transformation began to take place among the Turtle Mountain Chippewa, which saw the incorporation of additional European technological and cultural elements into their society. Many Chippewa families began living in log cabins near Pembina and extending their settlement into the Devils Lake area, Mouse River valley, and Turtle Mountain region. Changes also occurred in the general clothing style of the Chippewa towards a more European fashion among the Métis, or towards a more typical "Plains" style of dress among the full-bloods. The change towards the European style was especially evident among the more trading post dependent members of the tribe. Intermarriage between Chippewa full-bloods and Métis also occurred to a greater extent during this period—resulting in an even closer relationship between these already interrelated groups.

Although the Chippewa enjoyed economic and cultural success during the early nineteenth century, after a short period of wellbeing, a serious decline in beaver populations was witnessed in the Red River valley, beginning in the early 1820s[3]. This decline, coupled with a general decline in European market demand resulting from the Napoleonic Wars and the creation of the US/Canadian international boundary in 1818, caused the Hudson Bay Company to remove its posts south of the border to Canada[4].

Because the prairies to the west of the Red River valley did not have the required habitat or beaver rich streams so familiar to the Chippewa, the tribe changed their orientation towards an even more lucrative source of trade – the buffalo – which served as the cultural and economic focus for the remainder of the century.

The latter half of the nineteenth century was a time of flux for all Indian tribes on the Great Plains, the Chippewa included. The fur trade had declined, and the Chippewa and Métis were forced to look further west into Montana for their fortunes. At the same time, unrest was beginning to grow above the international border among the Métis and some of the Indians in the Red River region of Canada. The Red River Rebellion of 1869-1870 began with the transfer of the Northwest Territory franchise from the Hudson Bay Company to the dominion of Canada. The transaction was at best undiplomatic in that none of the Indian tribes or Métis people were consulted over the transfer. For the Indians, the transfer meant that there would be new encroachments and new treaties to negotiate with the white man, and for the Métis the concern over becoming part of Canada would upset the traditional dominion they held over the lands and resources and a fear that the religious and linguistic balance of the region would be upset by massive immigration from Ontario[5]. Feeling compelled to act, the Métis seized Fort Garry on November 2, 1869, and Louis Riel and his lieutenants formed a Métis provisional government for the territory of Manitoba. Some minor armed conflicts took place, but eventually the uprising was ended by Canadian troops, and shortly afterward an agreement was reached. Louis Riel fled to the Turtle Mountain Reservation in North Dakota, and many Métis people were dispersed and found their way into North Dakota and Montana—attaching to the Turtle Mountain Chippewa.

In 1882, an executive order was signed by President Chester Arthur to establish the Turtle Mountain Band of Chippewa Indians Reservation to contain most of present-day Rolette County, North Dakota. Subsequent executive orders signed in 1884 reduced the reservation to only two townships in size. The government explanation for this reduction was supposed to be based on the limited number of full-bloods living on the reservation, but the more likely reason for the reduction was that coal was discovered near present day Dunseith, North Dakota. Even though the coal proved not of sufficient quality or quantity to mine, the reservation boundaries were never restored to their original size and white settlers began to flood the lands surrounding the Turtle Mountains.

The establishment of the Turtle Mountain Band of Chippewa Indians Reservation, however, did not extinguish the Turtle Mountain Band of Chippewa Indians legal ownership to the almost 10 million acres of traditional hunting lands north of the Sheyenne and Missouri Rivers. In 1892, three commissioners were appointed by the

President to negotiate with the Turtle Mountain Chippewa Indians for a cession of their lands. In 1891, Agent Waugh of Fort Totten had selected a committee of 16 full bloods and 16 mixed bloods to ascertain who were American Indians and members of the Turtle Mountain Band of Chippewa Indians. This committee was requested by the McCumber Commission to assist in taking the census. Little Shell and his followers desired a 30 square mile reservation at Turtle Mountain. When the commission refused to discuss this, Little Shell and his followers left the meeting, and the "Committee of 32", which had earlier assisted the McCumber Commission in a census of Turtle Mountain Band of Chippewa Indians living at the agency, represented the tribe in negotiating an agreement to cede the land (23 ICC 315). By the terms of the McCumber Agreement, the United States was to acquire title to all lands in North Dakota owned by the Chippewa—with the exception of the reservation described in Article 2 of the agreement. In 1904, Congress approved the McCumber Agreement with amendments, and required that a majority of the members of the Turtle Mountain Band of Chippewa Indians consent to the amendments and release all claims against the United States before payments guaranteed in the agreement would be made to the tribe. A majority of those attending the meeting of the tribe approved the agreement as revised on February 15, 1905 (23 ICC 315).

Article 6 of the agreement provided that "all members of the TMBCI who may be unable to secure land upon the reservation above ceded may take homesteads upon any vacant land belonging to the United States, without charge, and shall continue to hold and be entitled to such share in all tribal funds, annuities, or other property, the same as if located on the reservation." This section was created due to the fact that when the 46,080 acres of the reservation proper itself was allotted, the amount within the reservation was not sufficient to allow all tribal members to take their land allotments within the reservation. Instead, lands could be selected elsewhere on the public domain. Through this article, a large number of Turtle Mountain Band of Chippewa Indians were able to take lands in units of up to 160 acres across their former territory in areas of western North Dakota, eastern and northern Montana, and in other scattered locations in North Dakota, South Dakota, and Montana. Some of the tracts taken were situated on the Missouri River, and a concentration of tribal members took up residence in the Fort Buford area of western North Dakota (near Williston) during the early twentieth century—joining other tribal members who had settled in the area prior to the end of the nineteenth century. This settlement continues to the present as the Trenton Indian Service Area (TISA), which is a semi-autonomous part of the Turtle Mountain Band of Chippewa Indian Reservation established by tribal council resolution to provide governmental services to these tribal members remotely.

[2] 2004 Ojibwa Shamanism (in) *Shamanism: an encyclopedia of world beliefs, practices, and culture, Volume 2.* Mariko Namba Walter, Eva Jane Neumann Fridman. ABC-CLIO.

[3] 2001 Santee. (in) R. J. DeMallie (Ed.), *Handbook of North American Indians: Plains.* Vol. 13, Part 2, pp. 761776. W. C. Sturtevant (General Ed.). Washington, D.C.: Smithsonian Institution.

[4] 1996 Homeland to Hinterland*: The Changing Worlds of the Red River Métis in the Nineteenth Century.* University of Toronto Press.

[5] 1979 *Louis David Riel: Prophet of the New World.* University of Toronto Press, Toronto.

1.7 Summary of Hazards

All of the factors above are important when examining the county's and tribe's vulnerability to hazards. Twelve hazards are identified in this plan as having a significant potential threat to the people, environment, and economy of Rolette County and the Turtle Mountain Band of Chippewa Indians. These hazards are:

- Infectious Disease (including human, animal, and plant diseases)
- Dam Failure
- Drought
- Flood (including riverine, levee failure, closed basin, ice jam, and flash floods)
- Geologic Hazards, about 20 gravel pits, landslide, and other geologic/mining hazards)
- Hazardous Material Release (including impacts from the oil and gas industry)
- Criminal, Terrorist, Nation Attack
- Severe Summer Weather (including tornadoes, hail, downbursts, thunderstorm winds, lightning, and extreme heat)
- Severe Winter Weather (including blizzards, heavy snow, ice storms, and extreme cold)
- Civil Disturbance
- Cyber Attack
- Fire, Wild and Urban
- Space Weather
- Transportation Incidents

Additional hazards may exist that were not apparent to the mitigation team or stakeholders through the development of this plan, and certainly, disasters can occur in unexpected ways. Although any and all hazards cannot be fully mitigated, hopefully, this plan will help the communities of Rolette County and the TMBCI understand the hazards better and become more disaster resistant.

2. PLANNING PROCESS AND METHODOLOGIES

Mitigation planning is a community effort. It also takes time and expertise. For Rolette County, the TMBCI and the Communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John, an effective hazard mitigation plan requires input from a variety of stakeholders, including elected officials, first responders, emergency management, health care providers, public works, road officials, state and federal agencies, businesses, and the public. Following a disaster, many of these stakeholders will be overwhelmed with recovery responsibilities. Therefore, planning for mitigation and involving as many

stakeholders as possible before a disaster strikes will make mitigation activities easier following a disaster and may even prevent the disaster in the first place!

The key to the development of a sound mitigation plan is the establishment of essential elements of the planning process. The following are some of the elements used to develop this plan:

- Identify the types of natural and human-caused hazards that affect the county and develop a brief history for each.
- Determine the present and future risk and vulnerability of Rolette County and Turtle Mountain Band of Chippewa Indians citizens to these hazards.
- Determine our present capability to perform hazard mitigation at the local, tribal and county levels.
- Establish and prioritize the major hazard mitigation issues that should be addressed.
- Determine mitigation measures and strategies for addressing and reducing the county and tribal vulnerability to present and future hazards.
- Outline a system for managing and improving mitigation programs at the county and tribal level through public meetings.

2.1 Planning Steps and Planning Tasks

The planning steps closely followed the guidance outlined in FEMA's *Local Mitigation Planning Handbook* dated March 2013. The handbook outlines nine tasks to follow in the completion of the Hazard Mitigation Plan. They are:

1. **Task 1** - Determine the Planning Area and Resources
   Rolette County and the Turtle Mountain Band of Chippewa Indians determined the planning area and overall scope of the planning project. Building on existing planning efforts and working with other entities were common approaches to defining the planning area. Identifying the plan's local jurisdictional leads and the need for outside technical assistance were important first steps in organizing the resources. In this multi-jurisdictional plan, all jurisdictions share the same commitment to developing a plan to reduce risks from hazards in their communities.

2. **Task 2** - Build the Planning Team
   The important activity of this task was to identify and engage the planning team. The planning process is as important as the plan itself, and the planning team helps shape and guides that process. Invited to serve on the Planning Team were representatives of the County Commission, TMBCI Tribal Council, representatives of the communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John; township representatives. Mylo representatives did not participate in any of the meetings but were in close contact with the planning team through the Rolette County Emergency Manager providing necessary input into the plan through emails and conversations.

Planning Committee Members

Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Position	Contact Information	Method of invitation
Rolette County	County	Mike Stewart	Emergency Manager	mestewart@nd.gov	Email, phone calls, in person, newspaper articles, social media
TMBCI (Turtle Mountain Band of Chippewa Indians)	Tribal	Chris Parisien	TMBCI Legal Department (Tribal Planning Representative)	chris.parisien@tmbci.org	Email, phone calls, in person, newspaper articles, social media
TMBCI	Tribal	Anita Blue	TMBCI Emergency Manager	Ablue62@aol.com	Email, phone calls, in person, newspaper articles, social media
Indian Health Services	Federal	Kristina Smith, MSN-RN	Nurse	Kristina.smith@ish.gov	Email, phone calls, in person, newspaper articles, social media
North Dakota Department of Emergency Services	State	Joe Lies	ND DES Northeast ND Regional Coordinator	rlies@nd.gov	Email, phone calls, in person, newspaper articles, social media
BIA	Federal	Steve Collins	US Forestry Supervisor	Steven.collins@bia.gov	Email, phone calls, in person, newspaper articles, social media

Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Position	Contact Information	Method of invitation
Dunseith	City	Rick Gottbreht	Fire Chief	dunseithfire@hotmail.com	Email, phone calls, in person, newspaper articles, social media
International Music Camp	Private Organization	Christine Baumann	Music Camp Director	Christine@internationalmusiccamp.com	Email, phone calls, in person, newspaper articles, social media
International Peace Gardens	Private Organization	Tim Chapman	International Peace Gardens CEO	tim@peacegarden.com	Email, phone calls, in person, newspaper articles, social media
Belcourt	City	Malachi Jerome	Firefighter, Instructional Forestry	malachijerome@gmail.com	Email, phone calls, in person, newspaper articles, social media
Indian Health Services	*Federal*	*Jack Parisien*	Security Supervisor	*jack.parisien@ihs.org*	Email, phone calls, in person, newspaper articles, social media
Rolette County	County	Craig J. Poitra	County Commissioner	poitra_73@hotmail.com	Email, phone calls, in person, newspaper articles, social media

Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Position	Contact Information	Method of invitation
Dunseith	City	Scott Counts	Firefighter	scottcounts@gmail.com	Email, phone calls, in person, newspaper articles, social media
Dunseith	City	Dylan Medrud	Firefighter	bfdrecruitment79@gmail.com	Email, phone calls, in person, newspaper articles, social media
TMBCI	Tribal	Sabyl Hunt	Assistant Emergency Manager	chairwomanhunt@gmail.com	Email, phone calls, in person, newspaper articles, social media
Belcourt	City	Jonathan Morin	Firefighter	Johnmorin22@hotmail.com	Email, phone calls, in person, newspaper articles, social media
TMBCI	Tribal	Alysia LaCounte	Tribal Attorney	Alysia.lacounte@tmbci. org	Email, phone calls, in person, newspaper articles, social media
Rolette	Trinity Health	Alice Stewart	Kidney Dialysis	ants_58@hotmail.com	Email, phone calls, in person, newspaper articles, social media

Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Position	Contact Information	Method of invitation
Belcourt Fire Department	City	A.J. Laducer	Fire Chief	aj_laducer2006@hotmail.com	Email, phone calls, in person, newspaper articles, social media
Rolla Fire Department	City	Brad Ebensteiner	Fire Chief	Chief9645@gmail.com	Email, phone calls, in person, newspaper articles, social media
Rolette Fire Department	City	Mike Medrud	Fire Chief	Mike.medrud@gmail. com	Email, phone calls, in person, newspaper articles, social media
Dunseith Fire Department	City	B.J. Davis	Firefighter	brad.d.avis@hotmail. com	Email, phone calls, in person, newspaper articles, social media
Dunseith	City	Donna Thomas	Medical Clinic	poody@srt.com	Email, phone calls, in person, newspaper articles, social media
Dunseith Fire Department	City	Randy Hunt SR	Firefighter	randyhunt16@yahoo. com	Email, phone calls, in person, newspaper articles, social media

Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Position	Contact Information	Method of invitation
St John Fire Department	City	Kyle Azure	Firefighter	kyle.azure@hotmail.com	Email, phone calls, in person, newspaper articles, social media
St John Fire Department	City	Jeremy Albertsen	Firefighter	jeremy.albertsen@yahoo.com	Email, phone calls, in person, newspaper articles, social media
Belcourt Fire Department	City	Jeff Desjarlais Jr.	Firefighter	desjarlais.jeffery@yahoo.com	Email, phone calls, in person, newspaper articles, social media
Rolette County	County	Henry LaRoque	County Commissioner Chairman, Chair of Planning and Zoning Board	hclaroque@hotmail.com	Email, phone calls, in person, newspaper articles, social media
Rolette County	County	Barbara Frydenlund	Public Health, Rolette County	bfrydenlund@nd.gov	Email, phone calls, in person, newspaper articles, social media
Rolette County Water Board	County	Mark Heinz	Chairman	701-656-3209	Email, phone calls, in person, newspaper articles, social media

Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Position	Contact Information	Method of invitation
Rolette County Water Board	County	Matt Dunlop	Secretary Treasurer	701-477-2828	Email, phone calls, in person, newspaper articles, social media
Rolette County Water Board	County	Kurt Lagerquist	Member	701-228-4540	Email, phone calls, in person, newspaper articles, social media
City of Mylo	Mylo	Randy Schell	Mayor	4schells@gmail.com-	Email, phone calls, in person, newspaper articles, social media
Mylo Fire Department	Mylo	Gaylen Yoder	Fire chief	701-656-3464	Email, phone calls, in person, newspaper articles, social media
Rolette County	County	Wendy Belgrade	County Tax Equalization Director	701-477-5665	Email, phone calls, in person, newspaper articles, social media
Rolette County	County	Valrie McLoud	Auditor / Superintendent of Schools/Road Administration	701-477-5665	Email, phone calls, in person, newspaper articles, social media

Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Position	Contact Information	Method of invitation
Rolette County	County	Karen Armstrong	Rolette County Agent	701477-5671	Email, phone calls, in person, newspaper articles, social media
Rolette County	County	Nathan Gustafson	Rolette County Sheriff	701-477-5623	Email, phone calls, in person, newspaper articles, social media
Cooperative	Utilities	Jon Beyer	General Mgr., North Central Rural Electric Cooperative	701-225-2202	Email, phone calls, in person, newspaper articles, social media
Private Enterprise	Utilities	Jeremy Rham	Area Mgr, Ottertail Power Company, Rugby Customer Service Center	800-257-4044	Email, phone calls, in person, newspaper articles, social media

3. **Task 3** - Create an Outreach Strategy
   Identifying how to involve stakeholders and the public is an important aspect of mitigation planning. An open public involvement process is essential to the development of an effective plan. The documentation of these efforts ensures that the whole community understands how decisions were reached.

4. **Task 4** - Review Community Capabilities
   Conducting an assessment of existing plans, policies, studies, and programs was completed to identify the mitigation actions. Local capability for mitigation can vary significantly from community to community. In the development of multi-jurisdictional hazard mitigation plans, local governments with limited capacity or capability may use the planning process as a means to develop cooperative agreements, mutual aid agreements, or service agreements that enhance their capacity to undertake mitigation activities. Understanding what capabilities need to be changed or enhanced to reduce disaster losses allowed

the planning team to address those shortfalls in the mitigation strategy. The main plan that was reviewed was the Local Emergency Operations Plan and other plans such as the Community Development Plan. The Local Emergency Operations Plan was valuable in identifying the roles and responsibilities of officials and agencies during emergency/disaster conditions. These officials/agencies had insights into Hazard Mitigation Plan development.

5. **Task 5** - Conduct a Risk Assessment
   Completion of the local risk assessment was completed by describing the hazards, identifying community assets, analyzing the risks or impacts of the hazards to those assets, and summarizing the results and overall vulnerability of the community.

6. **Task 6** - Develop a Mitigation Strategy
   In the planning process, developing a comprehensive mitigation strategy that is integrated with existing plans and programs in the community was important. These mitigation goals and actions established a path forward for creating a safer, more disaster resilient community.

7. **Task 7** - Keep the Plan Current
   Describing the requirements and recommendations for documenting how, when, and by whom the mitigation plan will be maintained over time is important to the plan development process. Identifying and adhering to monitoring and evaluation procedures will make the 5-year update process easier and more effective. The Rolette County and TMBCI emergency managers will call a Hazard Mitigation Planning Committee meeting annually to review the plan and update the plan as necessary to include adding newly identified mitigation projects as County and Tribal conditions change.

8. **Task 8** - Review and Adopt the Plan
   Incorporating feedback from the planning team, stakeholders, and the public on the final plan document is the first phase of reviewing and adopting the plan. A description of the final review and adoption of the plan document by the community and the process for FEMA plan approval is described in the plan. Details are described in Section 2.1.2.

9. **Task 9** – Create a Safe and Resilient Community
   The local mitigation plan is the representation of Rolette County's and TMBCI's commitment to reducing long-term vulnerability and acts as a guide for decision makers as they commit resources for implementation. The planning process does not stop at adoption. Funding and resources are available to implement your plan. Proactively implementing the policies and actions identified in the mitigation plan increases community resilience and is an investment in Rolette County's and TMBCI's future safety and sustainability. The process of

monitoring and maintaining is outlined in Section 6, Plan Monitoring and Maintenance.

2.1.2 Approval and Adoption Processes

Task 8 discusses the process to review and adopt the revised Plan. The Rolette County Commission was responsible for approving and adopting the 2019 Multi-Hazard Mitigation Plan Update. The TMBCI Tribal Council was responsible for approving and adopting the 2011 Turtle Mountain Band of Chippewa Indians Multi-Hazard Mitigation Plan.

The communities in Rolette County reviewed and adopted the plan as follows:

- Dunseith
- Mylo
- Rolette
- Rolla
- St. John

Adoption documentation is available in Appendix F.

Belcourt, located within the exterior boundaries of the Turtle Mountain Band of Chippewa Indians Reservation will be asked to approve the 2023 Joint Multi-Hazard Mitigation Plan through the TMBCI along with the other communities.

2.2 Initial Planning Process

Mitigation planning in Rolette County and the TMBCI has always been a priority of Rolette County and TMBCI citizens and officials. The devastating winter storms of 1996/1997 followed by the devastating floods of 1997 and 2009 raised the hazard mitigation priority.

Team members invited to participate in the hazard mitigation planning process included all communities plus Rolette County, the TMBCI, Highway Department, Rolette County Water Board, and the US Department of Agriculture's Natural Resource Conservation Service (NRCS). Mitigation was specifically discussed at county commission meetings, Tribal Council meetings, applicant briefings, and any public hearing where the general public, including businesses, were present. Input from the private sector was solicited through invitations to public hearings. All public meetings and hearings were publicized in the local newspaper and on the tribal and county's websites and Face book pages to assure public awareness. Many mitigation projects impact the business community, and therefore, businesses were involved in all phases of the planning process.

An effort was made to solicit public input during the planning process. The public was identified as the stakeholders, tribal members, tribal council and/or other people living in or near the TMBCI Reservation.

Public input into the Multi-Hazard Mitigation Plan developed in 2022 included the following:

- There were three public meetings in Rolette County and in the TMBCI where the public was invited through personal letters, newspaper articles, Facebook postings, e-mails, and meeting postings on the county and tribal websites. The meetings were held on August 2, 2022; October 12, 2022; and November 30, 2022. Copies of these invitations are in Appendix B.

- In some cases, more detail was needed on specific items beyond the information shared at the meetings. The consultant conducted private meetings with Mike Stewart, the Rolette County Emergency Manger, Chris Parisien, representing the TMBCI Policy Department, and Anita Blue the TMBCI Emergency Manager. Mike Stewart, Chris Parisien, and Anita Blue met with numerous city, county, and tribal officials to gather data for the plan.

2.3 Plan Development Process

In 2022, the TMBCI, through a Pre-Disaster Mitigation Grant, PDMC-PL-08-NDIT001-2017-001 Turtle Mountain Plan CFD: 97.047 hired a consultant to facilitate plan development. Heartland Consultants, Bismarck, ND; experts in hazard mitigation and emergency management, coordinated the planning process in partnership with the county and tribe. The contract was managed TMBCI Emergency Management. TMBCI and Rolette County Emergency management staff contributed many hours to gathering input from stakeholders and working with the contractor.

Each jurisdiction provided a point-of-contact for the development of the Multi-Hazard Mitigation Plan. Table 2.3A lists the 2022 Point-of-Contacts. The Point-of-Contacts discussed the plan at public meetings with elected officials, filled out a questionnaire for their jurisdictions regarding updates they would like to see to the plan, reviewed the draft plan, and accepted and passed on comments from the public and other officials. This information was discussed primarily at public meetings as shown in Table 2.3B. Meeting agendas can be found in Appendix B.

Table 2.3A Jurisdictional Mitigation Point-of-Contacts

Jurisdiction	Name	Title
Rolette County	Mike Stewart	Emergency Manager
TMBCI	Chris Parisien	Policy Department
Belcourt Fire Department	Malachi Jerome	Public Information
QNBMHF	Jack Parisien	Indian Health Services
TMBCI	Anita Blue	Emergency Manager
Rolette County	Craig J. Poitra	Chairman of County Commission
ND DES	Joe Lies	Northeast Regional Coordinator
Dunseith Fire Department	Rick Gottbreht	Fire Chief
Dunseith Fire Department	Scott Counts	Firefighter
Belcourt Fire Department	Dylan Medrud	Fire Department Recruiter
TMBCI	Sabyl Hunt	TMBCI Emergency Management
Belcourt Rural Fire Department	Jonathan Morin	Firefighter
TMBCI	Alysia LaCounte	Tribal General Counsel
Rolette	Alice Stewart	Citizen
Belcourt Fire Department	A.J. Laducer	Fire Chief
Rolla Fire Department	Brad Ebensteiner	Fire Chief
Rolette Fire Department	Mike Medrud	Fire Chief
Dunseith Fire Department	B.J. Davis	Fire Fighter

Jurisdiction	Name	Title
Dunseith	Donna Thomas	Citizen
St. John	Rodney Phelps	Mayor
Dunseith Fire Department	Randy Hunt SR	Firefighter
St John Fire Department	Kyle Azure	Firefighter
St John Fire Department	Jeremy Albertsen	Firefighter
BIA	Steve Collins	Forestry Supervisor, BIA Fire
TMBCI Natural Resources	Jeff Desjarlais Jr.	TMBCI Natural Resources Director
International Peace Gardens	Tim Chapman	CEO
TMBCI	Alice Stewart	CNA Belcourt Kidney Dialosis
Rolette County	Henry LaRocque	County Commissioner
International Music Camp	Christine Baumann	Director
Rolette County	Barbara Frydenlund	Rolette County Public Health

Table 2.3B Public Meetings

Jurisdiction	Date
TMBCI/Rolette County Joint Multi-Hazard Mitigation Plan, Kick-Off Meeting	August 2, 2022
TMBCI/Rolette County Joint Multi-Hazard Mitigation Plan, Planning Meeting	October 12, 2022
TMBCI/Rolette County Joint Multi-Hazard Mitigation Plan, Planning Meeting	November 30, 2022

Information from existing plans, studies, reports, and technical information related to hazards, mitigation, and community planning was gathered by Heartland Consultants by contacting individuals throughout the planning process and reviewing the 2019 Rolette County and 2011 Turtle Mountain Band of Chippewa Indians Multi Hazard Mitigation Plan. Many national and state plans, reports, and studies provided background information. Table 2.3C lists the existing local plans and documents incorporated into this mitigation plan by integrating information into the appropriate sections. Mapping for and updating of the plan was done by Heartland Consultants based on information collected from a wide variety of sources. The information was organized into a clear, usable, and maintainable format for the county that also ensured the federal regulations regarding hazard mitigation plans were met.

Table 2.3C Rolette County Existing Local Plans and Documents Incorporated

Plan/Report/Study Name	Plan/Document Date	Information Provided
Local Emergency Operations Plan	2018	Hazard Analysis and Risk Assessment
Rolette County Terrorism Annex	2016	Hazard Analysis and Risk Assessment
Belcourt Public School Emergency Plan	2018	Hazard Analysis and Risk Assessment, Emergency Response Information
Dunseith Public School Emergency Plan	2018	Hazard Analysis and Risk Assessment, Emergency Response Information
Mt. Pleasant Public School	2018	Hazard Analysis and Risk Assessment, Emergency Response Information
Rolette Public School	2018	Hazard Analysis and Risk Assessment, Emergency Response Information
Rolla Public School	2018	Hazard Analysis and Risk Assessment, Emergency Response Information
St. John Public School	2018	Hazard Analysis and Risk Assessment, Emergency Response Information
Rolette County NFIP Study	Ongoing	Hazard Analysis and Risk Assessment
Sheltering & Mass Care Annex	2013	Hazard Analysis and Risk Assessment, Emergency Response Information

Turtle Mountain Band of Chippewa Existing Plans

Name of Plan	Responsible Agency	Purpose of Plan	Interaction with Multi-Hazard-Mitigation-Plan
MITIGATION			
Rolette County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan	Rolette County, ND Emergency Management	MHMP	Incorporate data pertaining to TMBCI Plans
State of North Dakota MHMP	ND State DES	MHMP	Incorporate data pertaining to TMBCI
NFIP Ordinance	Floodplain Administrator	SFHA Ordinance	Participation in the NFIP; Regulates future development in SFHA; Necessary for flood grants.
Wildland-Urban-Interface Mechanical and Prescribed Fire Plans	BIA Wildland Fire Management Turtle Mountain Agency	Mitigation of hazardous wildland fuels	Risk Assessment
BIA Wildfire Prevention Plan – North Dakota Agencies	BIA Wildland Fire Management Great Plains Region	Mitigation of Wildland Fire Hazards	Risk Assessment
Burn Permit Ordinance(s)	TMBCI	Mitigation	Necessary for BIA Fire Prevention Funding
Dike Construction Ox Creek	IHS	Flood Mitigation	Incorporate into MHMP
Turtle Mountain and of Chippewa Water Code	TMBCI	Mgt. and Protection of Surface and Ground Water	Protection of Potable Water
Nonpoint Source Water Management Plan	TMBCI	Protection of Surface and Ground Water	Protection of Potable Water
OX Creek Culvert Plan	TMBCI	Transportation Mitigation	Increased culvert size; add box culverts; improve transportation routes

Name of Plan	Responsible Agency	Purpose of Plan	Interaction with Multi-Hazard-Mitigation-Plan
PREPAREDNESS			
ND Fire Weather Operating Plan	NOAA-NWS-Bismarck	Procedural	Risk assessment
EAP – Belcourt and Gordon Lake Dams	U.S. Bureau of Reclamation	Preparedness - Procedural	Risk Assessment
Wildland Fire and Aviation Program Management and Operations Guide "Blue Book" revised annually	U.S. Bureau of Indian Affairs Fire Management - NIFC	Procedural "Standard Operating Procedures"	BIA Branch of Forestry, Natural Resources and Wildland Fire responsibilities and authorities in the MHMP must not conflict with BIA Policy.
BIA Turtle Mountain Agency – 10-year Fire Management Plan	U.S. Bureau of Indian Affairs Turtle Mountain Agency	Procedural	Incorporate as applicable into MHMP. Risk Assessment
All Hazards Emergency Preparedness Plan	IHS	Preparedness	Coordination of resources to respond to community wide health care events and emergencies.

Name of Plan	Responsible Agency	Purpose of Plan	Interaction with Multi-Hazard-Mitigation-Plan
RESPONSE			
Emergency Response Plan(s)	TMBCI Emergency Management	Emergency Response	Coordination of resources to respond to events
BIA Fire Management & Aviation Aircraft Mishap Response Plan	BIA Fire Management at Turtle Mountain Agency	Preparedness-Procedural-Response	Procedure in the event of a mishap involving a BIA Contracted aircraft.
2011 Turtle Mountain Agency Annual Operating [Fire] Plan	BIA Fire Management Turtle Mountain Agency	Procedural - Response	Incorporate applicable information into the MHMP
TMBCI Structural Fire Department SOP's	Turtle Mountain Community Structural Fire-Rescue Dept Belcourt, ND	Procedural - Response	Incorporate applicable information into the MHMP
BIA Turtle Mountain Agency Continuity of Operations Plan (COOP)	U.S. Bureau of Indian Affairs Turtle Mountain Agency	Procedural	Plan is for continuation of Agency operations in the event that a disaster affects the workplace or community. Incorporate into MHMP as applicable
9-1-1 Emergency Dispatch Plan	TMBCI and Rolette County	Procedural	Dispatch SOP's for emergency responders
ND DES State of North Dakota Recommended Mutual Aid Agreement	ND Department of Emergency Services	Procedural and Mitigation	New Agreement Form allows for reimbursement from State DES and FEMA for "declared" disasters.

Name of Plan	Responsible Agency	Purpose of Plan	Interaction with Multi-Hazard-Mitigation-Plan
RESPONSE			
North Dakota Statewide Communications Interoperability Frequency Management Plan	ND Department of Emergency Services	Procedural	Incorporate into existing plans DO NOT LIST FREQUENCIES FOR PUBLIC
Turtle Mountain and Rolette County Transit Development Plan	Small Urban & Rural Transit Center NDSU	Response Capability	Incorporate applicable information into the MHMP.
RECOVERY			
Land Use Plan	Pathways to Prosperity	Future Development and Economic Recovery	Support documentation for MHMP
Poverty Reduction Strategies	Pathways to Prosperity	Economic Development	Economic Recovery
Name of Plan	**Responsible Agency**	**Purpose of Plan**	
OTHER			
Forest Management Plan 1998	U.S. Bureau of Indian Affairs and TMBCI Tribe	Procedural	Risk Assessment of natural resources and wildland-urban-interface
2011 Highway Safety Plan	NDDOT	Safety and Preparedness	HAZMAT and main transportation routes
Comprehensive Plan 1882-1982	TMBCI	Historical Reference	Historical Documentation for Risk Assessment

The development of the plan featured a complete review of all sections to improve readability, usability, and methodologies.

Each jurisdiction participated in the plan's update by participating in public meetings, providing data and information, reviewing the plan, and/or adopting the updated plan. The jurisdictions advertised the public meetings using their usual public notification procedures, typically by posting meeting agendas, website posting, county calendar posting, and newspaper notices. The county commission, tribal council, and city council meetings in which the governing bodies considered and adopted this plan were open, public meetings.

The emergency managers had a copy of the draft plan in the Auditor's Office in the courthouse and at tribal headquarters for people to come in and review. Each section was reviewed individually by hazard experts, stakeholders, and members of the community.

Emergency Managers from the neighboring counties of Bottineau, Pierce, and Towner were invited to the planning meetings. When the Draft Plan was available for review in the Auditor's office and tribal headquarters, they were contacted to review the plan. There were no comments received from them.

The Turtle Mountain Band of Chippewa Indians/Rolette County Joint Multi-Hazard Mitigation Plan is a living, expandable document that will have new information added and changes made as needed. The plan's purpose is to improve disaster resistance through projects and programs, and therefore, opportunities for changes and public involvement will exist as disasters occur and mitigation continues. Details on the plan's maintenance and continued public involvement are further outlined in Section 6.

2.4 Roles and Responsibilities

2.4.1 Tribal Officials/County Officials

TMBCI Government follows the Turtle Mountain Band of Chippewa Indians Tribal Constitution and TMBCI Law and the Rolette County Government follows the North Dakota Constitution and North Dakota Law, therefore has established the following Tribal and County officials. Their duties are listed below:

TMBCI Financial Department

The TMBCI Financial Department is responsible for a broad range of financial administrative duties. The TMBCI Chief Financial Officer is the director of the TMBCI Financial Department and oversees the department's employees. The TMBCI Financial Department is responsible for the day-to-day financial obligations of the TMBCI.

Rolette County Auditor

The Auditor is responsible for a broad range of administrative duties. The primary duties are chief financial officer, elections officer and secretary to the county commission and various county boards. Additional duties may include maintaining inventory of fixed assets, administering insurance coverage for county property, binding and storage of the official county newspaper as county record, and coordinating licenses and fees, such as, beer and liquor licenses, bingo and raffle permits.

TMBCI Tribal Government

TMBCI has an eight-member Tribal Council and a Tribal Chairperson. The Tribal Chairperson is the Chief Executive Officer of the Tribe. The tribal government manages and maintains their status as the legislative branch with their primary responsibilities to tribal members under Article 1X (a) Section 1 of the Turtle Mountain Constitution and By-Laws, which empowers the Tribal Council the authority to represent TMBCI and negotiate with Federal, State and local governments and with private persons for the health, education, and welfare of enrolled tribal members by passing legislation, preparing budgets, approving financial transactions, and making major decisions affecting the Tribe.

City Government

The governing body of a city operating under the modern council form of government is the city council, which is composed of not less than four members, one of whom is the mayor, all elected at large or by wards. Candidates for the council shall run for either mayor or council member but not both at the same time. The terms of members of the council shall be four years, or until their successors are elected and qualified. However, the council shall establish by ordinance a procedure whereby one-half of all council members, as nearly as is practicable, are elected biennially.

TMBCI General Counsel/Law and Policy Department

The TMBCI General Counsel serves as legal counsel and advisor to the TMBCI Tribal Council and provides guidance to TMBCI tribal council members and tribal chairman in interpreting the meaning of tribal, state, and federal codes and statutes.

Clerk of District Courts

The Clerk of District Court's primary responsibility is administration of court records, but they also summon jurors, maintain exhibits, and attend court when it is in session. They also issue passports, birth certificates and death certificates. There are four courts in Rolette County: Administration, Civil, Criminal, and Juvenile.

Recorder

The information filed and recorded in the County Recorder's office is used by the auditor, treasurer, commissioners, and other county officials, along with the general public and business entities. These records primarily deal with real estate, such as patents, deeds, mortgages, bills of sale, security agreements, judgments, decrees, liens and certificates of sale.

County Commissioners

The Board of County Commissioners serves as the elected ruling body of the county government structure. The Rolette County Commission is made up of five members and typically meet twice a month or as the need arises may call special meetings as determined by the commission. Commissioners in Rolette County are elected at large. The Commission is responsible for administrative decisions for the county including their responsibility for the county budget, county road department, social service administration, appointments of many offices, and many other county concerns.

TMBCI Emergency Manager

The TMBCI Emergency Manager has the responsibilities for the day-to-day emergency management programs. The TMBCI Emergency Manager cooperates with a comprehensive network of local, tribal, state, and federal Emergency Management personnel, governmental agencies, law enforcement, fire, ambulance, and other emergency personnel, private businesses, voluntary organizations and individuals to identify potential hazards and to apply the four phases of Emergency Management (Mitigation, Preparedness, Response, and Recovery) to develop emergency plans for each potential natural and technological hazards.

The TMBCI Emergency Manager helps increase tribal emergency response capabilities by coordinating trainings and exercises, managing Homeland Security and FEMA grants, and obtaining equipment and resources needed to meet disaster response requirements.

Rolette County Emergency Manager/Risk Manager

The Rolette County Emergency Manager has the responsibilities for the day-to-day emergency management programs. The Emergency Management Office cooperates with a comprehensive network of local, state, and federal Emergency Management personnel, governmental agencies, law enforcement, fire, ambulance, and other emergency personnel, private businesses, voluntary organizations and individuals to identify potential hazards and to apply the four phases of Emergency Management (Mitigation, Preparedness, Response, and Recovery) to develop emergency plans for each potential natural and technological hazards.

The Emergency Manager helps increase local emergency response capabilities by coordinating trainings and exercises, managing Homeland Security grants, and obtaining equipment and resources needed to meet disaster response requirements.

The Risk Manager duties were established in 1995 to implement a program to address the State's exposures to tort liability claims and lawsuits due to the loss of sovereign immunity. Subsequently, in an effort to save premium dollars through a deductible program, and to establish a cross agency return-to-work program for the state of North Dakota, the 2001 Legislature directed the establishment of a single workers compensation state account. The administration of that program was assigned to the Risk Management Division of the Office of Management and Budget.

Rolette County Tax Equalization Director

The responsibility of the Tax Equalization Director is to appraise all taxable property at a fair and equitable value. They also conduct educational campaigns to fully acquaint constituents with provisions of the property tax laws and responsibilities.

Rolette County Extension Service and Rolette County Weed Board

The purpose of the Extension Service is to create learning partnerships that help adults and youth enhance their lives and communities. To accomplish this, the Rolette County (NDSU) agent strives to have the Rolette County (NDSU) Extension Service be the premier lifelong education network that helps Rolette County and TMBCI Citizens improve their quality of life. The agents develop educational resources to address the issues and needs of Rolette County and TMBCI citizens. North Dakota Law requires every person to do all things necessary and proper to control the spread of noxious weeds. The Noxious Weed Team coordinates the efforts of the County Weed Board to implement integrated weed management programs. The Noxious Weed Team distributes funding through two programs, Target Assistance Grant (TAG) and Landowner Assistance Program (LAP). These funds are available to weed boards and landowners for controlling weeds on the state and county weed lists.

IHS/TMBCI Public Health

Our Mission: to raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives to the highest level

Our Vision: healthy communities and quality health care systems through strong partnerships and culturally responsive practices

Strategic goals:

- to ensure that comprehensive, culturally appropriate personal and public health services are available and accessible to American Indian and Alaska Native people;
- to promote excellence and quality through innovation of the Indian health system into an optimally performing organization; and
- to strengthen IHS program management and operations

The Indian Health Service, an agency within the Department of Human Services, is responsible for providing federal health services to American Indians and Alaska Natives.

This includes the services in bullets below.

- HIPPA & Your Health Rights
- Health Insurance
- Social Services
- Prevention & Wellness
- Providers & Facilities
- Public Health & Safety
- Emergency Preparedness & Response
- Research
- Featured Topic Websites
- Education & Training Opportunities
- Complaints & Appeals

Rolette County Public Health

Rolette County Public Health provides personal and population-based health services to residents in Rolette County. The local public health infrastructure represents the capacity and expertise necessary to carry out services and programs. The health unit offers an array of services. The most common activities and services provided by local public health are child immunizations, adult immunizations, treatment of the elderly, tobacco use preventions, high blood pressure screening, injury prevention screening, blood lead screening, Early and Periodic Screening Diagnosis and Treatment, Environmental Health, Emergency Preparedness, and Mosquito Control.

Rolette County School Districts

Rolette County has four public schools that provide K-12 education. They are Dunseith Public School, Mt. Pleasant Public School, Rolette Public School, and St. John Public School. Students living near the Rolette County border may attend schools in neighboring districts located in Bottineau, Pierce, or Towner Counties.

Bureau of Indian Affairs/TMBCI Law Enforcement

It shall be the duty of all employees assigned to the TMBCI Police Department to serve the public by enforcement of the Tribal laws and other applicable laws in addition to rendering such assistance relative to law enforcement as may be necessary and to protect all persons and property within the Tribal jurisdiction from criminal activities. These duties include, but are not limited to: making arrests, transporting prisoners and attending Tribal Court.

Rolette County Sheriff

The Sheriff's duties include making arrests, enforcing all state and local laws, transporting prisoners and mentally ill patients, serving legal papers, holding public sales of property under court orders and attending district court. Sheriffs have the authority to enforce laws in cities and towns as well as rural areas. While many of the responsibilities are regulated by the state and federal government, the Sheriff's primary role is still to preserve peace and order in the county.

The Sheriff also serves as the Coroner. As the Coroner, the Sheriff includes coordination of services to confirm and certify the deaths of an individual in Rolette County. The Coroner also conducts or orders an investigation into the manner or cause of death, and investigate or confirm the identity of an unknown person who has been found dead within Rolette County. The Coroner's office maintains death records of those who have died within Rolette County.

Rolette County Social Service Director

The County Social Service office is responsible for carrying out many direct services to citizens. These services include food stamps, health care assistance, and home energy assistance, child/day care licensing, abuse and neglect intervention, Food Pantry and many more ways to help people reach their maximum level of self-sufficiency.

TMBCI General Counsel/Law and Policy Department

The TMBCI General Counsel serves as legal counsel and advisor to the TMBCI Tribal Council and provides guidance to TMBCI tribal council members and tribal chairman in interpreting the meaning of tribal, state, and federal codes and statutes.

Rolette County State’s Attorney

The State's Attorney serves as legal counsel and advisor to the county. The State’s Attorney acts as prosecutor, representing the state in criminal cases. The State's Attorney provides guidance to county commissioners and officials in interpreting the meaning of the North Dakota Century Code and legislation.

Rolette County Treasurer

The Treasurer's office is used by taxpayers, state agencies, lending institutions and reality companies, providing easy access to tax and real estate records throughout the year to anyone who requests that information. Treasurers are responsible for keeping track of all property taxes, including delinquency and foreclosures, and act as accountant, financial manager, and investor for the county.

Rolette County Veterans Service Officer

The County Veterans Service Officer (VSO) advises local veterans and their dependents of their rights and entitlements under various federal and state laws. The VSO counsels and actively assists veterans with filling out the numerous and complex forms and paperwork required for obtaining benefits, which include compensation, pension, insurance, death benefits, hospitalization, and education.

TMBCI Road Department

TMBCI Road Department maintains TMBCI roads and has a division that provides public transportation.

Rolette County Road Supervisor

The Rolette County Road Supervisor is responsible for all county roads, all administrative duties involved and all FEMA grants that pertain to road washouts etc. who answers to the two (2) Commissioners Road Committee.

Rolette County Township Government

Rolette County has 30 townships. Townships have a variety of duties, but the main duty is the building and maintaining of township roads. Townships support rural fire protection and rural ambulance services. Among the other duties of townships include animal impoundment, control of noxious weeds and zoning.

TMBCI Public Utilities

TMBCI Public Utilities provides water, sewer, to the TMBCI area, including the City of Belcourt.

Rolette County Water Resource Board

The primary responsibility of the Water Resource Board is to provide effective management of Rolette County’s water resources. The vision is that present and future generations of Rolette County will enjoy an adequate supply of good quality water for people, agriculture, industry, and fish and wildlife through successful management and development of water resources to ensure health, safety, and prosperity, and balance the needs of generations to

come. They also participate on the Sheyenne River Joint Board, Upper Sheyenne River Joint Board, Red River Joint Water Resource Board, and Devils Lake Joint Board.

TMBCI Natural Resources

TMBCI Natural Resources maintains TMBCI forests, lakes, parks, wildlife, and plant-life.

911 Communications

The 911 Communications in Rolette County is coordinated by the 911 Coordinator. This position keeps the addresses and telephone numbers updated in a database for identification of 911 calls. Rolette County has a 911 Center in Rolla. The dispatch center receives 9-1-1 calls generated from Rolette County and can provide lifesaving pre-arrival instructions to the caller until emergency responders have arrived on-scene. Emergency services, which include medical, fire, and law enforcement, are dispatched as dictated by the situation.

The Rolette County 911 Communications Center services the TMBCI territory within the exterior boundaries of Rolette County.

2.4.2 Hazard Mitigation Responsibilities of Tribal, County/City Agencies

In Section 2.4.1 the general duties of tribal, county/city officials were described. In this section the hazard mitigation responsibilities are described.

TMBCI Chief Finance Officer (CFO)

The main mitigation responsibilities are to keep accurate records of disaster expenditures for post disaster analysis to determine mitigation projects. Additional Mitigation actions are to monitor insurance claims for TMBCI property and making recommendations on how property losses may be reduced through mitigation.

Rolette County Auditor

The main mitigation responsibilities are to keep accurate records of disaster expenditures for post disaster analysis to determine mitigation projects. Additional mitigation actions of the Auditor are to assist the County Commission with their responsibilities along with monitoring insurance claims for county property and making recommendations on how property losses may be reduced through mitigation.

Rolette County Schools and Rolette County Superintendent of Schools

As individual schools and the County Superintendent of Schools, duties include monitoring risk factors for school building maintenance and construction standards to ensure schools are safe for children and staff. The monitoring of roads used as school bus routes to ensure safe transportation with safe busses and trained school bus drivers are important tasks. The

Risk Manager is a safety position with the role of keeping county officials safe by monitoring areas of risk and eliminating the risk through mitigation actions.

Tribal Government
Tribal government needs to implement zones to ensure structures are built in safe places such as outside the flood plain and to proper building codes.

Rolette County City Government
City governments much like the township governments can zone to ensure structures are built in safe places such as outside the flood plain and to proper building codes.

Rolette County Commission
The mitigation action of the County Commission is to provide general guidance to the county officials to develop mitigation strategies emphasizing that mitigation may be short term or long-term actions that when carried out will reduce the risk and vulnerability to the county citizens.

Rolette County Commissioners are responsible for road management working with the County Road Supervisor. Rolette County Commissioners are responsible for:

1. Mitigation and risk reduction: (including agency's role, capabilities, and programs that support mitigation actions):
    a. Continually working with the Department of Transportation on various projects since the DOT dispenses federal funding. While the DOT provides technical advice concerning guidelines and standards, they do not provide equipment, materials, or personnel.

2. Responsibility and authority in the regulating and funding of projects:
    a. Responsible for and have authority to regulate all county roads.
    b. All projects funded by the state or federal government are designed by a consulting engineer and meet the usual acceptable federal standards. Inspection of federal aid projects is the responsibility of the consulting engineering company and is overseen by the county road supervisor to ensure standards are met. Many county projects are designed with in-house expertise and engineers are consulted if problems arise.
    c. All funding in one way or another comes through the county, whether it is a certain percentage of the federal aid project or 100% of the county projects.

3. Leadership and coordination with local and non-local agencies.
    a. Local Agencies: They coordinate with various county agencies concerning right of way and right of way purchasing. The legal aspect of right of way purchasing is overseen by the States Attorney's Office. The land values are usually

developed by the Tax Equalization Office and approved by the County Commission.

b. Non-local Agencies: The County Highway Department coordinates with various state and federal agencies for technical assistance, permitting, environmental concerns, archeological sites, and cultural issues. These agencies include the North Dakota Department of Transportation, US Fish and Wildlife, Corp of Engineers, and the North Dakota Historical Society.

4. General recommendations/emergency management concerns:
    a. Rolette County Water Board should assist local government with floodplain management and water development permitting. In addition, there is a need to keep culverts clean and ditches clear of debris to allow for efficient water flow.

TMBCI Emergency Manager

1. Mitigation and risk reduction: (including agency's role, capabilities, and programs that support mitigation actions.).
    a. Coordinate mitigation activities with numerous tribal agencies. Planning encompasses preparedness, response, recovery, and mitigation.
    b. Responsible for everyday operations of the TMBCI's Emergency Operations Center.
    c. Update and exercise emergency operations and mitigation plans.
    d. Coordinate state sponsored training for tribal agencies including law enforcement, public health, social services, fire departments, emergency medical services, etc.
    e. Coordinate the Tribal Local Emergency Planning Committee.
    f. Coordinate the Tribal Tier Two reporting (hazardous materials)
    g. Conduct public awareness and educational programs via newspapers, radio, and schools to decrease vulnerability to hazards.
    h. Work with schools and local businesses to help create site specific hazard response plans and present in-service education to local business employees.
    i. Responsible for timely and effective public information releases during emergency situations.
    j. During a disaster declaration, emergency management has all county resources at their disposal including manpower, communications, and equipment.
    k. With effective planning, training, and exercising, emergency management can help to mitigate potential hazards within the county.
    l. Assist in damage assessment and coordinate with state and federal agencies for recovery assistance.

2. Responsibility and authority in the regulating, inspecting, or funding of projects:
    a. In coordination with the Community Development Plan, assist with applications for federal and state funding such as the Hazard Mitigation Grant Program.

b. Involved with inspecting hazardous material storage sites and fulfilling Tier Two reporting requirements.
c. Participate in dam inspections with the Army Corp of Engineers.

3. Leadership and coordination with local and non-local government agencies.
   a. Local Agencies: TMBCI Emergency Management coordinates with appropriate local agencies to ensure preparedness, response, recovery, and mitigation. These agencies include Tribal Council, Public Health, Road Department, and various other law enforcement, fire, communication, and emergency medical agencies.
   b. Non-local Agencies: TMBCI Emergency Management coordinates with numerous state and federal agencies. These agencies include the North Dakota Department of Emergency Services, North Dakota Highway Patrol, State Health Department, Department of Transportation, and Federal Emergency Management Agency.

Rolette County Emergency Management/Risk Manager

1. Mitigation and risk reduction: (including agency's role, capabilities, and programs that support mitigation actions.)
   a. Coordinate emergency planning and response activities with numerous county agencies. Planning encompasses preparedness, response, recovery, and mitigation.
   b. Responsible for everyday operations of the county's Emergency Operations Center. Update and exercise emergency operations and mitigation plans.
   c. Coordinate state sponsored training for county agencies including law enforcement, public health, social services, fire departments, emergency medical services, etc.
   d. Coordinate the county's Local Emergency Planning Committee.
   e. Coordinate the county's Tier Two reporting (hazardous materials) Conduct public awareness and educational programs via newspapers, radio, and schools to decrease vulnerability to hazards.
   f. Work with schools and local businesses to help create site specific hazard response plans and present in-service education to local business employees.
   g. Responsible for timely and effective public information releases during emergency situations.
   h. During a disaster declaration, emergency management has all county resources at their disposal including manpower, communications, and equipment.
   i. With effective planning, training, and exercising, emergency management can help to mitigate potential hazards within the county.
   j. Assist in damage assessment and coordinate with state and federal agencies for recovery assistance.

2. Responsibility and authority in the regulating, inspecting, or funding of projects:
    a. In coordination with the Community Development Plan, assist with applications for federal and state funding such as the Hazard Mitigation Grant Program.
    b. Involved with inspecting hazardous material storage sites and fulfilling Tier Two reporting requirements.
    c. Participate in dam inspections with the Army Corp of Engineers.

3. Leadership and coordination with local and non-local government agencies.
    a. Local Agencies: Rolette County Emergency Management coordinates with appropriate local agencies to ensure preparedness, response, recovery, and mitigation. These agencies include Rolette County Commissioners, Rolette County Public Health, Rolette County Road Department, Rolette County Sheriff's Department, and various other law enforcement, fire, communication, and emergency medical agencies.
    b. Non-local Agencies: Rolette County Emergency Management coordinates with numerous state and federal agencies. These agencies include the North Dakota Department of Emergency Services, North Dakota Highway Patrol, State Health Department, Department of Transportation, and Federal Emergency Management Agency.

4. General recommendations/emergency management concerns:
    a. Provide listings of eligible mitigation projects so counties can be prepared when funds become available.
    b. Warning systems and sirens need to be evaluated. At various times, funding becomes available for improvements.
    c. Rolette County is constantly striving to improve planning and exercise activities and response capabilities; however, with the county becoming technologically reliant and becoming more industrial, the threat of potential hazards increases, which increases the need for resources, training, and awareness.
    d. Zoning requirements for flood plain management need to be enforced.

The Risk Manager is a safety position with the role of keeping county officials safe by monitoring areas of risk and eliminating the risk through mitigation actions.

Rolette County Extension Service

1. Mitigation and risk reduction: (including agency's role, capabilities, and programs that support mitigation actions.)
    a. The Rolette County Extension Service is linked in a unique partnership with North Dakota State University to provide practical, research-based information and educational programs to address critical issues facing individuals, families, agricultural producers, business operators, and communities.
    b. County extension agents serve as subject-matter experts, educational

planners, adult and youth teachers and community facilitators in several areas including agriculture and natural resources, horticulture, family and consumer sciences, 4-H and youth community development.

c. Provide planning, designing, implementing, and evaluating of educational programs for livestock and forage producers.
d. Areas of responsibility include beef and dairy cattle, swine, other livestock, water quality, waste management, and forages.
e. Provide programming for county citizens in the areas of family financial management, environmental concerns, housing, health and wellness, aging, foods and nutrition, parenting, and human development.
f. Serve as an information resource in dealing with drought, winter storms, and summer storms in relation to agriculture, environment, and water resources.
g. Assist with damage assessment related to agriculture.

2. Responsibility and authority in regulating, inspecting, or funding of projects.
    a. Authority is federal level.

3. Leadership and coordination with other government agencies:
    a. Local Agencies: Rolette County Emergency Management.
    b. Non-local Agencies: North Dakota State University, North Dakota State Health Department, United States Department of Agriculture, and Farm Service Agency.

4. General recommendations/emergency management concerns:
    a. Urban development taking over agricultural lands.

5. As the Weed Board, control of county noxious weeds the Weed Board ensures a strong agricultural economy within the county.

Indian Health Services (I.H.S.)/TMBCI Public Health

1. Mitigation and risk reduction: (including agency's role, capabilities, and programs that support mitigation actions)
    a. Deal with bona fide health hazards using cause and effect in those areas for both mitigation and risk reduction. If it is a hazard affecting any number of persons and within the scope of public health, TMBCI Public Health will mitigate or exercise risk reduction through several methods ranging from enforcement of statutes to immunization programs.
    b. Environmental Health has the knowledge and access to the State Health Department for mitigation of incidents with hazardous or toxic wastes.
    c. Programs include wastewater treatment, water pollution, public health nursing, immunization programs, solid waste regulation, food establishment inspections, air quality, and vector control.

2. Responsibility and authority in the regulating, inspecting, or funding of projects.

3. Leadership and coordination with local and non-local government agencies.
    a. Local Agencies: Within the scope of public health, TMBCI Public Health coordinates with the following local agencies: Emergency Management, local law enforcement agencies, local schools, and planning and zoning agencies.
    b. Non-local Agencies: Within the scope of public health, TMBCI Public Health coordinates with the following agencies: North Dakota Department of Health and state and federal law enforcement agencies.

4. General recommendations/emergency management concerns.

Rolette County Public Health

1. Mitigation and risk reduction: (including agency's role, capabilities, and programs that support mitigation actions)
    a. Deal with bona fide health hazards using cause and effect in those areas for both mitigation and risk reduction. If it is a hazard affecting any number of persons and within the scope of public health, Rolette County Public Health will mitigate or exercise risk reduction through several methods ranging from enforcement of statutes to immunization programs.
    b. Environmental Health has the knowledge and also access to the State Health Department for mitigation of incidents with hazardous or toxic wastes.
    c. Programs include wastewater treatment, water pollution, public health nursing, immunization programs, solid waste regulation, food establishment inspections, air quality, and vector control.

2. Responsibility and authority in the regulating, inspecting or funding of projects.
    a. Rolette County Public Health is a unit of state government that operates through agreements or memorandums of understanding with the North Dakota Department of Health to enforce state public health statutes within the five county districts. Tax levies provide funding. There are no funding programs for non-operational programs.

3. Leadership and coordination with local and non-local government agencies.
    a. Local Agencies: Within the scope of public health, Rolette County Public Health coordinates with the following local agencies: Rolette County Emergency Management, local law enforcement agencies (city and county), local school boards, and planning and zoning agencies.
    b. Non-local Agencies: Within the scope of public health, Rolette County Public Health coordinates with the following agencies: North Dakota Department of Health and state and federal law enforcement agencies.

4. General recommendations/emergency management concerns.
    a. Public Health is normally under-funded and understaffed at all levels of government. Should Rolette County Public Health be called upon for expertise at a time of emergency or disaster, it normally does not have instrumentation for site level determinations of any kind without support from other agencies.
    b. Public health agencies should be included in equipment storage; e.g., FEMA equipment "stored" and used at public health agencies, rather than being stored at a warehouse. For example, radio equipment that belongs to FEMA is based at county emergency management offices; the same could be done with air sampling equipment or other instruments/kits etc., which could be used by public health agencies both for daily work and at a time of emergency or disaster.

Rolette County Recorder

Mitigation actions of the Recorder are to record the buy-out of flood mitigation projects and easements for the county.

Bureau of Indian Affairs (BIA)/TMBCI Law Enforcement

1. Mitigation and risk reduction: (including agency's role, capabilities, and programs that support mitigation actions.)
    a. Responsible for law enforcement and criminal investigation in unincorporated areas of the county and in smaller towns that do not have police departments.
    b. Provide 911 emergency operations through its communications division.
    c. Provide standard law enforcement manpower and equipment.
    d. In disaster situations, provide warning, rescue assistance, evacuation assistance, security, traffic control, and information assistance.
    e. Coordinate the necessary resources to obtain a dive rescue team.
    f. Provide public awareness and educational programs such as 911 education, safe kids program, etc.
    g. Mutual aid agreements with Rolette County Sheriff's Department and the North Dakota State Highway Patrol.

2. Responsibility and authority in the regulating, inspecting, or funding of projects: None

3. Leadership and coordination with local and non-local government agencies.
    a. Local Agencies: Within the scope of law enforcement, the BIA/TMBCI Law Enforcement coordinates with various local agencies. These agencies include TMBCI Emergency Management and various local police departments.
    b. Non-local Agencies: BIA/TMBCI Law Enforcement coordinates with appropriate state and federal agencies including: North Dakota Highway Patrol, North Dakota Attorney Generals' Office, Bureau of Criminal Investigation, North Dakota State Radio, North Dakota Department of Transportation, and Federal Bureau of Investigation.

4. General recommendations/emergency management concerns.
    a. Explore funding resources to upgrade technology such as mobile data terminals, computers, etc.
    b. Upgrade communication integration among other state and federal agencies (information sharing).

Rolette County Sheriff's Department /Coroner

1. Mitigation and risk reduction: (including agency's role, capabilities, and programs that support mitigation actions.)
    a. Responsible for law enforcement and criminal investigation in unincorporated areas of the county and in smaller towns that do not have police departments.
    b. Provide 911 emergency operations through its communications division.
    c. Provide standard law enforcement manpower and equipment.
    d. In disaster situations, provide warning, rescue assistance, evacuation assistance, security, traffic control, and information assistance.
    e. Coordinate the necessary resources to obtain a dive rescue team.
    f. Provide public awareness and educational programs such as 911 education, safe kids program, etc.
    g. Mutual aid agreements with all surrounding counties and the North Dakota State Highway Patrol.

2 Responsibility and authority in the regulating, inspecting, or funding of projects: None

3 Leadership and coordination with local and non-local government agencies.
    a. Local Agencies: Within the scope of law enforcement, the Rolette County Sheriff's Department coordinates with various local agencies. These agencies include Rolette County Emergency Management and various local police departments.
    b. Non-local Agencies: Rolette County Sheriff's Department coordinates with appropriate state and federal agencies including: North Dakota Highway Patrol, North Dakota Attorney Generals' Office, Bureau of Criminal Investigation, North Dakota State Radio, North Dakota Department of Transportation, and Federal Bureau of Investigation.

4. General recommendations/emergency management concerns.
    a. Explore funding resources to upgrade technology such as mobile data terminals, computers, etc.
    b. Upgrade communication integration among other state and federal agencies (information sharing).

Rolette County Social Service Director

Through the various social programs available for low-income families, the Social Services Director can help ensure the health of the citizenry through proper nutrition and heated homes in the winter months through energy assistance. In addition, through the responsibility of child/day care licensing safe day cares can prevail. This position also ensures liaison with private relief agencies for disaster victims.

TMBCI General Counsel

As the tribal legal counsel and advisor, the TMBCI's General Counsel monitors the legality of mitigation actions or advises tribal officials on the liability facing the tribe if a mitigation action is not taken.

Rolette County State's Attorney

As the county legal counsel and advisor, the State's Attorney monitors the legality of mitigation actions or advises county officials on the liability facing the county if a mitigation action is not taken.

Rolette County Auditor

As the Auditor, the main mitigation responsibilities are to keep accurate records of disaster expenditures for post disaster analysis to determine mitigation projects.

Superintendent of Schools and schools within Rolette County

As of the Superintendent of Schools include monitoring risk factors for school building maintenance and construction standards to ensure schools are safe for children and staff. The monitoring of roads used as school bus routes to ensure safe transportation with safe busses and trained school bus drivers are important tasks.

Rolette County Tax Equalization Director

The Tax Equalization Director has access to the value of property throughout the county. Their mitigation responsibility is to help determine cost/benefit for mitigation actions. During the disaster recovery phase, the Tax Director determines the value of destroyed property.

Rolette County Treasurer

The Treasurer is the financial officer for receipt and disbursement of hazard mitigation funds.

TMBCI Transportation/Road Department

Monitor road conditions and access vulnerability to disaster damage and recommend actions to prevent damage from occurring.

Rolette County Road Supervisor
Monitor road conditions and access vulnerability to disaster damage and recommend actions to prevent damage from occurring.

Rolette County Township Government

Through the building and maintaining of township roads township governments can ensure roads are built to proper standards which can withstand floods or other calamities that can damage roads. They can impose load weight limits on roads to protect their integrity. Townships can zone to ensure structures are built in safe places such as out of the flood plain to proper building codes.

TMBCI Public Utilities
Assess potential mitigation actions that public utilities services are available during disasters

Rolette County Water Resource Board
Through the management of the county water resources the Water Board can establish drains and reservoirs to prevent property damage by flooding, yet conserve water for long term use.

TMBCI Land Management Department and TMBCI Natural Resources Department
Tribal lands including trust lands are managed by the Land Management Department and Natural Resources Department to help the TMBCI get maximum use of the land without damaging the environment. Mitigation actions are to ensure tribal housing and other tribal facilities are located in non-vulnerable areas, especially outside of the flood plain.

Other Agency Resources

Mitigation and risk reduction.

Dunseith Fire Department: General fire suppression, rescue, response, public awareness and educational programs. Respond to spills and releases of hazardous materials with limited involvement. For Hazardous Materials response their main role is procuring resources trained to the proper level to respond to the incident.

Mylo Fire Department: General fire suppression, extrication, rescue, public awareness and educational programs. Respond to spills and releases of hazardous materials with limited involvement. For Hazardous Materials response their main role is procuring resources trained to the proper level to respond to the incident.

Rolette Fire Department: General fire suppression, extrication, rescue, public awareness and educational programs. Materials response their main role is procuring resources trained to the proper level to respond to the incident.

Rolla Fire Department: General fire suppression, extrication, rescue, public awareness and educational programs. Materials response their main role is procuring resources trained to the proper level to respond to the incident.

St. John Fire Department: General fire suppression, extrication, rescue, public awareness and educational programs. Materials response their main role is procuring resources trained to the proper level to respond to the incident.

TMBCI Fire Department
General fire suppression, extrication, rescue, public awareness and educational programs. Materials response their main role is procuring resources trained to the proper level to respond to the incident.

Fire Departments that are headquartered in neighboring counties that serve parts of Rolette County are:

Rugby Fire Department: General fire suppression, rescue, public awareness and educational programs. Respond to spills and releases of hazardous materials with limited involvement. For Hazardous Materials response their main role is procuring resources trained to the proper level to respond to the incident.

Willow City Fire Department: General fire suppression, rescue, public awareness and educational programs. Respond to spills and releases of hazardous materials with limited involvement. For Hazardous Materials response their main role is procuring resources trained to the proper level to respond to the incident.

Presentation Medical Center and Clinic in Rolla, Northland Health Center in Rolla and Rolette, Indian Health Services in Dunseith, Johnson's Clinic in Dunseith: Patient care

Indian Health Service (I.H.S.)/Quentin N. Burdick Memorial Hospital, Belcourt: Patient Care, emergency response, patient care, transport, and public awareness and continuing education programs for the TMBCI area.

Rolla Community Ambulance Service: Emergency response, patient care, transport, and public awareness and continuing education programs for the Rolla area.

Rolette Community Ambulance Service: Emergency response, patient care, transport, and public awareness and continuing education programs for the Rolette area.

Emergency Medical units that are headquartered in neighboring counties that serve parts of Rolette County are:

Bottineau Community Ambulance Service: Emergency response, patient care, transport, and public awareness and continuing education programs.

St. John First Responder: Emergency response, patient care, and public awareness and continuing education programs as an Emergency Response Team.

Rugby Ambulance: Emergency response, patient care, transport, and public awareness and continuing education programs.

Western Area Power Administration (WAPA): The role of WAPA is to market and transmit wholesale electricity from multi-use water projects. WAPA sells power to preference customers such as Federal and state agencies, cities and towns, rural electric cooperatives, public utility districts, irrigation districts and Native American tribes. They, in turn, provide retail electric service to millions of consumers in the West.

North Central Electric Cooperative: Provide engineering expertise, heavy equipment, and damage assessment. (Utilities)

Central Electric Cooperative: Provide engineering expertise, heavy equipment, and damage assessment. (Utilities)

Ottertail Power Company: Provide engineering expertise, heavy equipment, and damage assessment. (Utilities)

Turtle Mountain Communications: Communications expertise and support.

Turtle Mountain Public Utilities: Provide water, sewer, to the City of Belcourt.

Dunseith Public Works: Provide water, sewer, to the City of Dunseith.

Mylo Public Works: Provide water, sewer, to the City of Mylo.

Rolette Public Works: Provides water and sewer to the City of Rolette.

Rolla Public Works: Provides water and sewer to the City of Rolla.

St. John Public Works: Provides water and sewer to the City of St. John.

Army Corps of Engineers: Water management within the county. Provide technical expertise, sandbags, and heavy equipment.

US Fish and Wildlife Service: Water management within the county. Provide technical expertise, sandbags, and heavy equipment.

Department of Agriculture: Assists with situation and damage assessment; coordination with USDA; hazmat technical assistance; state land use program.

Job Service: Situation assessment and administration of disaster unemployment assistance programs.

North Dakota Forest Service: Debris removal from recreational facilities; technical assistance; situation and assessment.

North Dakota Game and Fish: Technical assistance; debris removal from recreational facilities; facility improvements; situation and damage assessment.

North Dakota Highway Patrol: Situation and damage assessment; provide transportation resources for movement of state personnel, supplies, and equipment to include air and ground reconnaissance; traffic control.

State Fire Marshal: Hazmat route utilization; hazmat technical assistance; situation and damage assessment.

Rolette County 911 Center (County Public Service Answering Point): Exercise readiness of warning systems and communication support.

US Border Patrol: K9 support, traffic control, emergency response support, off-road equipment.

BIA Turtle Mountain Agencies:

BIA Forestry: Wildland Fire suppression.

BIA Law Enforcement: Provides law enforcement services to the TMBCI area, including the community of Belcourt.

BIA Land Management: Provides support to the TMBCI in managing trust lands and management of natural resources including farm land and forestry.

BIA Water Management: Provides support the the TMBCI in managing water resources on the reservation including lakes, rivers, and reservoirs.

Turtle Mountain Community College: Provide educational opportunities, resource for emergency equipment, emergency shelter, and emergency staging areas.

Turtle Mountain Tribal Housing Authority: Assist with low-income housing needs and a resource for emergency equipment.

Turtle Mountain Tribal Natural Resources: Maintains TMBCI forests, lakes, parks, wildlife, and plant life. A resource for emergency transportation and emergency equipment.

Turtle Mountain Land Management:

Turtle Mountain Transportation: Maintains TMBCI roads and provides public transportation. A resource for emergency transportation, emergency equipment, emergency shelter, and emergency staging areas. TMBCI has an extensive transportation system linking individual homesites and tribal housing sites to city markets and sources of consumer goods. The main roads are identified as BIA Roads and are a mixture of gravel and paved surfaces. The BIA Roads are marked 1-25, but not in numerical order (some numbers are omitted). The odd numbered roads run north and south, starting from the east with BIA 1 and continuing west to BIA 25. The even numbered roads run east and west, starting from the north with BIA 2 and continuing south to BIA 12. These roads are maintained by the TMBCI Road Department.

US Highway 28/ND Highway 5 goes through the TMBCI Reservation and is maintained by the ND Department of Transportation.

Turtle Mountain Community Schools: Provides education to area PreK-12 students. A resource for emergency transportation, emergency equipment, emergency shelter, and emergency staging areas.

TMBCI Environment Protection Agency (EPA):

Sky Dancer Casino: A resource for emergency transportation, emergency equipment, emergency shelter, and emergency staging areas.

KEYA Radio: Local radio station used to provide emergency notifications.

TMBCI Homeless Shelters and Soup Kitchen: Provides shelter and meals for the area's homeless community.

American Red Cross: Pre-disaster training and planning.

Army Corps of Engineers: Water management within the county. Provide technical expertise, sandbags, and heavy equipment.

US Fish and Wildlife Service: Water management within the county. Provide technical expertise, sandbags, and heavy equipment.

Department of Agriculture: Assists with situation and damage assessment; coordination with USDA; hazmat technical assistance; state land use program.

Job Service: Situation assessment and administration of disaster unemployment assistance programs.

North Dakota Forest Service: Debris removal from recreational facilities; technical assistance; situation and assessment.

North Dakota Game and Fish: Technical assistance; debris removal from recreational facilities; facility improvements; situation and damage assessment.

North Dakota Highway Patrol: Situation and damage assessment; provide transportation resources for movement of state personnel, supplies, and equipment to include air and ground reconnaissance; traffic control.

State Fire Marshal: Hazmat route utilization; hazmat technical assistance; situation and damage assessment.

Rolette County 911 Center (County Public Service Answering Point): Exercise readiness of warning systems and communication support.

US Border Patrol: K9 support, traffic control, emergency response support, off-road equipment.

International Peace Gardens: Has its own public works system.

Belcourt Oil: Supplies heating oil to homes and businesses in the Belcourt area primarily on the TMBCI Reservation.

2.4.3 Emergency Operations Plan

Rolette County and the TMBCI keep a viable Emergency Operations Plan current through plan revisions, training, and exercises. The Hazard Mitigation Plan is compatible with the Emergency Operations Plan in that those existing authorities, policies, programs, and resources are within the realm of the Hazard Mitigation Plan. The organizational chart of the Emergency Operations Plan is listed below.

Rolette County Coordination and Control Relationship Chart

Emergency Management

Chief Elected Official **County Commission** **City Council**								
Emergency Manager, EOC Emergency Operations Staff								
Functional Coordinators								
Coordination and Control **Functional Coordinator** **Chief Elected Official**	**Damage Assessment Functional Coordinator** **Tax Equalization**	**Administration Functional Coordinator** **Auditor**	**Public Safety Functional Coordinator** **Sheriff/Chief of Police**	**Individual and Family Assistance Functional Coordinator** **Human Services**	**Health and Medical Functional Coordinator** **Health District**	**Warning Functional Coordinator** **Chief Elected Official**	**Communications Functional Coordinator** **Sheriff**	**Public Works/Transportation Functional Coordinator** **Road Super/Engineering**
Task Coordinators								
Emergency Manager	Public Works	Treasurer	Law Enforcement	Social Services	District Health Units	Law Enforcement	Communications Center	Engineering
Law Enforcement	Assessor	Assessor	Public Works	ARC	Hospitals	Radio/TV	RACES	Road Department
Auditor	Auditor	State's Attorney	Clerk of Court	VOAD	EMS	PIO	Amateur Radio	Wastewater Facilities
Treasurer	Treasurer		Search and Rescue	Housing	Vector Control	Fire Departments	PSAP	Forestry
Fire Departments	Law Enforcement		Auxiliary Groups	Clerk of Court	Pharmacies			Water Treatment
Public Works/Engineering	Fire Departments		Bomb Squad	Veteran's Services	Clinics			Facility Maintenance
Assessor	Emergency Management		Fire Departments		Nursing Homes			Airport Authority
State's Attorney			HazMat Team					Planning
Tax Equalization								

2.5 Risk Assessment Methodologies

A key step in preventing disaster losses within the TMBCI Territory and in Rolette County and the incorporated jurisdictions is developing a comprehensive understanding of the hazards that pose risks to the communities. The following terms can be found throughout this plan.

Hazard:	a source of danger
Risk:	possibility of loss or injury
Vulnerability:	open to attack or damage

Source: Federal Emergency Management Agency, 2001

This all-hazard risk assessment and mitigation strategy serves as an initial source of hazard information for those in Rolette County and for the TMBCI. Other plans may be referenced and remain vital hazard documents, but each hazard has its own profile in this plan. As more data becomes available and disasters occur, the individual hazard profiles and mitigation strategies can be expanded, or new hazards added. This risk assessment identifies and describes the hazards that threaten the communities and determines the values at risk from those hazards. The risk assessment is the cornerstone of the mitigation strategy and provides the basis for many of the mitigation goals, objectives, and potential projects.

The *assets and community inventory* section includes elements such as critical facilities, critical infrastructure, population, structures, economic values, ecologic values, historic values, social values, current land uses, new development, and future development potential. Critical facilities and infrastructure were identified, reviewed, and updated as listed in the Rolette County Local Emergency Operations Plan and the TMBCI Emergency Operations Plan. Additional elements were included during the plan update based on contractor research.

Each hazard or group of related hazards has its own *hazard profile*. A stand-alone hazard profile allows for the comprehensive analysis of each hazard from many different aspects. Each hazard profile contains a *description* of the hazard containing information from specific hazard experts and a record of the hazard *history* compiled from a wide variety of databases and sources.

Using the local historical occurrence, or more specific documentation if available, a *probability* was determined. In most cases, the number of years recorded was divided by the number of occurrences, resulting in a simple past-determined recurrence interval. If the hazard lacked a definitive historical record, the probability was assessed qualitatively

based on regional history or other contributing factors. The *magnitude* or extent of the hazard describes a realistic approximation of the worst-case scenario. This qualitative approximation is based on past occurrences in the county or in nearby counties. If the past occurrence was not an accurate representation, general knowledge of the hazard was used to approximate the types of impacts that could be expected from a low-frequency, high magnitude event of that hazard. Table 2.5A shows the criteria used.

Table 2.5A Local Risk Analysis Criteria

PROBABILITY	
Highly Likely	Nearly 100% probability in the next year
Likely	10-100% probability in the next year, or at least 1 chance in the next 10 years
Possible	1-10% probability next year, or at least 1 chance in the next 100 years
Unlikely	Less than 1% probability in the next 100 years
MAGNITUDE	
Catastrophic	More than 50% of jurisdiction affected
Critical	25-50% of jurisdiction affected
Limited	10-25% of jurisdiction affected
Negligible	Less than 10% of jurisdiction affected

The Rolette County and TMBCI Risk Assessment for each hazard includes two sections: 1) vulnerability analysis and 2) loss estimate. Where applicable, a combination of historical data, risk data, and exposure data, at the county level, was used to develop an overall vulnerability rating for the county. Where this was possible, a rating of high, moderate-high, moderate, low-moderate, or low was assigned. The ratings are comparative within the hazard and are not necessarily an indication of the hazard level when compared to other hazards.

Table 2.5B Risk Analysis Classifications (Rating Scale is A to D – A is highest)

		IMPACT			
		Negligible	*Limited*	*Critical*	*Catastrophic*
FREQUENCY	*Highly Likely*	**C**	**B**	**A**	**A**
	Likely	**C**	**C**	**B**	**A**
	Possible	**D**	**C**	**B**	**B**
	Unlikely	**D**	**D**	**C**	**C**

To assess risks, the planning team studied which hazards have the higher disaster potential, the potential losses of each hazard, vulnerability to TMBCI and County owned facilities and critical infrastructure, and future development.

At the end of the risk assessment, the *summary* brings together data from each of the hazards to show comparisons and ultimately rank the hazards. The prioritization of hazards into high, moderate, and low categories is based on the classification of hazards by the Joint TMBCI and Rolette County planning team.

Due to the inherent errors possible in any disaster risk assessment, the results of the risk assessment should only be used for planning purposes and in developing projects to mitigate potential losses.

Mapping of the hazards, where spatial differences exist, allows for hazard analyses by geographic location. Some hazards, such as riverine flooding, can have varying levels of risk based on location (i.e. near the river versus far away from the river). Other hazards, such as winter storms or drought, cover larger geographic areas and the delineation of hazard areas is not typically available or useful on the county scale.

C*ritical facilities* were mapped using data provided by the North Dakota GIS Hub and addresses provided by Emergency Management. The mapping of the facilities allowed for the comparison of building locations to the hazard areas where such hazards are spatially recognized. Base maps depicting the critical facility locations were compared to available hazard layers to show the proximity of the facilities to the hazard areas. Given the nature of critical facilities, the functional losses and costs for alternate arrangements typically extend beyond the structural and contents losses. These types of losses can be inferred based on the use and function of the facility.

Critical infrastructure for services such as electricity, heating fuels, telephone, water, sewer, and transportation systems was assessed in a narrative format using history and a general understanding of such systems to determine what infrastructure losses may occur. Basic mapping exists of the road networks within the TMBCI Territory and Rolette County. These layers were additionally compared to the hazard areas. Most of the other types of infrastructure do not have digital mapping or were withheld by the managing company for security reasons.

Population impacts were qualitatively assessed based on the number of structures estimated to be in the hazard area. Factors used in evaluating the population impacts include the ability of people to escape from the incident without casualty and the degree of warning that could be expected for the event. In general, the loss of life and possible injuries are difficult to determine and depend on the time of day, day of the week, extent of the damage, and other hazard specific conditions.

Qualitative methodologies such as comparison to previous disasters, occurrences in nearby communities, and plausible scenarios helped determine the potential losses to *economic, ecologic, historic, and social values*. In many cases, a dollar figure cannot be placed on values, particularly those that cannot be replaced. Therefore, these types of losses were quantified through narrative descriptions and provide some background on what may occur during a disaster.

The assessment on the impact to *future development* is based on the mechanisms currently in place to limit or regulate development in hazardous areas. Some hazards can be mitigated during development, others cannot. The impacts were assessed through a narrative on how future development could be impacted by the hazard based on current regulations.

Many unknown variables limit the ability to quantitatively assess all aspects of a hazard with high accuracy. Therefore, *data limitations* provide a framework for identifying the missing or variable information. These limitations were determined by hazard through the risk assessment process. In some cases, the limitations may be resolved through research or data collection. If a limitation can be reasonably resolved through a mitigation project, the resolution is included as a potential action in the mitigation strategy. O*ther factors* were determined based on an evaluation of past events and a general understanding of the hazard characteristics. This basic listing of secondary hazards provides a link between the hazard profiles and identifies additional hazards that may compound the impacts of the primary event (i.e. poor air quality because of smoke during a wildland fire).

At the end of the risk assessment, the *summary* brings together data from each of the hazards to show comparisons and ultimately rank the hazards by jurisdiction. The overall hazard rating is determined using qualitative rankings of the probability of future occurrences and likely impacts when compared to other hazards.

Due to the inherent errors possible in any disaster risk assessment, the results of the risk assessment should only be used for planning purposes and in developing projects to mitigate potential losses.

2.6 Hazard Identification

Hazards are continuously being identified and modified to reflect the needs of the communities. In 2019, the hazards included those listed in the state's Multi-Hazard Mitigation Plan. The jurisdictions were also asked if additional hazards should be considered. To ensure that major hazards were not missed, historic documents and informational databases were reviewed.

Table 2.6A shows the hazards, jurisdictions, and how and why they were identified. The level of detail for each hazard correlates to the relative risk of each hazard and is limited by the amount of data available. As new hazards are identified, they can be added to the hazard list, profiled, and mitigated.

Table 2.6A TMBCI/Rolette County Hazards

Hazard Profile	Jurisdiction	How Identified	Why Identified
Infectious Disease and Pest Infestations (including human, animal, and plant diseases)	All Jurisdictions	▪ Centers for Disease Control and Prevention ▪ Rolette County Public Health ▪ Rolette County Extension Agent ▪ North Dakota Department of Agriculture ▪ North Dakota Department of Health ▪ Pandemic studies ▪ US Department of Agriculture ▪ World Health Organization ▪ Indian Health Services	▪ Global disease threat ▪ History of pandemics ▪ Dependence on agricultural economy
Dam Failure	Rolette County and TMBCI	▪ US Army Corps of Engineers ▪ North Dakota Department of Water Resources	Reports of dam structure issues have been identified.

Hazard Profile	Jurisdiction	How Identified	Why Identified
		▪ Rolette County Water Board ▪ TMBCI Environmental Health ▪ TMBCI Natural Resources	
Drought	All Jurisdictions	▪ National Drought Mitigation Center ▪ National Climatic Data Center ▪ National Weather Service ▪ North Dakota State Climate Office ▪ US Department of Agriculture ▪ TMBCI Environmental Health ▪ TMBCI Natural Resources	▪ History of droughts ▪ Importance of agriculture to the local economy ▪ Numerous USDA disaster declarations
Flood (including riverine, closed basin, ice jam, and flash floods)	All Jurisdictions	▪ Cold Regions Research and Engineering Laboratory ▪ Federal Emergency Management Agency ▪ HAZUS-MH ▪ National Climatic Data Center ▪ National Weather Service ▪ US Army Corps of Engineers ▪ TMBCI Environmental Health ▪ TMBCI Natural Resources	▪ Extensive history of severe riverine, closed basin, ice jam, and flash floods

Hazard Profile	Jurisdiction	How Identified	Why Identified
Hazardous Material Release	All Jurisdictions	▪ Federal Motor Carrier Safety Administration ▪ National Response Center ▪ North Dakota Department of Emergency Services ▪ North Dakota Department of Health ▪ US Department of Transportation ▪ TMBCI Environmental Health	▪ Regular truck and rail traffic transport goods through the county ▪ Facilities containing hazardous materials exist throughout the county
Criminal, Terrorist, or Nation/State Attack	All Jurisdictions	▪ Federal Bureau of Investigation ▪ Memorial for the Prevention of Terrorism ▪ North Dakota Department of Emergency Services ▪ North Dakota State and Local Intelligence Center ▪ Southern Poverty Law Center ▪ BIA	▪ National indications and foreign threats of future terrorist attacks ▪ Potential for school violence and other domestic attacks
Severe Summer Storm (including tornadoes, hail, downbursts, thunderstorm winds, lightning, and extreme heat)	All Jurisdictions	▪ Federal Emergency Management Agency ▪ National Climatic Data Center ▪ National Weather Service ▪ Storm Prediction Center ▪ TMBCI Environmental Health ▪ TMBCI Natural Resources	▪ Extensive history of tornadoes, hail, downbursts, thunderstorm winds, lightning, and extreme heat

Hazard Profile	Jurisdiction	How Identified	Why Identified
Fire (Wild and Urban)	All Jurisdictions	▪ City Fire Departments ▪ National Fire Protection Association ▪ US Fire Administration ▪ TMBCI Environmental Health ▪ TMBCI Natural Resources ▪ Center for International Disaster Information ▪ North Dakota Forest Service ▪ Farm Service Agency	▪ History of large urban fires ▪ Government lands and Conservation Reserve Program lands within the county ▪ Local history of wildfires
Severe Winter Weather (including blizzards, heavy snow, ice storms, and extreme cold)	All Jurisdictions	▪ National Climatic Data Center ▪ National Weather Service ▪ North Dakota Department of Emergency Services ▪ TMBCI Environmental Health ▪ TMBCI Natural Resources	▪ History of severe winter storms ▪ High probability of blizzards and other potentially damaging storms
Geologic Hazards	All Jurisdictions	▪ North Dakota Department of Emergency Services ▪ North Dakota Geological Survey ▪ US Geological Survey ▪ TMBCI Environmental Health ▪ TMBCI Natural Resources	▪ Erosion along Beaver Creek and Sheyenne River. Potential exists for occasional slumping along rivers

Hazard Profile	Jurisdiction	How Identified	Why Identified
Civil Disturbance	All Jurisdictions	▪ Federal Bureau of Investigation ▪ Memorial for the Prevention of Terrorism ▪ North Dakota Department of Emergency Services ▪ North Dakota State and Local Intelligence Center ▪ BIA	Public unrest
Cyber Attack	All Jurisdictions	▪ Federal Bureau of Investigation ▪ Memorial for the Prevention of Terrorism ▪ North Dakota Department of Emergency Services ▪ North Dakota State and Local Intelligence Center ▪ BIA	History of cyber attacks
Space Weather	All Jurisdictions	▪ NWS ▪ NASA	History of Space Weather
Transportation Incident	All Jurisdictions	▪ Highway Patrol ▪ County Sheriff ▪ County Highway Department ▪ BIA ▪ ND DOT	History of incidents

3. ASSETS AT RISK

In addition to identifying and understanding the hazards of the area, an important aspect of mitigation planning is contemplating the effects such hazards may have on the communities. To thoroughly consider the effects, the assets and values at risk must be first identified. Examples of community assets include the population, critical facilities, businesses, residences, critical infrastructure, natural resources, historic places, and the economy. The following sections identify the specific assets and community inventory.

3.1 Critical Facilities and Infrastructure

Critical facilities and infrastructure protect the safety of the population, the continuity of government, or the values of the community. In many cases, critical facilities fulfill important public safety, emergency response, and/or disaster recovery functions. In other cases, the critical facility may protect a vulnerable population, such as a school, or provide essential goods to rural areas, like a grocery store or gas station.

The North Dakota Critical Infrastructure Program has inventoried specific Critical Infrastructure/Key Resources (CIKR) facilities in the following sectors that may be vulnerable to Homeland Security Incidents:

- Food / Agriculture: major food distribution centers
- Energy: power generation and chemical facilities
- Public Health: hospitals and public health offices
- Transportation: bridges and major highways
- Emergency Services: police, fire and dispatch centers
- Communications: major communications towers
- Water: treatment facilities

One data source that was utilized to analyze critical infrastructure/key resources in Rolette County was the HSIP Gold Data maintained by the National Geospatial-Intelligence Agency. This data is a compilation of common operational geospatially enabled base-line data to support Homeland Security, Homeland Defense, and National Preparedness – prevention, protection, mitigation, response and recovery. From this data, the following classes of facilities were inventoried and summarized: Energy, Public Health, Transportation, Emergency Services, Communications, and Water. The data identified Rolette County as having 2 Energy, 1 Public Health, 5 Transportation, 5 Emergency Services including EMS, 6 Communications, and 5 Water critical facilities which includes city water towers and rural water system reservoirs. The data was inclusive of the TMBCI.

North Dakota Fire and Tornado Fund

An additional source of critical facility data was the North Dakota Fire and Tornado Fund. This fund provides insurance to state and local governments and districts. Most facilities and infrastructure owned by county governments and many cities and townships are insured through the North Dakota Fire and Tornado Fund. Therefore, this data source provides a nearly complete assessment of the replacement values of local government facilities. Certainly, all facilities owned by local governments may not be considered critical, but many are.

The types of facilities and infrastructure covered by the North Dakota Fire and Tornado Fund insurance often includes county buildings, city halls, community centers, well and pump houses, communications buildings, towers, and equipment, police stations, emergency operations centers, 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. In Rolette County, the following state and local government entities are insured through the State Fire and Tornado Fund:

BELCOURT SCHOOL DISTRICT
BOTTINEAU WINTER PARK
Dot Highway Department
DOT MTCE and ENG Services/Devils Lake
DT MTCE and ENG Services/Radio
DUNSEITH PUBLIC SCHOOL DISTRICT #1
DUNSEITH, CITY OF
INTERNATIONAL PEACE GARDEN
MOUNTAIN LAKES HUMAN SERVICE ZONE
MT PLEASANT PUBLIC SCHOOL
MYLO RURAL FIRE DISTRICT
ND DEPT OF CORRECTIONS AND REHABILITATION
ND DEPT OF HUMAN SEERVICES
ND GAME AND FISH
ND PROTECTION AND ADVOCACY PROJECT
ND STATE RADIO COMMUNICATION
ND SUPREME COURT
ROLETTE CITY LEASED PROPERTY
ROLETTE CO SOIL CONSERVATION DISTRICT
ROLETTE COUNTY
ROLETTE COUNTY HISTORICAL SOCIETY
ROLETTE COUNTY HOUSING AUTHORITY
ROLETTE COUNTY PUBLIC HEALTH DISTRICT
ROLETTE SCHOOL DISTRICT
ROLETTE, CITY OF

ROLLA AIRPORT AUTHORITY
ROLLA, CITY OF
ST JOHN SCHOOL DISTRICT
ST JOHN, CITY OF
Note: Jurisdictions highlighted in yellow are state properties

The 2022 values insured in Rolette County include:

- Building Property (Structure) Value: $17,411,700
- Personal Property (Contents) Value: $1,904,745
- Outdoor Property Value: $3,774

Source: ND State Fire and Tornado Fund

2022 Insured values of city owned property through the State Fire and Tornado Fund include:

City	Building Property Value	Personal Property Value	Outdoor Property Value
Dunseith	$2,371,516.00	$245,344.00	$ 166,892.00
Mylo Rural Fire District	$ 313,500.00	$ 25,000.00	$ 0.00
Rolette	$1,808,584.00	$143,178.00	$ 474,599.00
Rolla	$2,371,516.00	$530,370.00	$1,481,639.00
St. John	$1,128,336.00	$ 18,454.00	$ 318,271.00

Sources: State Fire and Tornado Fund

The State of North Dakota also identifies other state-owned properties as critical assets. Rolette County does not have a National Guard Unit, yet still has over $13 million of State-owned property within the county of values of:

- Building Property (Structure) Value: $13,288,063
- State Agency Building Properties: 57

Source: North Dakota State Hazard Mitigation Plan

Infrastructure can be somewhat more difficult to quantify in terms of replacement costs. Based on data from the North Dakota Office of State Tax Commissioner, taxable valuations show the extent of certain types of infrastructure in the county.

2022 Taxable Valuation of Railroads - $0
2022 Taxable Valuation of Pipelines - $0
2022 Taxable Valuation of Electric lines - $272,815
Source: Rolette County Auditor

Transportation

Roads are the main type of transportation for both the county and tribe. They have limited air transportation with three municipal/private airstrips, and no commercial airlines. There are no railroads in Rolette County or on the reservation. The county and the State of North Dakota are landlocked.

TMBCI and Rolette County have an extensive county and township transportation system linking farms to the city markets and sources of consumer goods. There are 1,118 miles of gravel roads and 442 miles of paved roads in Rolette County. The main county roads and their surface are listed below. These roads are maintained by Rolette County.

The majority of roads on the TMBCI Reservation are Bureau of Indian Affairs roads. Construction is contracted to the tribe under PL 93-638.

Figure 3.1A below shows the Rolette County transportation routes. The County highways are identified; the township roads which are feeder roads to the county system are shown also. Many of the township roads are minimum maintenance roads, used for farmer field access.

TMBCI/ Rolette County Highways

Source: North Dakota Department of Transportation

Table 3.1B defines the major transportation routes including county roads and state and federal highways. TMBCI has an extensive transportation system linking individual home sites and tribal housing sites to city markets and sources of consumer goods. The main roads are identified as BIA Roads and are a mixture of gravel and paved surfaces. The BIA Roads are marked 1-25, but not in numerical order (some numbers are omitted). The odd numbered roads run north and south, starting from the east with BIA 1 and continuing west to BIA 25. The even numbered roads run east and west, starting from the north with BIA 2 and continuing south to BIA 12. These roads are maintained by the TMBCI Road Department.

Table 3.1B, Major Transportation Routes

http://www.dot.nd.gov/manuals/programming/STIP/draftstip2019-2022.pdf

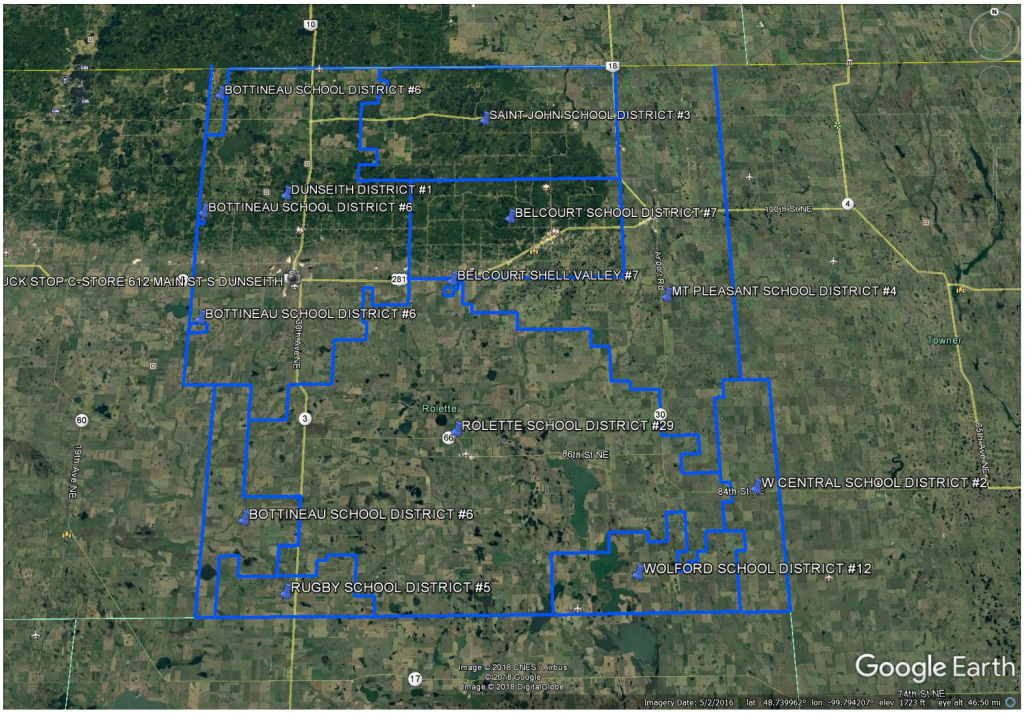


Table 3.1A State and Federal TMBCI/Rolette County Highways (Shown on Figure 3.1A)

Highway	Route Direction
US Highway 281	East/West, North/South: Enters Rolette County East of Rolla, goes West through Belcourt to Dunseith. At Dunseith it turns North through San Haven and Terminates at the Canadian Border 24 Hour Point of Entry. From Dunseith through Rolla the highway is shared with ND Highway 5.
ND Highway 5	East/West: Enters Rolette County West of Dunseith and follows an eastward route to Rolla and proceeds to Towner County.
ND Highway 3	North/South: Enters Rolette County North of Rugby in Pierce County. It goes North through Dunseith joining up with S Highway 281 at Dunseith.
ND Highway 30	North/South: Commences at the junction of ND 66 North of Mylo, it goes North through Rolla and unto the Canadian Border to a 13 Hour Point of Entry.
ND Highway 66	East/West: Enters Rolette County at Agate East of Mylo. It proceeds West through Rolette and to the Bottineau County line.

Source: North Dakota DOT, Highway Map

The development of automobiles and commercial trucks brought about the building of highways in the United States. The county relies heavily on the county road systems connecting county roads to the two state highways and Federal Highways. Rural counties like Rolette must balance the great expense of road upkeep and maintenance with other county expenses. Fortunately, the North Dakota Department of Transportation 2016 study has indicated there are no county structures to be structural obsolete and no structures to be functionally obsolete.

Table 3.1C TMBCI/Rolette County Traffic Counts

Highway	Total Traffic Count	Commercial Traffic Count
US Highway 281 at Belcourt	**4730**	**235**
US Highway 281 at Canadian Border	**490**	**170**
US Highway 281 at junction North of ND Highway 5	**3418**	**280**
US Highway 281 at junction East of ND Highway 3	***1085***	**245**
ND Highway 5 at West junction of US Highway 281	**1495**	**170**
ND Highway 5 at East junction of US Highway 281	**2310**	**156**
ND Highway 3 at North junction of ND Highway 66	**1055**	**245**
ND Highway 3 at South junction of ND Highway 66	**1205**	**375**
ND Highway 66 at junction of ND Highway 3	**435**	**75**
ND Highway 66 West of Rolette	**445**	**75**
ND Highway 66 East of Rolette	**535**	**80**
ND Highway 66 at junction of ND Highway 30	**420**	**75**
ND Highway 66 at Towner County line	**420**	**240**
ND Highway 30 at junction of ND Highway 66	**520**	**100**
ND Highway 30 at South junction of US Highway 281	**730**	**110**
ND Highway 30 at North junction of US Highway 281	**1430**	**85**

Source: North Dakota Department of Transportation, 2015

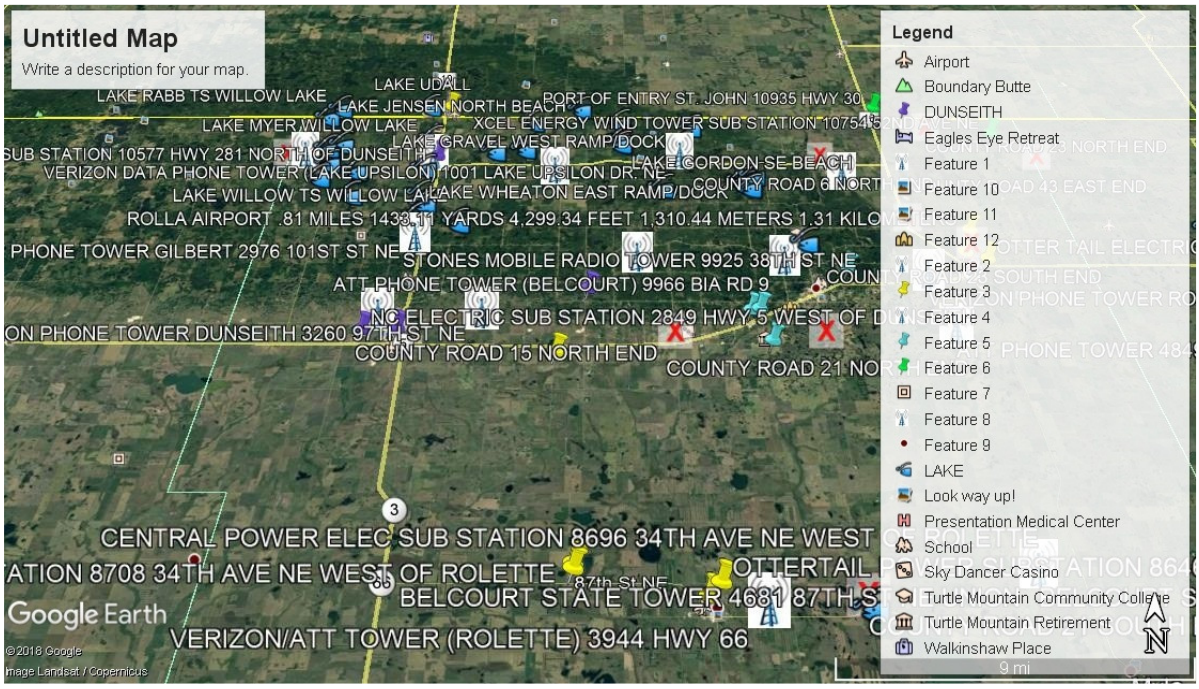
Gravel is the main surface coating for county roads. This causes problems during the spring at snowmelt and when the frost comes out of the ground and during periods of heavy rainfall. Under those conditions road surfaces become muddy and soft creating dangerous road conditions. Gravel roads are also more prone to washouts as excess water may exceed culvert capacity as it moves from one pothole/lake to another during high water periods. Gravel roads are also subject to traffic impacts. As farms have become larger, farm trucks have become larger. Harvest times can cause severe road damage as heavy farm trucks move the harvested crops to storage or markets.

Rolette County has three airports, the Rolette Municipal Airport, the International Peace Garden Airport at Dunseith, and the Rolla Municipal Airport.

Communication Towers

The figure below shows the communication towers located in Rolette County and on the TMBCI. The cell towers are displayed along with microwave towers and antenna towers. The antenna towers are used for county and tribal communications. First responder agencies use these towers including law enforcement, fire departments, and emergency medical services. These towers are also used by county and reservation road crews which are very important in that as they are out blading and maintaining county and reservation roads they serve as severe summer weather spotters and can get information quickly to other tribal and county resources in the event of a tornado or other severe weather event. County and tribal road crews also remove snow from the roadways under dangerous conditions of extreme wind chills and poor visibility. If an accident should happen the radio system is used to call for assistance. School busses also use the county and tribal radio system which is critical for the safety of children being transported to and from school especially in winter months when extreme cold or hampered visibility conditions exist. If a school bus breaks down or becomes stuck in a blocked road or goes off the road the county and tribal radio system is used to call for assistance. The County and Reservation do have a State Radio tower coverage that assists with the overall State Communication plan.

Figure 3.1C Rolette County/TMBCI Communication Towers



Source: Turtle Mountain Band of Chippewa Indians/Rolette County Joint Multi-Hazard Mitigation Planning Committee

Rolette County and the TMBCI have 11 communication towers.

- Mobile Radio Towers: 1 State Radio Communications tower, and 3 County/Tribal Communications towers.
- Antenna Structure: 11 Cell Telephone Towers

Source: ND GIS Hub, 2014, Rolette County/TMBCI MHMP Planning Committee

Heating Sources

During the cold winter months, the heating of homes and businesses is a necessity. Residents of the TMBCI and Rolette County use a variety of fuels; however, it is important to note that most systems ultimately require electricity to run their thermostats and blowers. The following statistics shows the number of occupied housing units for 2015 in Rolette County and on the TMBCI by home heating fuel type:

Table 3.1C, Heating Fuels

Type of Heating Fuel	Number of Occupied Homes – 4,655 (2020)	% of Homes
Utility gas	106	2.3
Bottled, tank, or LP gas	1,730	38
Electricity	1,831	40.2
Fuel oil, kerosene, etc.	735	16.1
Coal or coke	13	0.3
Wood	103	2.3
Solar	0	0
All Other fuels	38	0.8

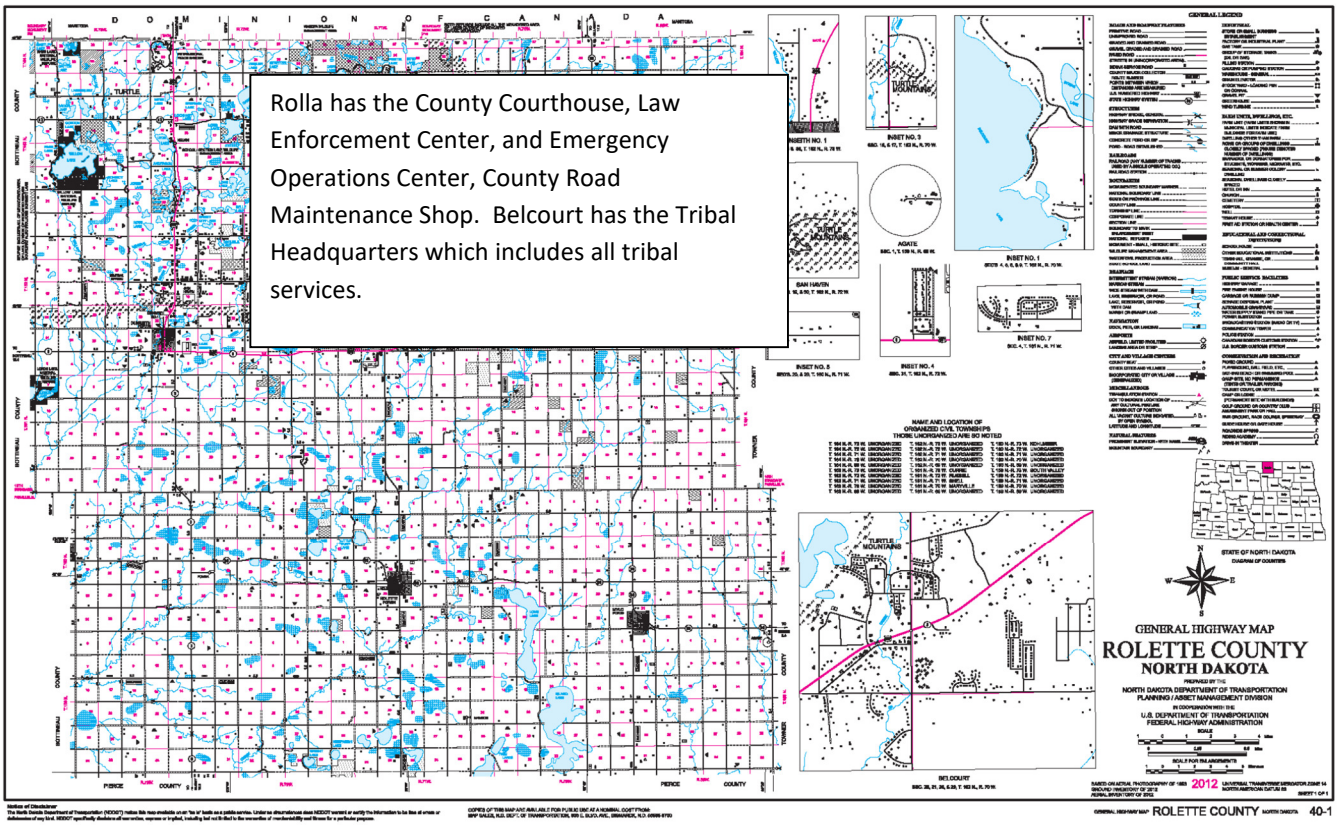
Source: US Census Bureau, 2020 Factfinder.census.gov and Multi-Hazard Planning Committee

Critical Facilities

Each jurisdiction identified its own critical facilities and infrastructure as part of the Local Emergency Operations Plan development. Those facilities are shown in Figure 3.1D, Critical Facilities, by jurisdiction.

Critical Facilities for the TMBCI include the TMBCI Government/Headquarters Building, TMBCI Tribal Court, BIA Law Enforcement Facilities, BIA Agency Building,, Turtle Mountain Schools (Turtle Mountain Community Elementary, Middle, and High Schools, Ojibwe School, Dunseith Day School, TM Headstart/CAP Building, St. Ann's School), Turtle Mountain Community College (Old and New Campuses), Transportation Building, I.H.S., Blue Chip Financial, Skydancer Casino, TMBCI Water Towers.

Figure 3.1D, TMBCI/Rolette County Critical Facilities

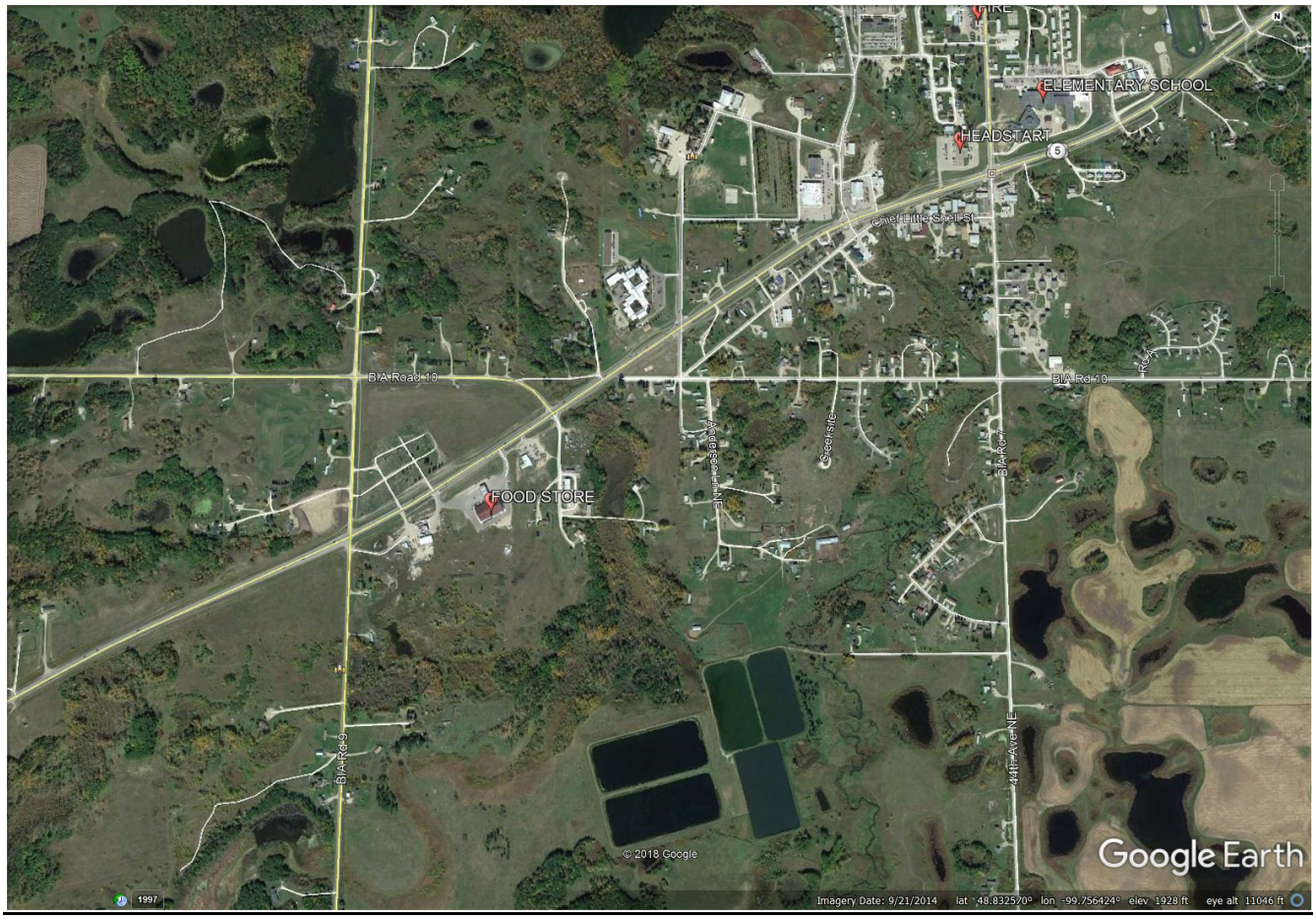


Refer to Figure 3.1C for Communications Tower locations.

Source: Turtle Mountain Band of Chippewa Indians/Rolette County Joint Multi-Hazard Mitigation Planning Committee

Figure 3.1E, Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John Critical Facilities

Belcourt



Dunseith

Map 1 of 4


FOOD STOR
TRIBAL COUNCIL BUILDING
Center Site Rd
Google Earth
Imagery Date: 9/21/2014 lat 48.823491° lon -99.781955° elev 1873 ft eye alt 11046 ft

Map 2 of 4


CHIEF LITTLE SHELL POW WOW GROUNDS 9720 US HWY 281 (DUNSEITH)
TMBCI TRIBAL YOUTH 9708 US HWY 281 GILBERT
TURTLE MT SUICIDE PREVENTION 9708 US HWY 281 GILBERT
97th St NE
Channel Ave
Frontage Rd
2nd St E
5th Ave N
4th Ave N
1st St E
3
© 2018 Google
Google Earth
1995
Imagery Date: 9/21/2014 lat 48.820887° lon -100.060017° elev 1725 ft eye alt 5543 ft

Map 3 of 4


DUNSEITH WATER WELL 4
DUNSEITH WATER WELL 6
DUNSEITH WATER WELL 5
DUNSEITH WATER WELL 7
DUNSEITH WATER WELL 3
DUNSEITH WATER HOLDING TANK
DUNSEITH WATER PUMP HOUSE/WELL 1 & 2
DUNSEITH WATER HOLDING TANK
DUNSEITH WATER WELL 8
30th Ave NE
23rd Ave NE
© 2018 Google
Google Earth
Imagery Date: 9/21/2014 lat 48.829319° lon -100.054945° elev 1824 ft eye alt 5301 ft

Map 4 of 4

Mylo

3rd Ave
MYLO FIRE
2nd Ave
Madison St
Tower St
Robnedy St
1st Ave
Main St
66
© 2018 Google
Google Earth
1997
Imagery Date: 9/21/2014 lat 48.635716° lon -99.616320° elev 1659 ft eye alt 3724 ft

Rolla

Map 1 of 2


HOSPITAL/CLINIC
SCHOOL K-12
MEDICAL CLINIC
CO HEALTH
CO COURT HOUSE
FOOD STORE
FOOD STORE
ROLLA FIRE
ROLLA PD
ROLLA CITY HALL
CO SHERIFF
WATER TREATMENT PLANT
30
Main Ave W
1st Ave SW
Monto Dr
Monro Dr
9th St SW
10th St SW
11th St SW
2nd Ave SW
49th Ave NE
50th Ave NE
Front St SE
Well House Rd
99th St NE
© 2018 Google
Google Earth
1997
Imagery Date: 9/21/2014 lat 48.854952° lon -99.622193° elev 1808 ft eye alt 7374 ft

Map 2 of 2

St. John

3.2 Population and Structures

The citizens, visitors, and their property are at all risk from various disasters. In essentially all incidents, the top priority is the protection of life and property. Table 3.2A shows the population by jurisdiction based on the estimated population provided by the US Census Bureau.

Table 3.2A Population Statistics

Location	2010 Population	2020 Population	Change Since 2010 Census
Rolette County (TOTAL)	13,937	12,187	-1,750
TMBCI	5,815	13,379	+7,564
City of Belcourt	2078	1510	-568
City of Dunseith	773	632	-141
City of Mylo	20	N/A	
City of Rolette	594	484	-110
City of Rolla	1,280	1,223	-57
City of St. John	341	322	-19

Source: US Census Bureau, 2020

Like critical and special needs facilities, structures such as residences and businesses are also vulnerable to hazards. Based on US Census 2020 data, the following applies to Rolette County and the TMBCI:

- Housing units: 4,655
- Occupied housing units: 71.5%
- Median value of owner-occupied housing units (2020): $85,600
- Housing Unit Density # Per Square Mile: 5.15
- Persons per household: 3
- Private non-farm establishments: 209 (2012 data)
- Building Permits: 0 in 2021

US Census Bureau, Total Housing Units and Housing Density from 2015 Decennial Census, American Factfinder, Rolette County Board of County Commissioners

The value of property in the county can be based on tax assessment and taxable valuation data:

2022 Assessed Valuation in Rolette County -

Residential – 55,414,940
Commercial – 18,809,256
Agricultural – 154,597,872

2022 Taxable Valuation in Rolette County –
Residential – 4,988,055
Commercial – 1,880,926
Agricultural – 15,459,797

Source: Rolette County Auditor

3.3 Economic, Ecologic, Historic, and Social Values

The economy of Rolette County and the TMBCI and the jurisdictions is driven by retail trade, wholesale trade, manufacturing, agriculture, and accommodation and food services. Disasters of any magnitude can threaten the fragile economies and well-being of residents. Some basic economic statistics follow:

- Median household income: $43,158 (2019)
- Persons below poverty: 27.1%
- Total number of firms (2020): 194

Source: US Census Bureau, 2016 American Community Survey

The sales, shipments, receipts, or revenue for Rolette County and the TMBCI by industry are as follows:

- Retail trade: $111,755,000
- Wholesale trade: $103,586,000
- Manufacturing: (Withheld to avoid disclosing data for individual companies, data are included in higher level totals)
- Accommodation and food services: $51,867,000 (2017)

Source: US Census Bureau, 2020

Based on data from the US Census of Agriculture in 2017, Rolette County and the Turtle Mountain Band of Chippewa Indians had:

- Number of farms: 453 farms
- Acres in farmland: 512,172 acres
- Total market value of agricultural products sold: $91,542,000
- Market value of crops sold: $77,154,000
- Market value of livestock, poultry, and their products sold: $14,388,000

Source: US Department of Agriculture, 2017

The ecologic, historic, and social values of the TMBCI Community and Rolette County and the jurisdictions each tie into the quality of life for residents and visitors. Without these values, lives and property may not be threatened, but the way of life and connections to

history and the environment could be disrupted. These values can have deep emotional meaning and investment.

Ecologic values represent the relationship between organisms and their environment. For humans, these values include clean air, clean water, a sustainable way of life, and a healthy, natural environment including a diversity of species. Natural hazards, such as floods and wildfires, are usually part of a healthy ecosystem but often human caused hazards damage ecologic values. Ecologic values in Rolette County and the TMBCI include Ox Creek, Wolf Creek, and Willow Creek. Numerous Lakes are found in Rolette County and on the TMBCI including Belcourt Lake, Cain Lake, Carpenter Lake, Dion Lake, Gordon Lake, Gravel Lake, Hooker Lake, Island Lake, Jarvis Lake, Jensen Lake, Long Lake, School Section Lake, Shutte Lake, Upsilon Lake, Wheaton Lake, and Willow Lake. These lakes and smaller numerous potholes are remnants of the continental glacier that covered Rolette County and the TMBCI about 12,000 to 15,000 years ago. The lakes and potholes are found in the Turtle Mountains and on the Drift Prairie with its gentle rolling hills. The lakes and potholes serve as waterfowl nesting and resting areas during the fall and spring migrations and fishing opportunities. Most of the Creek Valleys include grasslands, wooded areas, hills, and lush river bottoms, thus containing an abundance of plant and animal life. The Turtle Mountains are primarily covered with wooded vegetation interspersed with grassland and cropland.

Historic values capture a piece of history and maintain a point in time. Historic values can include sites, buildings, documents, and other pieces that preserve times past and have value to people. Rolette County and the TMBCI has three resources listed in the National Register of Historic Places. They are Coghlan Castle; Cote, Urbain Round Barn; CCC Lodge at the International Peace Garden also known as Moore Lodge, and US Inspection Station in St. John.

Social values are difficult to quantify but are an important aspect of quality of life and interpersonal relationships. Examples of social values within the TMBCI Community and in Rolette County and the jurisdictions may include gatherings promote community building, personal achievement, freedom from tyranny, the ability to communicate with others, pride in making the world a better place, and friendships. The realm of social values is only limited by the human imagination and usually relates to how a person feels. Disasters, both natural and human caused, can disrupt important social activities and sometimes have lasting effects on society.

A Social Vulnerability Index compiled by the Hazards and Vulnerability Research Institute in the Department of Geography at the University of South Carolina measures the social vulnerability of U.S. counties to environmental hazards for the purpose of examining the differences in social vulnerability among counties. Based on national data sources, primarily the 2010 census, it synthesizes 42 socioeconomic and built environment variables that research literature suggests contributes to reduction in a community's ability to prepare for, respond to and recover from hazards (i.e., social vulnerability).

Eleven composite factors were identified that differentiate counties according to their relative level of social vulnerability: personal wealth, age, density of the built environment, single-sector economic dependence, housing stock and tenancy, race (African American and Asian), ethnicity (Hispanic and Native American), occupation and infrastructure dependence.

At the time of the 2022 revision, the Social Vulnerability Index 2006-2010 is the most recent data. The index can be used by the Tribe and County to help determine where social vulnerability and exposure to hazards overlaps and how and where mitigation resources might best be used. TMBCI and Rolette County have a medium Social Vulnerability to Environmental Hazards ranking along with nineteen other counties. Two counties (Cass and Burleigh) have a low rating. (Hazards and Vulnerability Research Institute, University of South Carolina).

Ecological values represent the relationship between organisms and their environment. For humans, these values include clean air, clean water, a sustainable way of life, and a healthy, natural environment including a diversity of species. Natural hazards, such as floods and wildfires, are usually part of a healthy ecosystem but often human caused hazards damage ecological values.

The Turtle Mountains are an important part of the ecological, historical, and social values of Rolette County and the TMBCI. The following is taken from John Bluemle, PHD's website which gives a detailed description of the Turtle Mountains.

"Between 1810 and 1870, Métis hunters from the Red River area followed trails north and south of the feature, to reach the buffalo herds. When viewed from the south, the upland appeared to the Métis as a turtle on the horizon with the head pointing westward and the tail to the east. Another account says that the feature was named for an Ojibwa Indian, "Makinak," (turtle) who walked (ran?) its entire length in one day. The Ojibwa often took their names from things in nature, and the turtle was an important figure in their religious tradition. Other names that have referred to Turtle Mountain include Makinak Wudjiw, LaMontagne Torchue (French for 'Turtle Mountain'), Turtle Hill, Beckoning Hills, and the Blue Jewel of the Plain.

Still another possible origin for the name might be the painted turtles, which are plentiful in the area today. The only "semi-official" information I could find that referred to the origin of the name was included in the early accounts of government cartographers, who noted that, from a distance, the profile of the plateau resembles the back of a turtle.

For many people, mention of Turtle Mountain brings to mind the International Peace Garden, which straddles an area of three and a half square miles on the U.S.- Canada (North Dakota – Manitoba) border. North Dakota, after all, is known as the Peace Garden State. The Peace Garden was established in 1932 as a symbol of the peaceful relationship between the two

nations. The North Dakota portion of the Peace Garden is in Rolette County on the west side of U.S. Highway 281.

Turtle Mountain rises 600 to 800 feet above its surroundings, high enough to receive significantly more precipitation than the surrounding grassland. As a result of the heavier precipitation, Turtle Mountain is forested. The hills cover an area of about a thousand square miles, half in North Dakota, and half in Manitoba. Along with river bottom land and the forested Pembina Hills to the east, Turtle Mountain is one of the few extensive wooded areas in the region. The predominant covering of aspen is interspersed with black poplar, ash, birch, box elder, elm, and bur oak. A large part of the vegetation consists of shrubs like hazel, chokecherry, saskatoon, nanny berry, dogwood, highbush cranberry (pembina), and pincherry. Fire played an important role in the development of present-day vegetation. Prior to settlement, Turtle Mountain was periodically swept by fire caused by lightning and by human activity. Plains Indians recognized that a heavy growth of new plants appeared in burned areas. They knew too that forests did not attract bison, an important food source, so they routinely set fire to the wooded areas. Prairie winds then carried the fires for many miles. This practice may represent one of the earlier attempts by humans to attract animals by manipulating the environment.

Fig. 15-D. Wooded area of dead-ice moraine topography on Turtle Mountain.

Turtle Mountain is basically an erosional feature, a broad area, resulting when younger sediments were left standing when the surrounding older materials were eroded away. Unlike the Killdeer Mountains, Turtle Mountain was then glaciated and the resulting glacial landforms greatly changed the area. Had the area not been glaciated, Turtle Mountain might be more like the Killdeer Mountains, although much broader and probably not so prominent a feature. The area of Turtle Mountain is underlain by rocks of the Cretaceous Fox Hills and Hell Creek formations and the Paleocene Cannonball Formation, all covered by a thick layer of glacial sediment. In early Pliocene or earliest Miocene time, five or six million years ago, the area that is now Turtle Mountain was part of a broad, northeast-sloping plain. Rivers and streams flowed over the plain from the west and southwest, making their way to Hudson

Bay. Then, in Pliocene time, maybe four million years ago, erosion increased markedly and large amounts of material were removed as deep valleys dissected the plain. I am unsure why this cycle of erosion began. Perhaps the area was uplifted by geologic forces so that streams began to cut down and into the sediments over which they had been flowing or (more likely) the climate may have changed.

Fig.15-E. Wetland area on Turtle Mountain.

The erosion removed sediment and shaped new hills and valleys. Gradually, as streams carried the sediments surrounding Turtle Mountain away to Hudson Bay, a large mesa, or perhaps a range of buttes, remained where the hills that comprise Turtle Mountain stand today. The reason the outlier developed where it did is not clear. The uppermost bedrock unit (beneath the covering of glacial sediment) of Turtle Mountain is the Tertiary Cannonball Formation, which is not notably resistant to erosion. It is possible that some kind of resistant layer was present throughout much of the erosion cycle, perhaps a part of the lower Bullion Creek Formation. Additional drilling in the area may eventually penetrate a remnant of some resistant material that has not yet been found. If any resistant layer exists, it is everywhere buried beneath glacial sediments.

Fig. 15-F. Road up the southern escarpment of the Turtle Mountains.

About three million years ago, the climate turned colder and, as snow built up to great depths near Hudson Bay, glaciers formed and the ice flowed southward, out of Canada into North Dakota. As the climate fluctuated during the Ice Age, glaciers advanced and receded, flowing over and around Turtle Mountain several times. About 25,000 years ago, the Late Wisconsinan glacier flowed southward over Turtle Mountain for the last time. During the most recent major glaciation, Turtle Mountain was continuously buried beneath the actively moving glacial ice for about 10,000 years.

Fig. 15-G. The horses are in a pasture at the base of the Turtle Mountain escarpment (in the distance).

The movement of the glacial ice over the obstruction formed by the Turtle Mountain upland caused the ice to become compressed, resulting in shearing within the glacier, especially on the west and north sides of the area. The shearing of the ice at the edge of Turtle Mountain caused large amounts of rock and sediment to be incorporated into the ice. As the climate moderated between 15,000 and 13,000 years ago, the glacier became thinner and its margin receded northward. Because Turtle Mountain rises 600 to 800 feet above the surrounding area, and because ice 200 or 300 feet thick can flow under its own weight, the flow of glacial ice on the lowland adjacent to Turtle Mountain continued for a while. At the same time, the glacier on top of Turtle Mountain stagnated, leaving several hundred feet of debris-covered ice covering the surface on the upland.

In areas surrounding Turtle Mountain, where shearing of material into the glacier had not been as intense, the ice was cleaner and it simply melted away, leaving only a small amount of sediment. In contrast, as the debris-covered stagnant ice over Turtle Mountain melted, the debris it contained gradually became concentrated at the surface of the ice, resulting in an increasingly thick insulating layer that greatly retarded the rate of melting. Thus, even though the glacier had stopped flowing, and had stagnated over the Turtle Mountain upland by 13,000 years ago, the layer of insulation that built up on top of the stagnant glacier kept it from completely melting for another 3,000 years. It was not until about 10,000 years ago that the last glacial ice on Turtle Mountain melted.

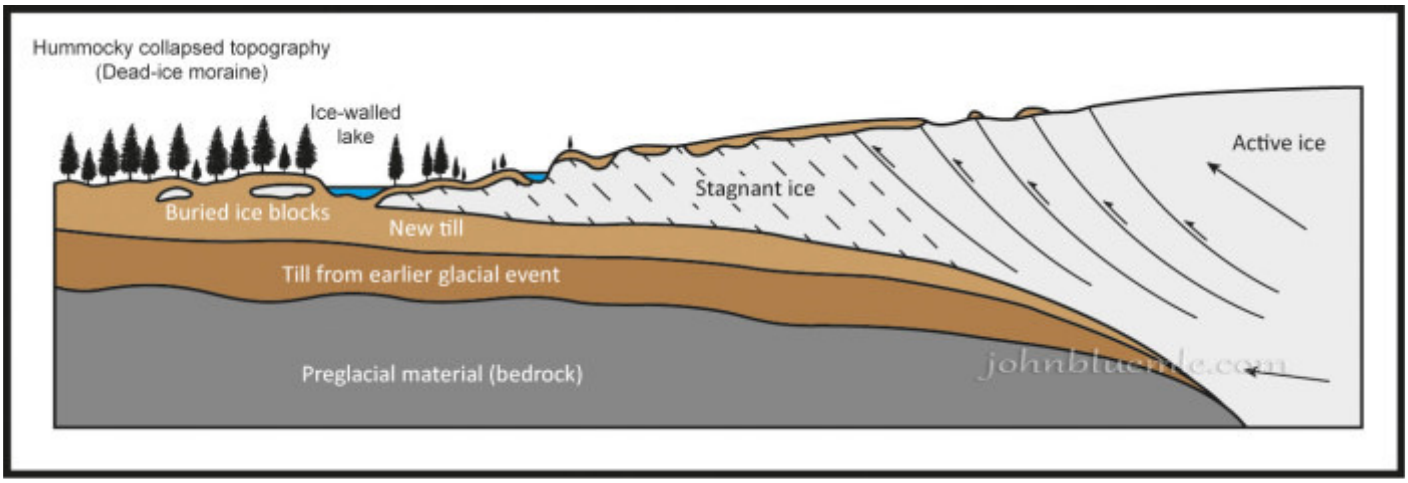


Fig. 15-H. Diagram showing ice advancing over the Turtle Mountain escarpment. When the Late Wisconsinan glacier (as well as earlier glaciers) advanced southward over Turtle Mountain in Manitoba, and eastward (at the west end of Turtle Mountain) in North Dakota, the compression caused it to shear large amounts of sediment into the ice. This part of the glacier became detached from the main part and stopped advancing. As it melted, the debris it contained became concentrated on the surface of the ice, slowing the melting process (see essay on dead-ice moraine). When all of the dead glacial ice melted, the result was the current land surface. Diagram: January 29, 2015

The glacial sediment on the stagnant glacier covering the Turtle Mountain upland was irregularly distributed and, for this reason, the ice there melted unevenly. This uneven melting caused the upper surface of the stagnant ice to become hilly and pitted with irregular depressions. The glacial sediment on and within the ice was saturated with water from the melting ice and it was highly fluid. It slid down the ice slopes in the form of mud flows and filled the depressions. Thick accumulations of debris in depressions on the stagnant glacier insulated the ice beneath, keeping it from melting quickly. Newly exposed ice, from which the insulating debris cover had recently slid, melted rapidly. The result was a continual reshaping of the surface of the stagnant, sediment-covered glacier.

The environment over Turtle Mountain gradually stabilized and the lakes flooding the sediment-lined depressions on the stagnant glacier became more temperate. Most of the water in the lakes came from local precipitation, rather than from melting ice. Precipitation at the time was greater than it is today; probably more than 50 inches a year, and the mean annual temperature was a few degrees cooler than it is today. Eventually, all the stagnant ice over Turtle Mountain melted, and all of the material that had been on top of and within the glacier was distributed in its current position, forming the hilly "collapse" topography found in the area today. These landforms are referred to by geologists as "hummocky collapsed glacial topography," or "dead-ice moraine." The modern landscape on Turtle Mountain is characterized by hundreds of lakes and ponds, by hummocky

topography, and also by some broad, flat areas that stand well above the surrounding rougher land, along with some flat, lowland areas. Many of the higher flat areas are old lake plains, underlain by silt and clay that were once surrounded by glacial ice. These areas are referred to as "elevated lake plains." Some of the lower flat areas are covered by stream deposits of gravel and sand. No streams flow for any great distance throughout the area."

Fig. 15-J. Turks Cap lilies on Turtle Mountain. The flowers were abundant on June 30. Photo: June 30, 2010."

http://johnbluemle.com/21-mountainous-areas-of-nd-turtle-mountain/

3.4 Current Land Use

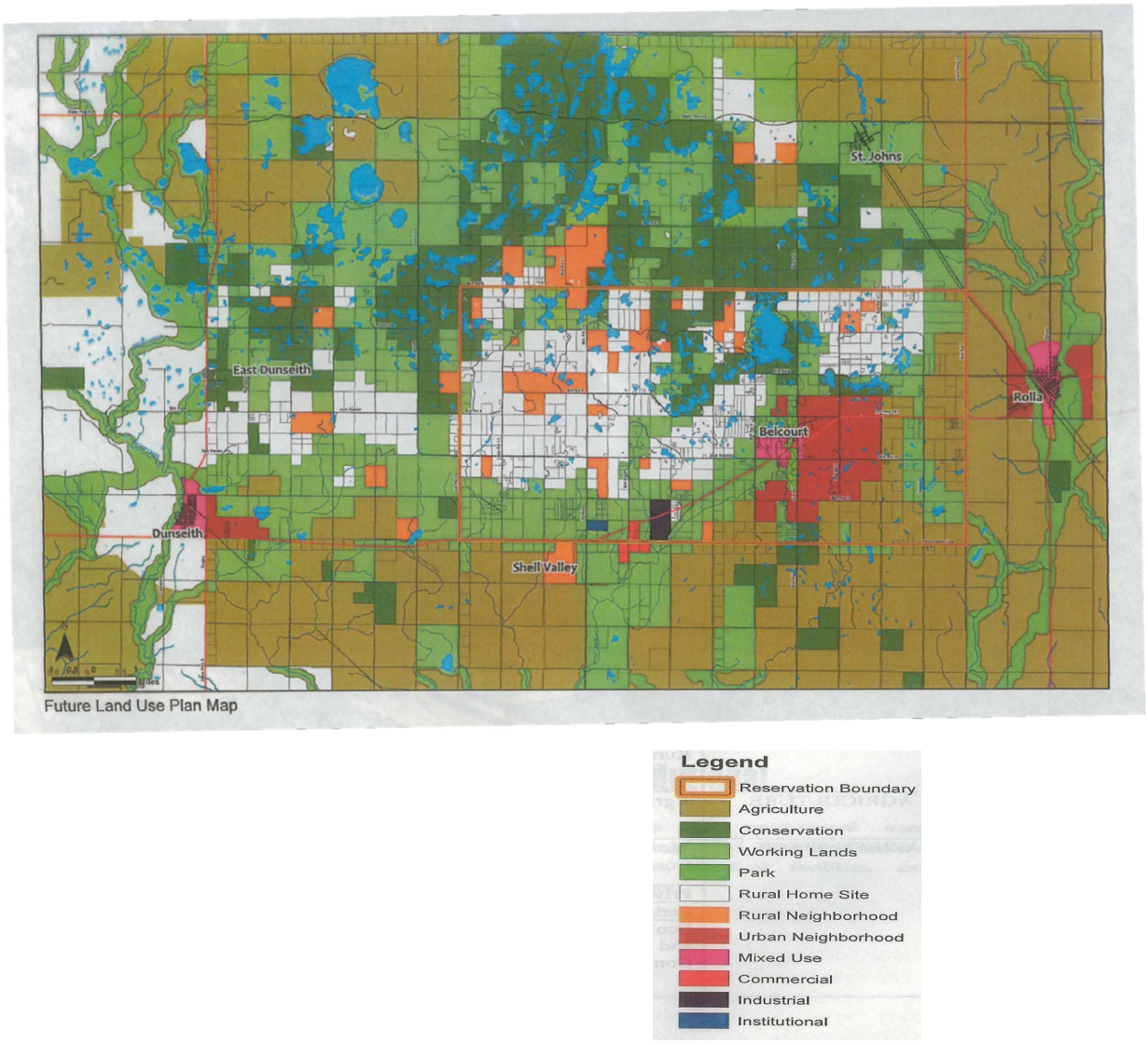
Rolette County and the TMBCI are largely devoted to agriculture with 453 farms. 512,172 acres of the land is in farms, the average farm size is 823 acres. 365,920 acres or 68% of the farmland is in cropland. Four farmers have irrigated farmland. 168,381 acres of pastureland makes up 12% of the farmland. Water makes up 23,040 acres. Small communities and individual homes and farms are interspersed throughout the remainder of the county. Most of the agricultural lands are croplands, with scattered areas of livestock and forage. Infrastructure such as unused rail beds, roads, and highways traverse the county.

Source: USDA 2017 Census of Agriculture

In January 2009, the TMBCI created a Land Use Plan with the goal of reducing poverty among the tribe by creating a vision for the safe and efficient use of land. This plan was meant to result in more prosperous economic conditions, more efficient transportation, enhanced environmental quality, wise use of resources, and

reduced infrastructure cost. The land use plan map below shows the recommended future land use designation for each parcel of land within the Turtle Mountain Reservation and surrounding area. The land use designations use the 12 Land Use Categories in the legend below.

Figure 22: Future Land Use Planning Map



The TMBCI and tribal lands continue to grow at a swift pace. The Turtle Mountain Housing Authority (TMHA) will continue to pursue sustainable housing for the enrolled members of the Tribe. Two of the main concerns for building housing on the reservation are the many high-water tables and soil types. In the past, our tribal members did not have the access to technology that we currently do and TMHA will make every effort now and in the future to build environmentally conscious structures in locations that are safe for its tribal members.

3.5 New Development

Population trends indicate growth on the TMBCI resulting in a population gain. Since 2010, The TMBCI Reservation has gained 7,564 people. However, as a whole, Rolette County is losing population. The 2010 census counted 13,937 people living in Rolette County. As of April 1, 2020, 12,187 people lived in Rolette County, a 10-year loss of 1,750 people. This trend is common in North Dakota rural counties as farms become larger and the larger population centers attract more people.

Rolette County had five building permits issued in the last 3 years.

3.6 Future Development

The population growth and development trends on the TMBCI are related to a strong birth rate. Rolette County's population loss is caused by some out-migration, and centralization to urban centers. Large introductions of new industries are not anticipated in the near future.

Existing land uses and the review processes and regulations for new development play important roles in disaster mitigation. Often, smart development is an inexpensive and effective way to reduce the impact of future disasters on the community. The Building Codes, Zoning and Planning are used by the jurisdictions to guide future development.

Building Codes:

North Dakota has a voluntary building code program. Effective January 1, 2014, the North Dakota State Building Code consists of the 2012 International Building Code, International Residential Code, International Mechanical Code, and International Fuel Gas Code, along with state amendments. Jurisdictions are permitted to further amend the State Building Code to conform to local needs. Communities can join by adopting and enforcing the state building code. Rolette County and the cities of Dunseith, Mylo, Rolette, Rolla, and St. John have all adopted the state building code. In addition, the county and the cities of Dunseith, Mylo, Rolette, Rolla, and St. John have adopted city zoning regulations.

Source: Rolette County Emergency Manager

Status of National Flood Insurance. Rolette County and the TMBCI and the communities of Belcourt, Mylo, and St. John do not have flood maps. The Federal Emergency Management Agency and the North Dakota State Water Commission initiated a large-scale (32 eastern North Dakota counties including Rolette County) base-level engineering project. The project will provide high quality, current flood risk assessment of all streams and tributaries. The Rolette County Planning Team hopes to leverage data to help make informed, risk-based decisions for building safer, more resilient communities.

Most recent natural disasters:

Year	FEMA ID	Type of Disaster	Disaster Damages
2020	DR 4509	COVID-19 Pandemic	Unknown
2020	EM 3477	COVID-19	Unknown
2017	DR 4323	Flooding, Rolette County and Rolla	$326,036.34
2017	DR 4323	TMBCI, Flooding	$13,557.11
2013	DR 4118	Flooding, Rolette County	$53,250.57
2013	DR 4128	TMBCI, Flooding	$186,161.30
2011	DR 1981	Flooding, Rolette County, St. John, and Rolla	$618,489.29
2011	DR 1981	TMBCI, Flooding	$436,168.63
2009	DR 1829	Severe Storms, Flooding; Rolette County, Rolla, and TMBCI	$476,644.30
2006	DR 1645	Severe Storms, Flooding	Unknown
2005	DR 1616	Severe Winter Storms and near record snow	Unknown
2005	DR 3247	Hurricane Katrina Evacuation	Unknown
2005	DR 1597	Severe Storms, Flooding, and Ground Saturation	Unknown
2001	DR 1376	Flooding	Unknown
2000	DR 1334	Severe Storms and Flooding	Unknown
1999	DR 1279	Tornadoes, Snow and Ice, Flooding, Ground Saturation, Landslides and Mudslides	Unknown

Causes of disasters: Floods: 19, Storms: 10, Snows: 5, Winter Storms: 2, COVID-19: 2, Blizzard: 1, Heavy Rain: 1, Hurricane: 1, Landslide: 1, Mudslide: 1, Tornado: 1 (Note: Some incidents may be assigned to more than one category).

Source: http://www.city-data.com/county/Rolette_County-ND.html#ixzz5At82fCA6

4 Risk Assessment / Hazard Profiles

4.1 Infectious Diseases and Pest Infestations

Including Human, Animal, and Plant Diseases

Frequency	Possible	
Impact	Catastrophic	
Risk Class	B	
Seasonal Pattern	None	
Duration	Weeks/Months	
Speed of Onset	Unpredictable and dependent on specific event	

4.1.1 Description

Diseases affect humans, animals, and plants continuously. Each species has its own natural immune system to ward off most diseases. The causes and significance of diseases vary. Of significance in the disaster prevention realm are communicable diseases with the potential for high infection rates in humans or those which might necessitate the destruction of livestock or crops. Such diseases can devastate human populations and the economy.

Disease transmission may occur naturally or intentionally, as in the case of bioterrorism, and infect populations rapidly with little notice. New diseases regularly emerge or mutate such as Covid-19. Known diseases, such as influenza, can be particularly severe in any given season. Terrorism experts also theorize the possibility of attacks using biological agents.

<u>Human Disease</u>

Human epidemics may lead to quarantines, large-scale medical needs, and mass fatalities. Typically, the elderly, young children, and those with suppressed immune systems are at greatest risk from communicable diseases. The following biologic agents are considered

the highest bioterrorism threats (Category A) due to their ease of dissemination or person-to-person transmission, high mortality rate with potential for major public health impacts, potential for public panic and social disruption, and the necessity for special public health preparedness:

- Anthrax
- Botulism
- Plague
- Smallpox
- Tularemia
- Viral Hemorrhagic Fevers
- Covid-19

(Centers for Disease Control and Prevention, 2013, MHMP Committee)

In addition to global disease and bioterrorism concerns, naturally occurring diseases can threaten communities. Natural illnesses of particular concern, among others, include:

- Food-borne illnesses, such as E. coli and Salmonella
- Influenza
- Meningitis
- Pertussis/Whooping Cough
- Measles
- Norwalk Virus
- Mumps
- Severe Acute Respiratory Syndrome (SARS)
- Enterovirus D68 (EV-D68)
- Ebola
- Hepatitis
- Botulism
- Tuberculosis
- Sexual Transmitted Disease
- HIV
- Pneumonia
- Polio

These diseases can infect populations rapidly, particularly through groups of people in close proximity such as schools, assisted living facilities, and workplaces.

Enterovirus D68 (EV-D68) is one of more than 100 non-polio enteroviruses. This virus was first identified in California in 1962. EV-D68 can cause mild to severe respiratory illness. Mild symptoms may include fever, runny nose, sneezing, cough, and body and muscle aches. Severe symptoms may include wheezing and difficulty breathing. Since EV-D68 causes respiratory illness, the virus can be found in an infected person's respiratory secretions, such as saliva, nasal mucus, or sputum. EV-D68 likely spreads from person to person when an infected person coughs, sneezes, or touches a surface that is then touched

by others. In the United States, people are more likely to get infected with enteroviruses in the summer and fall. In general, a mix of enteroviruses circulates every year, and different types of enteroviruses can be common in different years. Small numbers of EV-D68 have been reported regularly to CDC since 1987. However, in 2014 the number of people reported with confirmed EV-D68 infection is much greater than that reported in previous years. In general, infants, children, and teenagers are most likely to get infected with enteroviruses and become ill. That's because they do not yet have immunity (protection) from previous exposures to these viruses. We believe this is also true for EV-D68. Adults can get infected with enteroviruses, but they are more likely to have no symptoms or mild symptoms. Children with asthma may have a higher risk for severe respiratory illness caused by EV-D68 infection. To date there have been no reported cases in Rolette County. Source: http://www.cdc.gov/non-polio-enterovirus/about/ev-d68.html

Other disasters, such as those resulting in the loss or contamination of water supplies, may result in an increased probability of disease. In fact, following most major disasters, disease is a primary concern due to the lack of sanitation. More specifically, long-term power outages can lead to household food contamination, and flooded properties often develop mold or mildew toxins. Flood water frequently contains hazardous bacteria and chemicals.

In 2019, the World Health Organization reported that a novel virus, the Corona Virus (SARS-C0V-2, 2019n-CoV), emerged in Wuhan, China. A Global Pandemic was declared, and on January 30, 2020, the International Health Regulations Emergency Committee of the World Health Organization declared the outbreak a "public health emergency of international concern" (PHEIC). All 50 states of the United States have reported cases of Covid-19. As of 11/22/20, the Center for Disease Control and Prevention indicates there are over 58.5 million worldwide, with 12.3 million cases in the US. Also, as of 11/22/20, there were 72,689 cases in North Dakota and 846 deaths. The ND Division of Emergency Services, the National Guard and the ND Department of Health are coordinating response to the Pandemic. The ND Department of Health has worked with local public health units including Rolette County, during previous Avian Influenza and H1N1 outbreaks, to develop Pandemic Response Plans in addition to Mass Prophylaxis, Mass Fatality and Mass Sheltering plans for use in a novel virus pandemic response.

As of August 26, 2022, there have been 7,057 positive cases in Rolette County. Covid-19 has caused widespread disruption of services, closure of small businesses and increased rates of unemployment and economic hardship. Healthcare facilities across the state experienced staffing, critical care beds, and protective equipment shortages. Supplemental staffing was supplemented through military and National Guard personnel as well as staff contracted through other states COVID- impacted sites in the world.

A federal disaster declaration for Public Assistance was declared for the entire state with the incident period beginning on January 20, 2020 and continuing in the areas affected by the Coronavirus Disease 2019 (COVID-19) pandemic. Funding is available to the state, tribal

and eligible local governments, and certain private nonprofit organizations on a cost-sharing basis for emergency protective measures (Category B) in Rolette County at a federal cost share of 75 percent.

The TMBCI conducted an extensive COVID protection program including testing and vaccinations. The tribe also conducted an effective educational program instructing infected individuals to stay home except to get medical care, seek out-patient care if one is high risk such as being 65 years or older, have cardiovascular disease, are overweight, have other health issues. In addition while isolating at home infected individuals were instructed to isolate themselves from other family members.

Monkeypox is a rare disease caused by infection with the monkeypox virus. Monkeypox virus (MPV) belongs to the Orthopoxvirus genus which includes variola (smallpox), the virus that causes smallpox. Monkeypox symptoms are similar to smallpox symptoms, but milder, and can include a rash, which may look like pimples or blisters, often with an earlier flu-like illness. cdc.gov/poxvirus, hrc.org/resources

An ongoing outbreak of monkeypox was identified through an initial cluster of cases found in the United Kingdom on May 6th,2022, where the first case was detected in an individual with travel links to Nigeria, where the disease is endemic.

On July 23, 2022, the World Health Organization declared monkeypox a global health emergency following a worldwide escalation of cases. More than 80 countries where monkeypox is not endemic reported outbreaks of the viral disease. The CDC confirmed 11,177 cases as of August 12, 2022, with numbers surging rapidly. The states with the highest number of cases are reported as New York followed by California and Florida.

On July 20th,2022 North Dakota health officials reported the first case of the monkeypox virus on the eastern part of the state. According to the North Dakota Department of Health, the individual " *likely caught the virus while traveling outside the state*". A second case has since been reported.

www.health.nd.gov

The current outbreak in the U.S. has high rates of known cases among gay and bisexual men and transgender and non-binary people. The virus is not limited by gender or sexuality and can spread to anyone through close, personal, skin-to-skin contact. Monkeypox can spread from the time symptoms start until all sores have healed and a fresh layer of skin has formed. This can take several weeks.

Monkeypox can be spread by:

- Direct contact with monkeypox rash, scabs, or body fluids from a person with monkeypox.
- Touching objects, fabrics (clothing, bedding, or towels), and surfaces that have been used by someone with monkeypox.
- Contact with respiratory secretions.
- Oral, anal, and vaginal sex or touching the genitals or anus of a person with monkeypox.
- Hugging, massage, and kissing.
- Prolonged face-to-face contact.
- Touching fabrics and objects during sex that were used by a person with monkeypox and that have not been disinfected

cdc.gov/poxvirus

Vaccine for monkeypox is available in limited supply worldwide. In order to increase available supplies, the U.S. Food and Drug Administration has issued an emergency use authorization (EUA) for the JYNNEOS vaccine for use in certain individuals determined to be at high risk of monkeypox infection.

The North Dakota Department of Health received a small allocation of monkeypox vaccine from the federal government. In order to serve the needs of people in all ND counties, based on eligibility criteria, the vaccine can be sent to local health departments including Rolette County Public Health District. Doses can also be transferred to healthcare providers who should also prioritize vaccine requests based on eligibility criteria and vaccine availability. The *North Dakota Department of Health Monkeypox Vaccine Locator* identifies Provider Sites as well as contact information to procure vaccine.

Rolette County Public Health District has developed a Strategic Health Equity Plan in coordination with the North Dakota Department of Health to address health disparities and improve health outcomes of specific at-risk populations within their county. This plan will assist in identifying populations at risk for monkeypox and methods of outreach for prevention and treatment within those groups.

Animal and Plant Disease

Animal and plant diseases, particularly those that infect livestock or crops, can distress the agricultural community. Such diseases could lead to food shortages and negative economic impacts, depending on the animals or plants infected and the geographic extent of the disease. The North Dakota Department of Agriculture is charged with conducting regular and emergency inspections and licensure of animal and plant producers and shippers. The effects of these regulatory activities are to mitigate any effects from contaminated or suspect products entering the food chain.

Many plant and crop diseases exist. Of most concern are those diseases that spread rapidly and cause widespread economic losses. The specific diseases that could cause plant epidemics depend on the species. Of particular concern in Rolette County would be those diseases that affect small grains such as wheat and barley, and cash crops like soybeans, dry beans, corn, and sunflowers. Examples of plant diseases on the US Department of Agriculture, Animal and Plant Health Inspection Service Select Agent and Toxin List that could have serious impacts on Rolette County crops include Red Leaf Blotch of Soybean, Philippine Downy Mildew and Brown Stripe Downy Mildew. Philippine Downy Mildew and Brown Stripe Downy Mildew are not yet found in the United States but as plant diseases often become world-wide, the fear is they may surface in the United States. Source: https://www.ars.usda.gov/ARSUserFiles/opmp/Corn%20Downy%20Mildews%20Recovery%20Plan%20Revised%202013.pdf. Many other diseases also exist that could have devastating impacts such as Karnal Bunt of Wheat, Black Stem Rust Race UG99, and Soybean Rust.

4.1.2. Geographic Location

Communicable diseases, whether human, animal, or plant are not governed by geographic boundaries. However, those jurisdictions with the highest human and livestock populations and crop exposure are at greatest risk from communicable diseases. In Rolette County, this may include the communities of Belcourt (located within the TMBCI Territory, Dunseith, Mylo, Rolette, Rolla, and St. John; however, they are not as prone to human disease because of the population dispersion but are more susceptible to crop and livestock disease outbreaks.

4.1.3 Previous Occurrences

Human Disease

Fortunately, Rolette County and TMBCI have not experienced any significant disease outbreaks within its population in recent years except for the 2020 Covid-19 outbreak. Approximately three human influenza pandemics have occurred over the past 100 years, one severely affecting the United States. Following World War I, the Spanish influenza pandemic of 1918 killed 20-40 million people worldwide, including 675,000 Americans. (Billings, 1997) In North Dakota, about 2,700 people died and around 6,000 people were infected. Schools, churches, and businesses were closed for a time, and public gatherings were banned. Transporting influenza patients by train was a crime. (US Department of Health and Human Services, 2006). The Turtle Mountains were home to the San Haven Tuberculosis Sanitarium which opened in 1912. People with tuberculosis were sent to San Haven for treatment and isolation from the rest of the population. In the late 1950's as tuberculosis cases were reduced, the facility was accepting patients from other institutions. In 1973 San Haven became a division of the Grafton State School and housed

developmentally disabled and the elderly. The sanitarium was closed in the 1987 and sold to the TMBCI in 1992.

The human respiratory infection caused by a particular influenza virus H1N1 strain — popularly known as swine flu — was first recognized in spring 2009. A few months after the first swine flu cases were reported, rates of confirmed H1N1-related illness were increasing in much of the world. As a result, the World Health Organization declared the infection a global pandemic. Technically, the term "swine flu" refers to influenza in pigs. Occasionally, pigs transmit influenza viruses to people, mainly to hog farmers and veterinarians. Less often, someone infected with swine flu passes the infection to others. The pandemic was declared over in August 2010. Currently, H1N1 is still circulating in humans as a seasonal flu virus and protection against this strain was included in the seasonal flu vaccine for 2015-16. Another strain, H3N2 emerged in humans in 2011.

Source: http://www.mayoclinic.org/diseases-conditions/swine-flu/basics/definition/CON-20034916

In 2006, 44 cases of shigellosis were reported in Rolette County North Dakota from July 1, through August. Forty-eight cases (81 percent) were children younger than 18.

In 2013, 53 people in Minot, ND were infected with hepatitis C. Hepatitis C is a viral infection that can cause serious liver damage or death. It was reported that this outbreak is the largest in the United States in 13 years.

In Grand Forks County, they experienced a Tuberculosis (TB) outbreak in recent years. A total of 26 confirmed cases were reported in the county between 2010 and 2014. 24 of the 26 cases occurred in 2012 and 2013 and were connected through a social network as through genotyping of TB specimens. (Grand Forks County Public Health, 2014) The North Dakota Department of Health (NDDoH), Division of Disease Control has provided resources to conduct epidemiology activities, funding for directly observed therapy by public health nurses, and extensive training in TB detection and prevention.

Another disease that may annually affect both humans and animals in Rolette County is West Nile Virus. West Nile Virus is not especially deadly for humans, but can be debilitating, especially for the elderly population. Rolette County has an active mosquito monitoring program to identify mosquitoes carrying the West Nile Virus. There are no reported cases of humans being affected by West Nile Virus in Rolette County during the period from 2011 – 2017. A vaccine has been developed for horses, to aid in the prevention of the disease.

In 1900 nearly all of the leading causes of death were infectious diseases; now only pneumonia and influenza remain among the top 10 causes of death. The number of deaths due to pneumonia and influenza are tracked by the NDDoH by influenza year, which begins in September. The rate is age adjusted to the standard 2000 census. NDDoH's goal is less than 60 deaths per 100,000 people. (North Dakota Department of Health, 2013.

Ebola is not a new disease on the world front. The Ebola virus causes an acute, serious illness which is often fatal if untreated. Ebola Virus Disease (EVD) first appeared in 1976 in 2 simultaneous outbreaks, one in Nzara, Sudan, and the other in Yambuku, Democratic Republic of Congo. The latter occurred in a village near the Ebola River, from which the disease takes its name. At the time of Rolette County's Multi-Hazard Mitigation Plan development, the World Health Organization (WHO) reported that the Democratic Republic of Congo was preparing for a new worst-case scenario related to Ebola. Africa experienced one of the largest and most complex Ebola outbreaks in 2014, which affected multiple countries in West Africa including Liberia, Sierra Leone, and Guinea. In addition to the Democratic Republic of the Congo, past Ebola outbreaks have occurred in Gabon, South Sudan, Ivory Coast, Uganda, Republic of Congo, and South Africa. There have been more cases and deaths in this outbreak than all others combined. Cases were diagnosed in the United States (Texas) in October 2014 resulting in one death. Ebola is introduced into the human population through close contact with the blood, secretions, organs, or other bodily fluids of infected animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest. EVD then spreads through human-to-human transmission via direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and with surfaces and materials (e.g. bedding, clothing) contaminated with these fluids. At this time, it is unknown how widespread the EVD will be in the United States. Recently, Ebola has impacted the world and the United States with an outcome unknown in 2022.

Table 4.1.3A Rolette County Communicable Disease Declared Disasters and Emergencies

Declaration	Location	Date	Magnitude	Casualties	Damages
DR 4509 Covid-19 Pandemic	**53 counties including 4 tribes**	**01-20-20**		**Unknown death total at this time**	**Unknown at this time**

Source: Rolette County Emergency Management, 2020

Animal Disease

Rabies is an animal disease that is tracked very closely by NDDoH. In 2020, one case of rabies was found in Rolette County. Statewide, 10 cases of rabies were reported in 2021. Source: RabiesMap2021.pdf (nd.gov)

Anthrax occurs worldwide and is associated with sudden death of cattle and sheep. Anthrax can infect all warm-blooded animals, including humans. The anthrax organism (Bacillus anthracis) can form spores and become resistant to adverse conditions. Pasteurization or ordinary disinfectants may destroy anthrax organisms in animals or their secretions. However, if the animal carcass is opened and the organisms are exposed to air, they will

form spores. Sporulated anthrax organisms are highly resistant to heat, cold, chemical disinfectants and drying. The anthrax spore may live indefinitely in the soil of a contaminated pasture or yard.

In 2012, the Veterinary Diagnostic Laboratory at North Dakota State University confirmed the diagnosis of anthrax in a beef cow. At that time, State Veterinarian Dr. Susan Keller warned —Producers should contact their veterinarians to determine when and if their animals should be vaccinated and that their boosters are up to date.‖ —They should also monitor their herds for unexpected deaths and report them to their veterinarians.‖ Dry pastures and short grass in some parts of the state are ideal conditions for livestock to ingest anthrax spores and develop the disease. In recent years there has been no Anthrax cases reported in Rolette County. Source: https://www.nd.gov/ndda/disease/anthrax

Mad Cow Disease is a brain disorder in adult cattle that may be spread to humans through diseased meat. Humans may acquire the disorder by eating diseased meat products. In cattle, the disease leads to dementia and death. Six cases have been identified in the United States from 2003-2018. No cases were identified in the mid-western states. The disease is fatal to humans.

Tuberculosis in cattle has always been a concern of cattle producers. With testing cattle and disease control practices, tuberculosis spread has been limited; however, in 2017 a herd with 41 infected animals in Harding County South Dakota was diagnosed with tuberculosis. TB is caused by an infection with the bacteria called Mycobacterium bovis (M. bovis). Infected animals may not show any outward signs of disease until the most advanced stages. M. bovis is very resilient. Survival is affected greatly by temperature and moisture. When exposed to summer temperatures, sunlight and drying conditions, the bacteria die, but away from sunlight and in moist conditions in soil and manure, M. bovis can survive for many months, especially in the cold. Wild animals are believed to be a primary major source of M. bovis transmission to cattle. A wildlife reservoir of the disease occurs because of three factors: 1. The disease has established itself in a wildlife population, 2. The live bacteria can be shed by the animal, and 3. There is opportunity for M. bovis to be transmitted to cattle through both direct and indirect pathways.

An example of direct transmission of M. bovis would be when aerosols or droplets that are exhaled or coughed from an infected animal and contain the bacteria go directly from infected animal to a susceptible animal. This type of transmission would most likely occur in crowded conditions or high populations or in contained areas.

Indirect transmission could occur when bacteria from an infected animal is transmitted to a susceptible animal through some indirect means. Examples would be when an infected animal's respiratory secretion or saliva containing M. bovis is deposited on a feedstuff which

is then subsequently ingested by a susceptible animal, or through ingesting milk that contains the live M. bovis.

Source: http://msue.anr.msu.edu/news/frequently_asked_questions_about_bovine_tuberculosis and http://www.kotatv.com/content/news/South-Dakota-ranchers-state-battle-bovine-TB-417390323.html

Drinking water from stagnant ponds and dugouts during hot, dry weather can cause sudden death in animals. This water can contain certain species of cyanobacteria, widely known as blue-green algae. Toxic cyanobacterial blooms occur because of favorable conditions, including hot, sunny days and warm, nutrient-rich water. The blooms commonly occur in late summer and early autumn. Under favorable conditions, bacterial numbers multiply rapidly, doubling in one day or less. Blooms usually do not last long. Rain, heavy winds or cooler temperatures often inhibit growth or break up the blooms, mixing the bacteria into the water body within a few days. However, under continuing favorable conditions, blooms may last for several weeks. Cyanobacteria can survive under ice and throughout winter conditions. Signs of eurotoxin poisoning usually appear within 20 minutes of ingestion. In animals, symptoms include weakness, staggering, difficulty in breathing, convulsions and, ultimately, death.

Source: https://www.ag.ndsu.edu/publications/livestock/cyanobacteria-poisoning-blue-green-algae/v1136-cyanobacteria.pdf.

Outbreaks occurred in North Dakota in 2017 as early as June. In 2021 an outbreak occurred in the Turtle Mountains in several lakes.

Plant Disease

Plant pests and diseases have the potential to cause major disruptions in agricultural production/exports or significant damage to native plant communities and their associated wildlife in Rolette County. It is difficult to measure crop loss to disease, however if 20% of the 2012 crop value of $210,571,000 was lost due to plant disease the loss would be $42,114,200. On March 18, 2015, the United States Department of Agriculture issued a USDA Disaster Declaration for 25 North Dakota counties including Rolette related to combined effects of frost, excessive rainfall, ground saturation, freeze, severe thunderstorms, hail, high winds, drought, weather-related insects, diseases and sprout damage that occurred from January 1, 2014, and continues. In 2019 and 2020, USDA gave drought declarations that included Rolette County so this would have impacted some plants disease due to the lack of moisture but could have caused new diseases. Source: https://www.fsa.usda.gov/state-offices/North-Dakota/news-releases/index

Significant pests or diseases which would trigger either emergency quarantines, or an emergency action response include:

Fungal diseases of wheat: Karnal bunt a fungal disease of wheat, durum wheat, and triticale which are crops extremely important to Rolette County. The fungus Tilletia indica invades the kernels, leaving behind waste products with a disagreeable odor and also that makes bunted kernels too unpalatable for use in flour and processing. The disease occurs in many parts of the world. Grain from these countries is prohibited for import to the United States. In North Dakota, Animal and Plant Health Inspection Service (APHIS) annually provides funds and cooperates with the North Dakota Department of Agriculture to operate a detection survey across the state. During the 2012 Survey, Karnal bunt was not detected. A total of 253 composite samples (226 HRSW and 27 durum) were collected from 63 elevators representing 50 of 53 North Dakota counties. Detection of Karnal bunt would have an immediate negative effect on exports if detected. North Dakota's trading partners (including states and countries) would establish immediate quarantines against the state prohibiting movement of grain and seed. Appearance of the disease in Arizona in early 1996 resulted in APHIS implementing an emergency quarantine, inspection, and certification program for wheat moving out of the infested areas, along with regulations on sanitizing machinery and storage facilities. Many foreign countries have a zero tolerance for Karnal bunt in import shipments and closed markets. Since that time, detection surveys, eradication programs, and establishment of regulated areas have been successful in restoring lost markets. Karnal bunt can occur in any year in Rolette County with specific humidity and temperature conditions during the flowering period of small grains. However, farmers have been educated on the susceptibility of the disease during these conditions and are proactive in applying fungicides to counteract these conditions. Karnal bunt resistance small grain varieties have also been developed in the prevention of the disease. Karnal Bunt is not common in the northern tier of States.

Fusarium Head Blight (FHB) also known as scab has caused devastating disease pressure in Rolette County; Northeastern ND has the highest susceptibility to FHB. Deoxynivalenol (DON), commonly referred to as vomitoxin, is a mycotoxin that may be produced in wheat and barley grain infected by Fusarium head blight (FHB) or scab. FHB is a fungus disease and can be controlled with fungicides. A Fungicide spray program may reduce FHB damage. Under optimal application conditions, reductions in FHB severity of 50 to 60 percent and reduction in mycotoxin deoxynivalenol (DON) which makes the grain unpalatable. DON levels of 30-50 percent can be achieved when fungicides are applied at early flowering for wheat and durum, and at early heading in barley. A class of fungicides, called triazoles, is recommended for FHB suppression, as they are locally systemic and have been shown to reduce both FHB and DON. Source: http://www.ag.ndsu.edu

Wheat Stem Rust – UG99 (Race TTKSK): Wheat stem rust (puccinia graminis f.sp.tritici) is historically the most damaging disease of wheat. The disease has the capacity to turn a healthy-looking crop, only weeks away from harvest, into nothing more than a tangle of black stems and shriveled grains at harvest. Under suitable conditions yield losses of 70% or more are possible. Wheat stem rust is highly mobile, spreading rapidly over large

distances by wind or via accidental human transmission (infected clothing or plant material). Wheat stem rust has largely been under control for over three decades due to the widespread use resistant cultivars. In 1999, a new virulent race of stem rust was identified from wheat fields in Uganda – popularly known as Ug99 after the year and country of discovery. Using North American scientific nomenclature, Ug99 is known as race TTKSK. Ug99 (Race TTKSK) is a cause for concern as it exhibits unique virulence patterns. No other race of stem rust has been observed to overcome so many wheat resistance genes, including the very important gene Sr31. By 2007, Ug99 (Race TTKSK) had spread via wind movements out of East Africa, into Yemen and as far as Iran. Rust pathogens change rapidly, often by mutation. Six additional variants are now recognized in the Ug99 lineage. All exhibit an identical DNA fingerprint but differ in virulence patterns. Additional important resistance genes have now been defeated by variants of Ug99. Ug99 or variants are considered a major threat to wheat production with an estimated 80-90% of global wheat cultivars susceptible.
Sources:http://www.ag.ndsu.edu/pubs/smgrains/pp1361.pdf
http://www.fao.org/agriculture/crops/rust/stem/rust-report/stem-ug99racettksk/en/

Emerald ash borer: The Emerald ash borer is a wood boring beetle causing widespread impact to North American ash tree forest resources but is not known to occur yet in Rolette County. The closest known infestations are in areas of Minneapolis/St. Paul, Duluth, and two counties in Nebraska. The beetle has been responsible for killing millions of ash trees in Michigan alone. Unfortunately, green ash trees typical of North Dakota forests are susceptible to the insect. Green ash is North Dakota's most dominant tree and extremely important forest resource. Wildlife species that are dependent on healthy forests would also be indirectly impacted. The potential cost of tree removal to homeowners, urban parks, and hazard trees in other areas of North Dakota is estimated to be in the tens of millions of dollars. In 2016 North Dakota participated in the National EAB survey; Emerald Ash borer was not detected.

Pale and/or Golden potato cyst nematodes (PCN): Globodera pallidia (pale cyst nematode) and Globodera rostenciensis (golden nematode) is a regulatory significant nematode pest of potato. Rolette County is not a commercial potato production county, but potatoes are grown in small amounts for individual use and PCN awareness is important to prevent the spread of the disease. A national survey was initiated after the 2006 discovery of cysts in Idaho. To date, it has not been found in any other state. A successful eradication and management program was established in Idaho. The program's goals include stopping the spread, delimiting the infested area, and preserving and restoring lost export markets. Early detection of PCN is critical to minimizing impacts to the export market and agricultural production as well as maintaining product quality, and management/eradication costs. In North Dakota, the PCN Survey is dependent upon cooperation between USDA APHIS PPQ, the North Dakota State Seed Department, the North Dakota Department of Agriculture, and participating growers. In North Dakota, systematic soil sampling is conducted to determine

the presence or absence of regulated potato cyst nematodes (PCN) throughout the State's potato growing region. Procedures used are those described in the United States/Canada agreement for the survey. Following these guidelines officially demonstrates the State's negative pest status; ensuring results will be recognized by Canada facilitating the movement of seed potatoes across the US border. North Dakota participates in the National PCN Survey and to date no Globodera species detected.

Soybean Cyst Nematode (SCN): Soybean cyst nematode is the most important soybean pathogen in the United States. The nematode attacks the roots causing major damage to the plant. It was first found in the United States in 1954 in North Carolina and has spread throughout soybean growing area of the Midwest, southeast, and eastern seaboard. In August 2003, it was found in eastern North Dakota. SCN can easily spread through contaminated field equipment, wind-blown or water carried soil, by animal or by soil "peds" (small clumps of soil), and in seed harvested from infested fields. Yellowing of the foliage (chlorosis) in July or August, stunting of plants, thin stands, and slow closing of rows are observed aboveground symptoms of the pathogen. Management of SCN has two goals: preventing the infestation of soybean fields and reducing the nematode population in infested fields. The use of cultural practices, such as adequate soil fertility, and reducing plant stress from weeds, insects, etc. to promote good growth of soybean will reduce the damaging effects of SCN. Other prevention methods include thoroughly cleaning equipment from infested fields, avoiding the use of seed harvested from an infested field, and using tillage or other practices that reduce the wind or water transport of soil and debris from infested to non-infested fields. Crop rotation to non-hosts and the use of host resistance are the principal methods of reducing the nematode populations. As soybean production increases in Rolette County, SCN is becoming a greater concern for producers and currently sampling for SCN is ongoing.

Sudden Death Syndrome of Soybeans is not in North Dakota yet but may spread into the state. Sudden death syndrome (SDS) is an important disease of soybeans throughout much of the U.S. SDS has been spreading north and west into states including Minnesota, Nebraska, and Wisconsin. SDS also appears also to be spreading across soybean production areas of Minnesota. Severe SDS can result in yield losses greater than 50%. SDS is primarily a root disease but typically also affects leaves and causes defoliation. SDS often occurs in fields infested with the soybean cyst nematode (SCN).
Source: http://www.extension.umn.edu/agriculture/crop-diseases/soybean/suddendeathsyndrome.html.

The Japanese Beatle is a highly destructive plant pest that feeds on more than 300 host plants, including field crops (especially corn and soybeans), ornamental trees and shrubs, garden flowers and vegetables, and turf (lawns, pastures and golf courses). Some of the preferred host plants of adult beetles found in North Dakota are rose, apple, black cherry, cherry, flowering crabapple, plum, grapes, hollyhock, blackberry, raspberry, linden, elm and

buckeye. Grubs are found primarily in the root zones of grasses. Once established, it can be a difficult and expensive insect pest to control. Control costs for Japanese beetle are estimated at approximately $450 million each year in the U.S. The Japanese beetle first was detected in North Dakota in 2001 in Bismarck, but it did not become established. In 2012, the Japanese beetle was detected at several locations in North Dakota, including Bismarck, Fargo, Grand Forks, Minot, Oakes, Taylor, West Fargo and rural Foster County. Upon investigation, the source of the infestation was identified as one nursery that shipped Japanese beetle-infested nursery stock into North Dakota. At this time, whether any Japanese beetle will become established in North Dakota is unknown but is still being assessed by the ND Department of Agriculture on a yearly basis.

Source: https://www.ag.ndsu.edu/extensionentomology/urban-and-forestry-insect-pests/documents/lawns/e-1631-integrated-pest-management-of-japanese-beetle-in-north-dakota-december-2012

A North Dakota Department of Agriculture 2016 Japanese Beetle Survey placed Japanese Beetle traps in all North Dakota counties. The final report indicated that twelve counties had positive traps including Rolette, with 1 positive trap containing two Japanese Beetles, from a total of 386 beetles found in the twelve counties.

Source: https://www.nd.gov/ndda/sites/default/files/legacy/resource/JB2016SurveyReport.pdf

The spotted wing drosophila (SWD), Drosophila suzukii, is a small vinegar fly with a huge potential to damage North Dakota fruits such as raspberries, tart cherries and other late-season fruit crops. Unlike other vinegar flies that prefer to attack overripe and rotting fruit, the SWD will also lay its eggs in healthy, ripening fruits. Eggs hatch into small larvae (or maggots) and then larvae feed on the fruit, causing spoilage. Historically, raspberry and tart cherry growers in the state did not need to apply insecticides just before harvest. Unfortunately, the introduction and spread of the SWD will change how we grow and manage late-season fruit crops in North Dakota. The SWD is remarkable for its rapid spread across the U.S. Within just five years of its introduction to the continental U.S., it has been detected in more than 70 percent of the states, including North Dakota. This rapid spread emphasizes its invasive potential in North Dakota. Given its preferred horticultural hosts, widespread distribution, and damage potential, learning how to identify and manage this invasive pest is important.

Source: https://www.ag.ndsu.edu/publications/crops/integrated-pest-management-of-spotted-wing-drosophila-in-north-dakota/e1715.pdf.

Goss' leaf blight and wilt (Goss' wilt) The yield limiting corn disease Goss' leaf blight and wilt (Goss' wilt) was first documented in North Dakota in 2011. Corn disease survey efforts have been conducted since 2014 to document the prevalence of this disease in the state. To help reduce risk, it is important to promote awareness of this corn disease and reinforce management decisions. This is exceedingly more important during low market

prices when growers may start shortening time intervals between corn crops and potentially enhancing Goss' wilt risk. The NDSU Extension Plant Pathology group worked collaboratively with the North Dakota Department of Agriculture and NDSU Plant Diagnostic Lab in 2016 to document the prevalence of Goss' wilt in the state. In 2016, Goss' wilt was identified in 24% of the surveyed fields. Most fields were low in incidence and severity; however, one field was severely devastated by the disease (>90% of the field affected by the disease). Observing the explosive nature of the disease highlights the importance of identification and management. Field trials conducted in 2016 have shown that yield losses under severe epidemics on susceptible hybrids can exceed 45%. Whereas the incorporation of a tolerant hybrid can lessen yield loss to 8-10%.

Source:
(https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=6&ved=0ahUKEwio4LHol9TUAh

Ul6IMKHcskATEQFgg_MAU&url=https%3A%2F%2Fwww.ag.ndsu.edu%2Fimpactstatements%2Fimpactstatements%2F2017-statements%2F17state-friskopcrop.

Palmer Amaranth is the bane of agriculture in the southern U.S. This is the weed that can produce millions of seeds per plant and grow baseball bat size stems that can stop combines dead in its track. It is the weed that has forced radical changes in weed control because of its relentless ability to reproduce and spread at astounding rates. The latest information shows that glyphosate–resistant Palmer amaranth is now present in every Midwest and Plains state except Minnesota and North Dakota. Sources from Centrol consultants have indicated Palmer amaranth to be around the Aberdeen, SD area. Palmer amaranth (*Amaranthus palmeri*) is a pigweed species that is not native to North Dakota or to the northern United States. It is well established in the southern U.S. It was introduced in Michigan and possibly other states through the spread of manure from dairy cows that were fed cotton by-products as a feed supplement. It could easily establish in ND through custom combines moving north into ND and several other ways of weed seed dissemination. Palmer amaranth has been identified in 9 ND counties in 2022 demonstrating it could survive in the northern plains.

Source: https://www.ag.ndsu.edu/cpr/weeds/weed-watch-palmer-amaranth-06-26-14.

4.1.4 Probability and Magnitude

Table 4.1.4A is a graphical representation of the range of events that can occur within the disease hazard. Generally, the more frequent events have a low impact, and the high impact events occur less frequently. All types of events may not appear in the figure, but the information presented can assist when comparing hazards (high frequency, low impact events versus low frequency, high impact events) or when assessing the range of magnitudes possible from the communicable disease hazard. The beginning of this risk assessment chapter provides additional information on frequency and impact ratings.

Table 4.1.4 A Hazard Frequency and Impact Ranges

Frequency						
	No regional history				Smallpox Outbreak	
	No local history			Severe Strain Influenza		
	100 years		Mild Strain Influenza			
	50 years	Food Borne Illnesses				
	Annually					
		Negligible	*Limited*	*Critical*	*Catastrophic*	
		Impact				

Quantifying the probability of a human epidemic affecting Rolette County and Turtle Mountain Band of Chippewa Indians presents challenges due to a limited history of outbreaks. Medical advances over the past fifty years prevent many disease outbreaks, yet the potential remains. Much of the county is in a rural setting, and therefore, is somewhat isolated from the rapid spread of global diseases. The populated areas in Rolette County and TMBCI such as Belcourt, Rolla and Dunseith have the greatest potential for the rapid spread of disease should a disease enter the community. Public gathering places such as the casino and bars can increase the possibility of spread.

The communities of Belcourt, Rolla and Dunseith in Rolette Countyand TMBCI are more prone to disease outbreaks than the rural areas. Students in schools, children in childcare, adults in long term care facilities and hospitals are areas for concern for disease outbreaks as transmittable diseases are more easily spread among populations living near each other than people living far apart such as in the county's rural areas.

Animal and plant disease outbreaks are even harder to predict. Most global livestock diseases have been confined to specific countries due to strict import regulations. Any plant disease outbreaks have been relatively easily contained.

The magnitude of a communicable disease outbreak varies from everyday disease occurrences to widespread infection. During the 1918 Influenza Pandemic, infection rates approached 28% in the United States. (Billings, 1997) Other pandemics produced infections rates as high as 35% of the total population. (World Health Organization, 2008) Such a pandemic affecting Rolette County and TMBCI represents a severe magnitude event. Almost any highly contagious, incapacitating disease that enters the regional population

could overwhelm local health resources. Similarly, any rapidly spreading bioterrorism event for which little vaccination or containment capability exists is a high magnitude event.

Many of the diseases such as diphtheria, tetanus, and polio that have the potential to result in serious outbreaks are preventable through routine vaccination. Vaccination is so effective that each vaccination actually saves substantially more money than it costs. In parts of the world where vaccination rates are low, these diseases continue to take a high toll in death and disability.

The North Dakota Department of Health monitors the rate of vaccination among children, specifically the percentage of children completing the 4:3:1:3:3:1:1 vaccination series at entry into kindergarten. Vaccination rates have been rising slowly since 2007 in North Dakota. The target rate of 95% has been set by the ND Department of Health. The coverage rate for Rolette County Kindergarten children is 99% for the major diseases in the 2018-2019 school year. In the same period, the rate of vaccination for North Dakota children was between 93.58%-95.19% percent. (North Dakota Department of Health, North Dakota Kindergarten Immunization Rates (arcgis.com)

The magnitude of an infectious disease outbreak is related to the ability of the public health and medical communities to stop the spread of the disease. Most disease outbreaks that cause catastrophic numbers of deaths are infectious in nature, meaning that they are spread from person to person. The key to reducing the catastrophic nature of the event is to stop the spread of disease. This is generally done in three ways: (1) identification and isolation of the ill, (2) quarantine of those exposed to the illness to prevent further spread, and (3) education of the public about methods to prevent transmission. The public health and health care providers in North Dakota routinely utilize all three methods to reduce morbidity and mortality from infectious disease. However, the capacity of the health care system is limited. For example, local health jurisdictions have specific pandemic influenza response plans, and mass prophylaxis plans, but most jurisdictions have only a few staff members. Many local health jurisdictions would need to rely on volunteers, pre-scripted messages and procedures and the cooperation of the public in order to respond effectively to a large-scale pandemic. Similarly, hospitals in North Dakota have emergency response and pandemic influenza plans, but little excess capacity exists to care for and/or isolate hundreds, even thousands of patients. Because of these limitations in personnel, facilities, and equipment, the health care community is planning to utilize "social distancing" measures. These measures which could include closure of schools, day cares and other public events would have far-reaching economic impacts on communities and might shutdown facilities for 30 days or more. Closure of the day cares or schools would have a serious impact on the economy as parents might not be able to find childcare elsewhere.

The most significant impacts of communicable disease are to the population affected and the healthcare organizations involved. Disease can spread rapidly through schools, health facilities, and communities. The entire county and tribal population plus visitors are at risk

to contracting a communicable disease that surface in Rolette County and TMBCI. Although infectious diseases are not subject to geographic boundaries, again several populations in Rolette County and TMBCI are specifically at higher risk to infectious diseases including day care facilities, schools, and the elderly care facilities. The county economy relies heavily on agriculture, and therefore, human or livestock diseases would negatively affect the economy. With respect to human diseases, an outbreak would most certainly limit travel and impact the service industries. The trickle-down economic impacts to nearly all industries could be overwhelming. Workers that become ill, need to care for loved ones, or are fearful of contracting the disease may not show up for work. The impact to critical industries and services could be severe. Examples of industries and services that could be significantly impacted in Rolette County and TMBCI include education and utility services.

4.1.5 Risk Assessment

Vulnerability Overview

The most significant impacts of communicable disease are to the population affected and the healthcare organizations involved. Disease can spread rapidly through schools, health facilities, and communities. The entire county and tribal population plus visitors are at risk to contracting a communicable disease that surfaces in Rolette County. Although infectious diseases are not subject to geographic boundaries, several populations in Rolette County and on the TMBCI Reservation are specifically at higher risk to infectious diseases. Communicable diseases are most likely to spread quickly in institutional settings such as long-term care facilities, day care facilities, schools, etc. The number of infections and fatalities in the county depends on the transmission and mortality rates. The county economy relies heavily on the agriculture, and therefore, human or livestock diseases would negatively affect the economy. With respect to human diseases, an outbreak would most certainly limit travel and impact the service and tourism industries. The trickle-down economic impacts to nearly all industries could be overwhelming. Workers that become ill, need to care for loved ones, or are fearful of contracting the disease may not show up for work. The impact to critical industries and services could be severe. Examples of industries and services that could be significantly impacted in Rolette County and TMBCI include health care, education, utility services, and emergency response.

<u>Human Disease</u>

The entire county including TMBCI is vulnerable to a major disease outbreak. As evidenced by annual infectious disease reports and reports of investigations completed by the North Dakota Department of Health, many counties experience one or multiple disease outbreaks each year. Potential casualty losses are anticipated to be greatest in areas with higher populations, higher pediatric populations, and higher elderly populations as well as larger populations living in group quarters. Rolette County's and TMBCI's vulnerable groups,

include populations under age 5, over age 65 and living in group quarters are demonstrated in the 2020 census as a moderate population under age 5 (8.2%) as well as 12.1% of the total population of 12,187 over the age of 65 (US Census Bureau).

Health professional shortage areas and rural areas are more susceptible to having limited medical capabilities and by extension are more susceptible to the possibility of being overwhelmed because of a large surge of patients seeking care. Rolette County is designated as a Health Professional Shortage Area (HPSA) due to the shortage of a critical care facility, services, and distances to higher level of care.

Using a general estimate of 35% for the infection rate and a mortality rate (once infected) of 20%, as can be the case in an influenza pandemic, approximately 4,265 residents of Rolette County would be infected with about 243 fatal infections. This estimate is somewhat extreme but uses plausible infection and mortality rates.

As with any disease, age and other health conditions can be contributing factors. The ability to control the spread of disease depends on the virulence of the disease, the time lapse before the onset of symptoms, the movement of the population, and the warning time involved. Vaccinations, anti-virals and its tributaries, quarantines, and other protective measures may also prevent the spread and impact of the disease.

Taking into consideration, living in a city or more populated area, for disease susceptibility criteria, Mylo and St. John have the lowest susceptibly to the spread of communicable disease because of their low population, whereas Belcourt, Rolla and Dunseith have the highest. There are long-term care facilities in Rolette and Dunseith as well as an Assisted Living facility in Rolla, and a retirement home facility located in Belcourt which all have increased susceptibility. The tables below show the distribution; Rolla, St. John, and Rolette have clinics which are part of Northland Community Health Center; Quentin Burdick Memorial Indian Health Services (IHS) Hospital is in Belcourt ND, in Rolette County; Turtle Mountain Family Medicine and Heart of America Johnson Clinic are located in Dunseith, and SMP-St. Kateri in Rolla. Table 4.1.5A demonstrates the population distribution and Table 4.1.5B and 4.1.5C demonstrates the facilities whereby people may be in close quarters becoming more susceptible to communicable disease.

Table 4.1.5A Population living within Rolette County communities

Jurisdiction	Population (2020 Census
Rolette County	**12,187**
Belcourt	**1,510**
Rolla	**1,223**
Dunseith	**632**
Rolette	**484**
St. John	**322**
Mylo	**21**

Animal Disease

Animal diseases extending nationally would have an overarching effect on the national economy. More directly, though, Rolette County's economy relies heavily on the agricultural industry. A communicable livestock disease would negatively affect the agricultural economy and could also limit food supplies. In 2017, Rolette County's leading economic factor is agriculture. Depending on the livestock affected; severe livestock losses could be seen. Rolette County's head of cattle and calves was 19,331 and head of sheep and lambs in the 2017 USDA data withheld-not specified.

Plant Disease

According to the 2017 Census of Agriculture, Rolette County had 453 farms covering 512,172 acres with annual cash receipts for market value of agriculture products sold, totaling over $91,541 million in 2017. Additionally, should a disease be especially severe for a particular species, that species could be eradicated from the county resulting in ecologic imbalances.

Crop diseases are naturally occurring incidents. Farmers today are better equipped to manage crop diseases than in the past. Farmers can better manage these incidents due to the development of crop disease resistance varieties, which have been developed through cooperative land agreements with universities. Farm management practices have greatly improved due to farmer education on weather conditions (heat, rain, humidity) which prompt crop disease. Also, the development of fungicides and the timing of application of fungicides to crops are key to preventing disease.

Loss Estimates

Human Disease

Perhaps the most significant impact from communicable disease is to the population. Disease can spread rapidly through schools, health facilities, and communities. The entire county population of 14,659 residents is at risk for contracting a communicable disease. The number of infections and fatalities in the communities would depend on the transmission and mortality rates.

According to *The annual impact of seasonal influenza in the US: Measuring disease burden and costs* by Molinari et al., nationally the economic burden of influenza medical costs, medical costs plus lost earnings, and the total economic burden were $10.4 billion, $26.8 billion and $87.1 billion respectively. The financial burden of healthcare-associated infections nationally has been estimated at $33 billion annually. There is no data currently available on the economic impact of previous influenza pandemic illness in Rolette County. Using pandemic influenza as the worst case scenario for estimating potential losses, the North Dakota Department of Health's Pandemic Influenza Planning includes the following vulnerability estimates. It has been estimated that a medium-level pandemic, using the CDC scenario estimates of a 30% attack rate, a 0.8% hospitalization rate among the ill, and a 0.2% mortality rate among the ill, in Rolette County:

1. 4,359 persons would become ill and may require outpatient care
2. 12 persons may require hospitalization
3. 3 persons may die

Source: North Dakota Department of Health, Pandemic Flu Loss Estimates

Additionally, the U.S. Centers for Disease Control and Prevention (CDC) estimates 76 million people suffer food borne illnesses each year in the United States, accounting for 325,000 hospitalizations and more than 5,000 deaths. Food borne disease is extremely costly. Health experts estimate that the yearly cost of all food borne diseases in this country is $5 to $6 billion in direct medical expenses and lost productivity. Infections with the bacteria Salmonella alone account for $1 billion yearly in direct and indirect medical costs. There was no food borne illnesses reported in Rolette County in the last five years.

Animal Disease and Plant Disease

It is difficult to estimate losses to animal and plant disease due to the variables involved. Assuming a loss estimate if disease resulted in 20 percent loss to crops and livestock, Rolette County loss would be $15,430,800 in crops and $2,877,600 in livestock/product.
Source: https://www.agcensus.usda.gov/Publications/2017/Online_Resources/County_Profiles

4.1.6 Critical Facilities in Hazard Prone Areas

In some instances, the accessibility and functionality of critical facilities can be compromised by communicable diseases until the facility is decontaminated or the threat has passed. With the loss of function of facilities supporting emergency response, delays in emergency services could result. Additionally, with a significant human disease outbreak, resources such as ambulance services and the clinics in Rolla, Rolette, as well as the Quentin Burdick Memorial IHS Hospital in Belcourt and Trinity Hospital in Minot, could quickly become overwhelmed.

Should a building become contaminated by some disease agent, cleanup costs and the loss of use of the buildings could result. Such costs could be significant. For example, the cleanup of anthrax in several congressional offices on Capitol Hill in September and October of 2001 cost the Environmental Protection Agency about $27 million. (US General Accounting Office, 2003) For this reason, all critical facilities are assumed to be at some risk from communicable disease.

Diseases can spread quickly in facilities housing vulnerable populations such as schools, day care, and elderly housing. Often these facilities, as well as the medical clinics, are the first places where diseases are identified and treated. Rolette County and TMBCI combined have six health care clinics, one assisted living and two long-term care units, two hospitals, one retirement home facility, fourteen schools, four head start facilities, one college and numerous day care facilities, so the risk is less than in higher populated counties such as Ward, Grand Forks, and Ramsey Counties.

Figure 4.1.6A Vulnerable Populations

Facility Name	Population
Turtle Mountain Community Elementary School	865
Turtle Mountain Community Middle School	350
Turtle Mountain Community High School	495
Turtle Mountain Community Tiny Turtles, Belcourt	25
Ojibwa Indian School, Belcourt	283
Dunseith Day School, Dunseith	23
Dunseith Elementary School (charter)	243
Dunseith High School (charter)	221
Mt. Pleasant Elementary School, Rolla	150
Mt. Pleasant High School, Rolla	96
Rolette Elementary School	110
Rolette High School	56
St. John Elementary School	291
St. John High School	122
Turtle Mountain Community Headstart Belcourt	30
Turtle Mountain Community Headstart, Dunseith	20
Turtle Mountain Coommunity Headstart, St. John	20
St. Ann's School, Belcourt	43
Turtle Mountain Community College, Belcourt	498

Source: ND Department of Public Instruction and the Rolette County Emergency Manager

Licensed Rolette County Child Care Providers	
Child Care Provider	**Number of Children**
Michelle Guilbert, Rolla	15
Jill Parisien, St. John	19
Rolla Community Day Care, Rolla	70
Nicole Mears, Rolla	10
Self-Declared Rolette County Child Care Providers	
Child Care Provider	**Number of Children**
Rosa Hawley, Dunseith	**5**

Source: Rolette County Human Service Program Administrator III and Emergency Manager

Rolette County Nursing Homes	
Name	**Number of Beds**
Rolette Community Care Center	42
Dunseith Community Nursing Home	25
Parkview Assisted Living	30

Source: Nursing home managers

In most cases, critical infrastructure would not be affected by communicable disease. Scenarios that would affect infrastructure include the contamination of the water supplies and diseases that require special provisions in the treatment of wastewater. Should an epidemic necessitate quarantine or incapacitate a significant portion of the population, support of and physical repairs to infrastructure may be delayed, and services may be disrupted for a time due to limitations in getting affected employees to work.

4.1.7 Development in Identified Hazard Areas

Structures built because of new development would have little impact on the communicable disease vulnerabilities, unless in the rare case, the new structures were part of a lab dealing with biological agents. New residents and population add to the number of people threatened in Rolette County and on the TMBCI Reservation, but the location of such population increases would probably not matter.

4.1.8 Data Limitations and Other Key Documents

The data limitations related to the communicable disease hazard include:

- Uncertainties related to how and when a disease will spread through a population
- The emergence of new, unstudied diseases

Other key documents related to the Communicable Disease hazard include:

- North Dakota Department of Health, Pandemic Influenza Plan
- North Dakota Department of Health, Public Health & Medical All-Hazards Plan
- North Dakota Department of Health, Specific Disease Agent Plans
- North Dakota Department of Agriculture, Foreign Animal Disease Plan
- North Dakota Emergency Operations Plan, Animal Health Annex
- North Dakota Emergency Operations Plan, Infectious Diseases Annex
- North Dakota Emergency Operations Plan, Plant Health Annex

4.2 Dam Failure

Frequency	Not Likely	
Impact	Minor	
Risk Class	C	
Seasonal Pattern	Spring during ice melt and summer caused by severe thunderstorms	
Duration	Hours to days	
Speed of Onset	Minutes to days	

4.2.1 Description

A dam is any artificial barrier, including appurtenant works, which impounds or diverts water. Dam failure is defined as a sudden, rapid, and uncontrolled release of impounded water that can create a potentially significant downstream hazard.

Although not particularly likely, seismic activity, poor maintenance, overwhelming flow conditions, and terrorist activities can all lead to the catastrophic failure of a dam. The result is the rush of water contained by the dam downstream at a rapid pace. The structural integrity of a dam depends on its design, maintenance, and ambient conditions. Dams exist in a variety of shapes, sizes, and materials; uses include recreation, flood control, irrigation,

water supply, and hydroelectricity. Most of the dams in Rolette County are earthen watershed dams constructed for flood control.

Should a dam fail, the consequences can be devastating or minimal depending on the dam's characteristics and regional attributes. Most dams are classified based on the potential hazard to life and property should the dam suddenly fail. Note the hazard rating is not an indicator of the condition of the dam or its probability of failure. The following hazard categories have been established for North Dakota:

- *Low Hazard*: These dams are located where there is little possibility of future development such as rural or agricultural areas. Failure of low hazard dams may result in damage to agricultural land, township and county roads, and non-residential farm buildings. No loss of life is expected if failure occurs.
- *Medium Hazard*: These dams are located in predominately rural or agricultural areas where failure may damage isolated homes, main highways, railroads, or cause interruption of minor public utilities. The potential for the loss of a few lives exists if the dam fails.
- *High Hazard*: These are dams located upstream of developed and urban areas where failure may cause serious 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.

Source: North Dakota State Engineer, 1985

According to the Rolette County Water Board, Rolette County has 4 dams, all are low hazard dams, none are medium or significant hazard dams, and no dams that are high hazard.

Table 4.2.1A Rolette County Dams, Purpose, and Hazard Category

Structure Name	Owner	Location	Purpose	Hazard Category	Areas of Inundation Should a Breach Occur	Emergency Plan
Azure Dam	Community of Belcourt	Lake Upsilon SW	Recreation, Flood Control	Low	Farmland	No
Belcourt Lake Dam	Bureau of Indian Affairs	North of Belcourt	Recreation, Flood Control	High	Populated Area, Farmland	Yes
Charbonneau Dam	City of St. John	St. John	Recreation, Flood Control	Low	Farmland	No
Gordon Lake Dam	Bureau of Indian Affairs	North of Belcourt	Recreation, Flood Control	High	Populated area, Farmland	Yes
Wakopa Dam	ND Game and Fish Department	Carpenter Lake	Recreation, Flood Control	Low	Farmland	No

Source: http://www.nd.gov/des/uploads/resources/915/final-ndmhmp-update.pdf, Rolette County Water Board

Gordon Lake Dam and Belcourt Lake Dam are part of the same drainage area. Gordon Lake Dam, when filled to capacity over flows into Belcourt Lake Dam. Thus the two dams together can cause a hazard to a populated area in the event of dam failure. The area affected is the community of Belcourt.

4.2.2 Causes of Dam Failure

The most common causes of dam failure are hydrologic inadequacy and seepage related issues.

Hydrologic Failures

Hydrologic failures are typically associated with flood events. A hydrologic failure may occur due to dam overtopping or excessive spillway erosion. A dam can be overtopped during a flood event due to insufficient reservoir storage and insufficient spillway capacity. Earthen dams are particularly susceptible to failure when overtopped since earthen material may erode relatively easily. Some dams have an earthen auxiliary spillway designed to carry excess flows during a flood event. Since these are earthen spillways, some erosion can be expected, but under the right conditions excessive erosion can occur. (North Dakota State Water Resources, 2007). Belcourt Dam has an emergency spillway as part of its structure.

The Souris River which flows northward through neighboring Bottineau County has tributaries that originate in Rolette County, namely Willow Creek, Wolf Creek, and Ox Creek. These creeks originate in the Turtle Mountains and flow south and southwestward to the Souris River.

Seepage Failures

All dams have some seepage occurring through the structure and foundation. Seepage, if uncontrolled, can erode material from the embankment of an earthen dam and lead to complete failure of the dam. Piping is a special seepage problem where erosion starts at the point where seepage is exiting the downstream slope or foundation, then works backwards toward the upstream slope. Internal erosion, another type of seepage failure, occurs when water flowing through the dam causes erosion along a crack in the embankment or foundation, or along some other discontinuity or preferential flow path in the embankment, such as along a spillway conduit. Tree roots and animal burrows can also provide paths for seepage. Seepage failures can occur during the course of normal operations but can also occur during flood conditions when reservoir levels are abnormally high. (North Dakota State Water Resources, 2007)

4.2.5 Probability and Magnitude

Table 4.2.4A is a graphical representation of the range of events that can occur within the dam failure hazard. Generally, the more frequent events have a low impact, and the high impact events occur less frequently. All types of events may not appear in the figure, but the information presented can assist when comparing hazards (high frequency, low impact events versus low frequency, high impact events) or when assessing the range of

magnitudes possible from the dam failure hazard. The beginning of this risk assessment chapter provides additional information on frequency and impact ratings.

Table 4.2.5A Hazard Frequency and Impact Ranges

Frequency	*No regional history*				High Hazard Dam Complete Failure
	No local history			Dam Failure with Some Damages	
	100 years				
	50 years		Threatened Dam Failure		
	Annually				
		Negligible	*Limited*	*Critical*	*Catastrophic*
		Impact			

The dam failure probability is somewhat low based on a minimal history of significant events and the fact that there are no medium or high hazard dams that impact Rolette County.

4.2.6 Risk Assessment

Vulnerability Overview

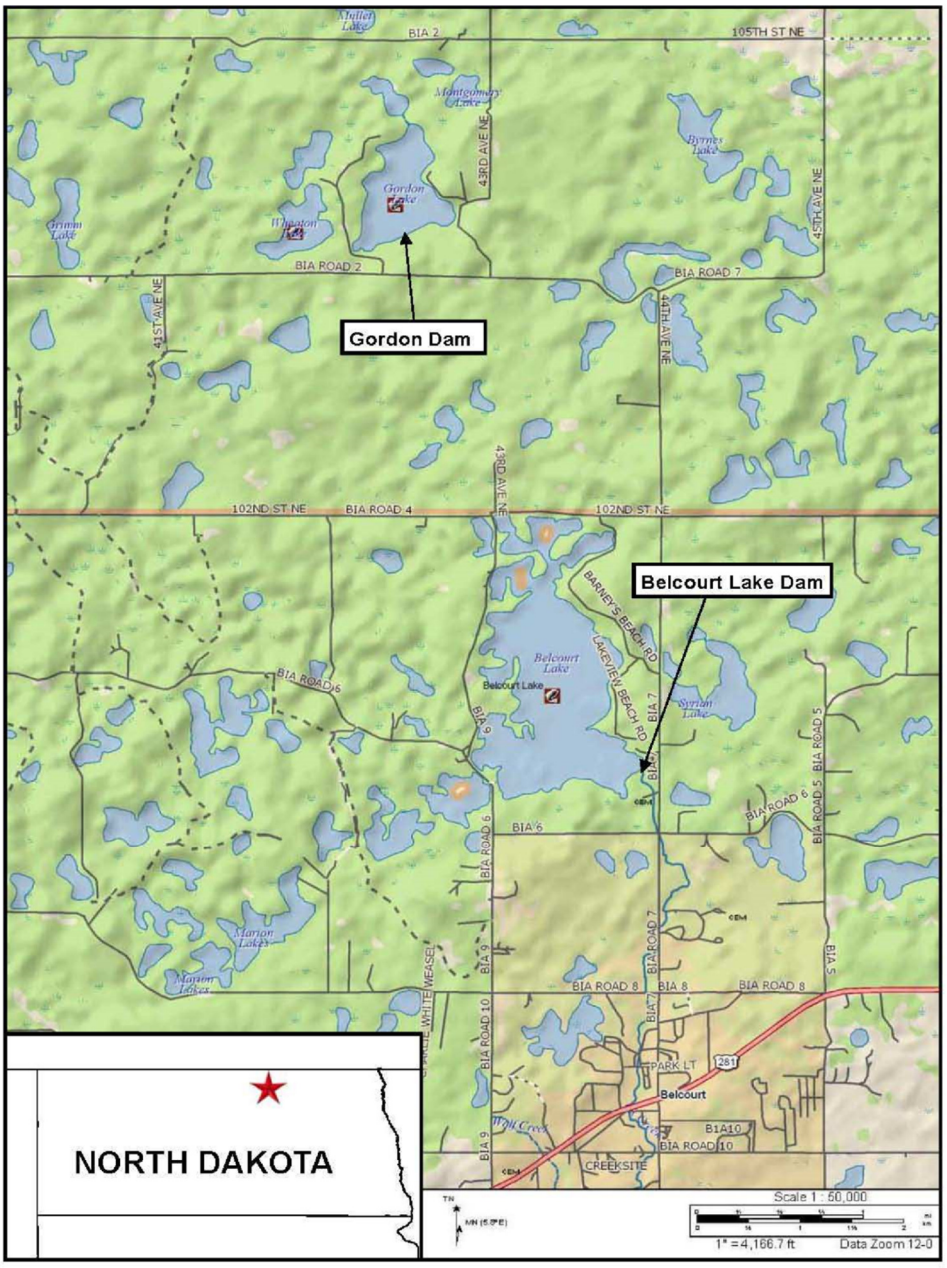
Rolette County is in two geographical regions of North Dakota. The eastern and southern part of the county is located on the Drift Prairie and the northwestern part of the county is located on the Turtle Mountains. The land on the Drift Prairie and in the Turtle Mountains has an undeveloped or interior drainage system. The main drainage is to lakes or potholes. Problems arise when a lake or pothole fills and overflows to another lake or pothole. This results in overland flooding which can be damaging to roads and farmland. There are some un-named small creeks on the drift prairie and man-made drainage systems that remove excess water from the land. The Souris River which flows northward through neighboring Bottineau County has tributaries that originate in Rolette County, namely Willow Creek, Wolf Creek, and Ox Creek. These creeks originate in the Turtle Mountains and flow south and southwestward to the Souris River. The dams in Rolette County are placed to store excess water that flows out of the Turtle Mountains onto the Drift Prairie. As the water flows through the Turtle Mountains, it flows rapidly, as it enters the Drift Prairie in southern

Rolette County and Bottineau County, it reaches a lesser gradient slowing it down causing flooding of farmland further downstream. However, the county rural areas do have a low to moderate vulnerability.
Belcourt Dam and Gordon Lake Dam, both north of Belcourt in the Turtle Mountains are the most vulnerable of dams. If they were to fail, water would flow through the middle of the community. Affected at Belcourt would be the IHIS Hospital, a major highway(US Highway 281/ND Highway 5), BIA Road #7, the business district, Belcourt Fire Hall, , BIA Law Enforcement Building, and about 200 homes. Rural homes in the vicinity of Belcourt would also be affected. It is estimated about 450 people would be affected. As the water would flow down the gradient of the Turtle Mountains, it would flow out onto the Drift Prairie town of Rolette affecting about 100 homes and about 250 people in the city and the vicinity. Also affected would be the school, nursing home, and other critical infrastructure. Mylo, Rolla, and St. John have little or no risk from dam failure.

All data and information concerning this Dam Failure risk assessment listed below is excerpted from the document *Emergency Action Plan: Belcourt Lake and Gordon Dams, TMBCI, Belcourt, ND*. This plan was published May 2011 by the TMBCI, the Bureau of Reclamation, and the Bureau of Indian Affairs.

Gordon Dam:
Gordon Dam is an earth fill embankment, located off the reservation, but on Indian Trust land, on an unnamed tributary to Ox Creek about 7 miles north from the community of Belcourt. No design data are available regarding design and construction of the dam. The dam is assumed to be homogeneous. BIA personnel report that the dam was constructed in the early 1960s. Gordon Lake is a glacial kettle lake that has been raised and enlarged by the construction of the dam at the natural outlet. Gordon Lake has a surface area of about 164 acres at the service spillway crest elevation. The dam provides an additional storage capacity of about 1,700 acre-feet between the original lake elevation and the crest of the dam. The dam is operated and maintained by the BIA.

The approximately 85-foot-long open channel spillway (referred to in previous examination reports as the service spillway), consists of an ungated, excavated channel through the left (facing downstream) abutment of the dam. The spillway was excavated and modified several times since the 2001 Special Examination of Gordon Dam; however, operating personnel report that the present configuration of the spillway will be maintained although residents have in the past attempted to place backfill material in the spillway to raise the reservoir water level.



Belcourt Lake Dam:

Belcourt Lake Dam, which is believed to have been constructed during the 1930's, is an earthfill embankment located approximately 2 miles north of the town of Belcourt, North Dakota. The dam is constructed across Ox Creek and raises and controls the water surface, between elevation 2009.3 and approximately elevation 2016 (based on a 2003 survey), of an existing glacial kettle lake. The reservoir is reported to store 4,300 acre-feet of water at the dam crest elevation, and is used for recreational purposes, such as fishing and boating. In recent years the Dam has been reconstructed.

Extent

Following a failure of Gordon Dam, flows would continue downstream along Ox Creek and into Belcourt Lake approximately 3.2 miles downstream. Gordon Dam classified as a high-hazard facility, mostly because failure of Gordon Dam could lead to failure of Belcourt Lake Dam, and Belcourt Lake Dam is classified as a high-hazard facility.

Following a failure of Belcourt Lake Dam, flows would continue downstream along Ox Creek and into the town of Belcourt, North Dakota (population ~ 2,000) approximately 2 miles downstream. Belcourt Lake Dam classified as a high-hazard facility.

Probability

Probability: Limited
Magnitude: Limited
Warning Time: Less than 6 hours
Duration: More than a week
CPRI Score: 2.5

Though there is a possibility of the dam being compromised, the loss of life is expected to be minimal, because there are few structures and few people that would be affected. At least one TMBCI Department of Natural Resources (DNR) employee checks on the dam every day and a dam operator lives nearby. In addition, an early warning system was installed in both dams in 2007.

Past Occurrences

May of 1999. A significant rainfall occurred, raising Gordon Lake's surface elevation to an elevation that overtopped Gordon dam and raised the elevation of Belcourt Lake to within 14 inches of Belcourt Lake Dam's crest. Although there was a real concern, neither dams failed.

Vulnerability

Gordon Dam:
In 2007, the Comprehensive Dam Report (CDR) commented on the potential loss of life due to failure, saying that there would be limited potential loss of life. However, it should be noted that this comment does not consider the failure of Belcourt Lake Dam, as that dam could potentially fail as a result of the failure of Gordon Dam.

Table 21: Population at Risk (PAR) estimates for Gordon Dam from the 2007 CDR *

Location	Distance D/S (miles)	Flood Depth (ft)	Flood Velocity (ft^3/s)	No. of Structures	Population at Risk
BIA Road 2	0.33	2.0	5050.0	0	**0 – 5**
BIA Road 4	2.44	4.2	4665.1	0	**0 – 5**
BIA Road 9	3.19	6.9	3788.9	0	**0 – 5**
Total Population at Risk					**0 – 15**

*Low end of the range corresponds to a sunny-day failure; high end of the range corresponds to a hydrologic failure. Only considered population at risk for people on the inundated roadways; did not consider potential population at risk from nearby houses.

Belcourt Lake Dam:
According to the 2007 CDR, the potential for loss of life due to flood-related failure of the Belcourt Lake Dam seems to clearly exist. However, the CDR also stated that since "the peak wave during a flood related failure of the dam arrives at all locations more than an hour after the initial wave, it is likely that most residents would have ample time to evacuate. Therefore, the actual loss of life for the worst case scenario is anticipated to be relatively low in light of the estimated population at risk."

Table 22: Population at Risk (PAR) estimates for Belcourt Dam from the 2007 CDR

Location	Distance D/S (miles)	Arrival of Peak Flow (hr:min)	Peak Flood Depth (ft)	Flood Velocity (ft^3/s)	No. of Structures	Population at Risk
BIA Road 7	0.1	1:10	1	2940	0	**0 – 10**
BIA Road 6	0.5	1:15	6	2555	2	**1 – 11**
BIA Road 8	1.9	2:40	4	2525	5	**1 – 20**
Hospital	2.4	3:05	5	2520	6	**0 – 25**
Dialysis Center	2.6	3:10	2	2520	2	**0 – 5**
Highway 281	3.0	3:30	2 – 6	2520	5	**0 – 60**
BIA Road 10	3.3	3:40	8	2520	8	**1 – 29**
BIA Road 12	4.6	4:05	2	2515	0	**1 – 5**
BIA Road 7	5.5	4:35	5	2515	0	**0 – 10**
Total PAR	**4 – 175**					

Table 23: 2011 Updated Consequences for Belcourt Dam Failure*

Item	Daytime PAR	Nighttime PAR
Residential	57	57
Hospital	25	25
Dialysis Center	5	0
Downtown Business Center	50	0
BIA Road at 0.4 miles[1]	0 – 3	0 - 3
BIA Road 7 at 1.5 miles[1]	0 – 3	0 - 3
BIA Road 8 at 1.8 miles[1]	0 – 3	0 - 3
Highway 281 at Belcourt[1]	0 – 9	0 - 9

*Using Reclamation's DSO99-06

Figure 14: Critical Infrastructure Within Belcourt Dam Inundation Map 1

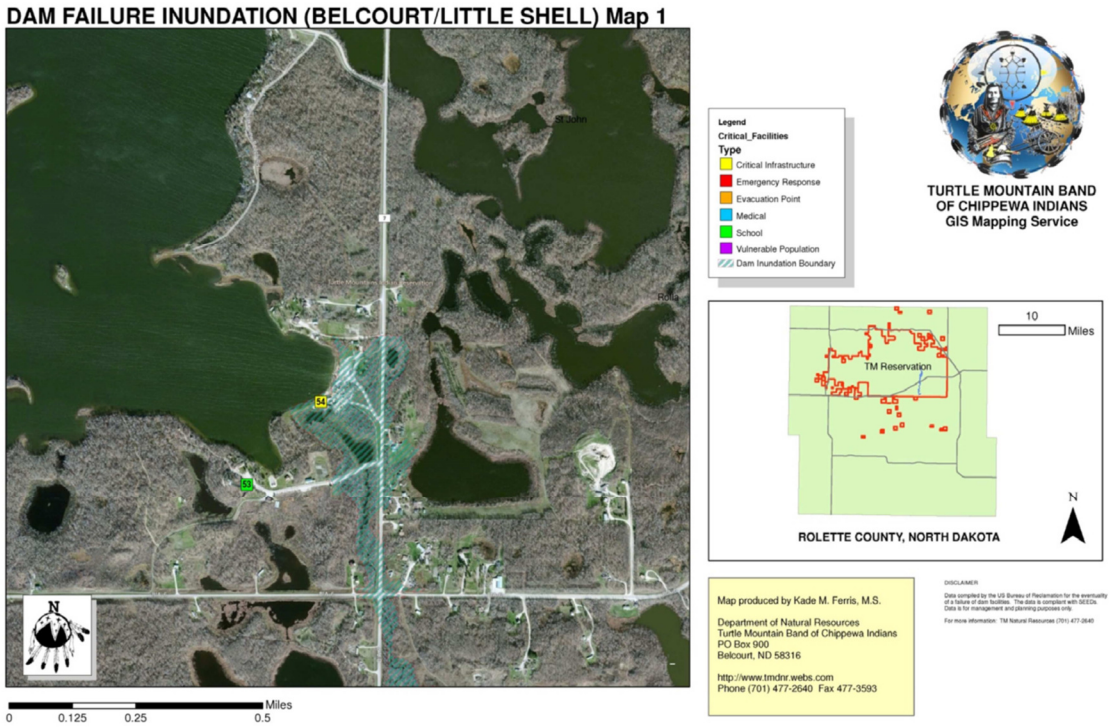


Figure 15: Critical Infrastructure Within Belcourt Dam Inundation Map 2

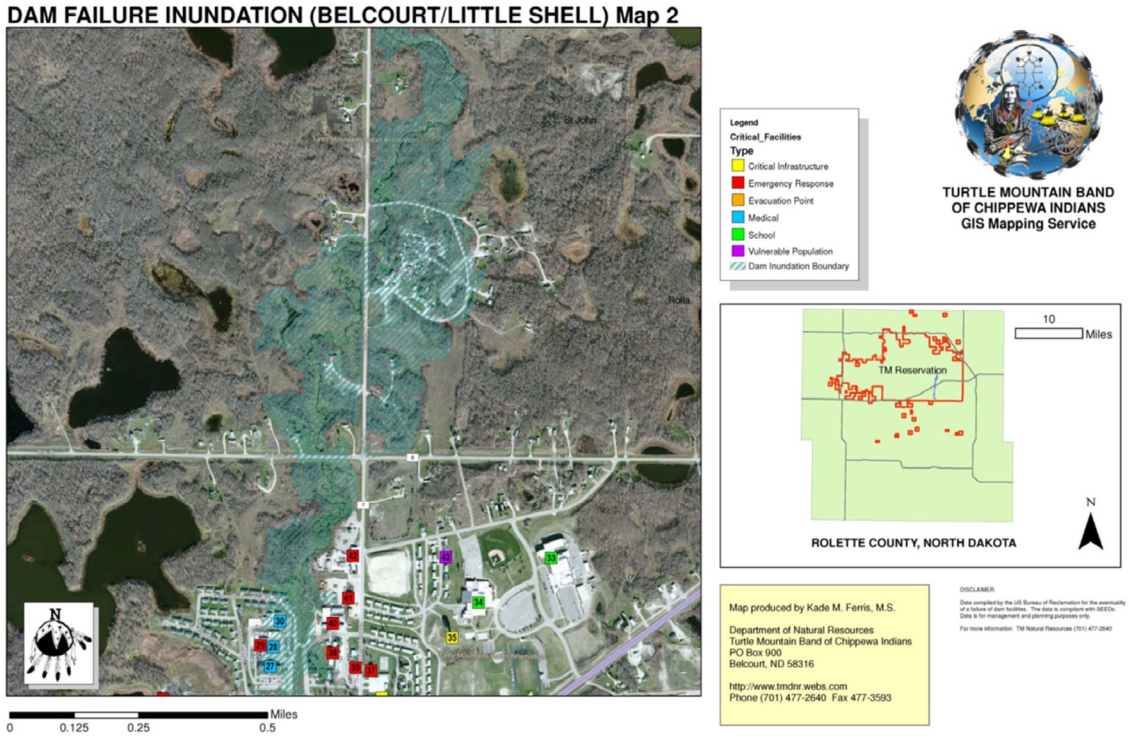


Figure 16: Critical Infrastructure Within Belcourt Dam Inundation Map 3

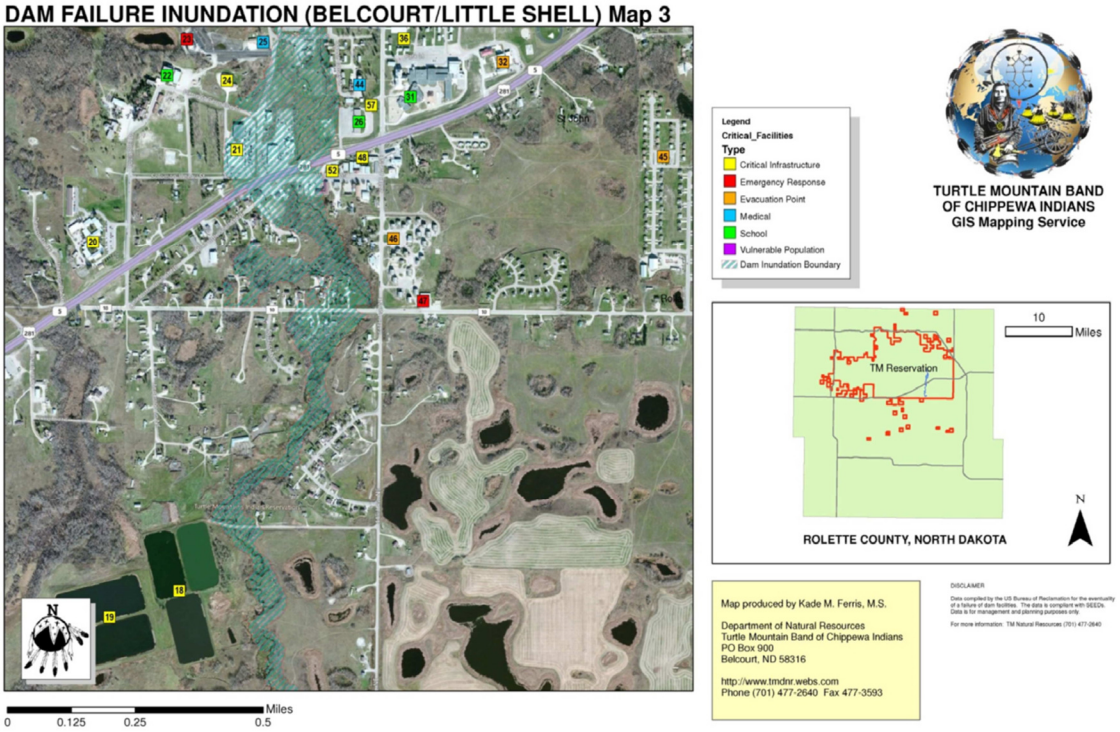


Figure 17: Critical Infrastructure Within Belcourt Dam Inundation Map 4

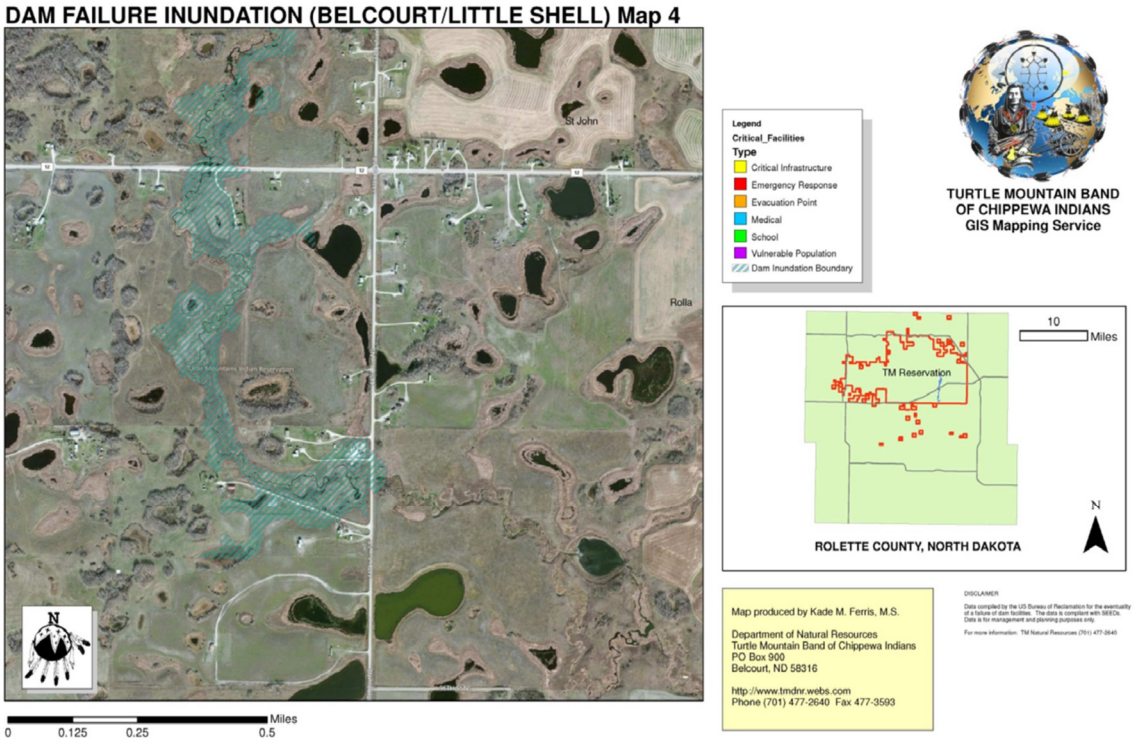


Table 24: Critical Infrastructure, Structure Type, and Elevation

Id	Facility	Structure Type	Elevation (ft)
1	Dunseith Day School	School	1994
2	North Dunseith Head Start	School	2070
3	Shell Valley Wastewater	Critical Infrastructure	1739
4	Public Utilities Pumphouse	Critical Infrastructure	1802
5	Shell Valley Head Start	School	1747
6	Shell Valley Water Tower	Critical Infrastructure	1791
7	Skydancer Casino	Critical Infrastructure	1859
8	Northern Plains Substation	Critical Infrastructure	1807
9	Fiddlers Hall	Evacuation Point	1865
10	Skydancer Wastewater	Critical Infrastructure	1815
11	Sprung Structure	Evacuation Point	1818
12	Tribal Child Welfare	Medical	1831
13	Ojibwa School	School	1906
14	TM Manufacturing	Critical Infrastructure	1837
15	Tribal Offices	Emergency Response	1845
16	Tribal Office Wastewater	Critical Infrastructure	1839
17	Jackrabbit Water Towers	Critical Infrastructure	2075
18	Belcourt Wastewater 1	Critical Infrastructure	1903
19	Belcourt Wastewater 2	Critical Infrastructure	1916
20	Belcourt Retirement Home	Critical Infrastructure	1967
21	Belcourt Post Office	Critical Infrastructure	1940
22	St. Anns Gymnasium	School	1984
23	Tribal Transportation	Emergency Response	1961
24	KEYA Radio Station	Critical Infrastructure	1958
25	IHS Mental Health	Medical	1957
26	Belcourt Head Start	School	1942
27	IHS Hospital	Medical	1945
28	IHS Clinic	Medical	1950
29	IHS Emergency Room	Emergency Response	1954
30	IHS Dialysis	Medical	1950
31	Turtle Mt. Elementary	School	1960
32	Belcourt Fitness Center	Evacuation Point	1986
33	Turtle Mt. High School	School	2009

Id	Facility	Structure Type	Elevation (ft)
34	Turtle Mt. Middle School	School	2000
35	Belcourt Water Tower	Critical Infrastructure	2002
36	BIA OST	Critical Infrastructure	1961
37	BIA Agency	Emergency Response	1961
38	BIA Law Enforcement	Emergency Response	1949
39	Tribal Fire Department	Emergency Response	1954
40	BIA Facilities	Emergency Response	1950
41	BIA Bus Garage	Emergency Response	1957
42	BIA Forestry	Emergency Response	1959
43	Tribal Youth Shelter	Vulnerable Population	1987
44	5th Generation Alcohol Treatment	Medical	1941
45	Fayes Albert Building	Evacuation Point	1978
46	Tribal Housing Authority	Evacuation Point	1949
47	Tribal Housing Authority Maintenance	Emergency Response	1948
48	Ottertail Power Substation	Critical Infrastructure	1949
49	Northern Plains Power Substation	Critical Infrastructure	2029
50	Green Acres Wastewater	Critical Infrastructure	1882
51	TM Communications Tower	Critical Infrastructure	1890
52	Belcourt Public Utilities	Critical Infrastructure	1933
53	Anishinabe	School	2041
54	Belcourt Little Shell Dam	Critical Infrastructure	2011
55	TM Community College	School	2094
56	TM Communications Shelter	Critical Infrastructure	2057
57	TM Communications Shelter (Teepee)	Critical Infrastructure	1945
58	Tribal Natural Resources	Emergency Response	2097
59	Gordon Lake Dam	Critical Infrastructure	2091
60	Public Utilities Water Tower	Critical Infrastructure	2020
61	Tribal Landfill	Critical Infrastructure	2233

Figure 18: Critical Infrastructure Within Gordon Lake Dam Inundation Map 1

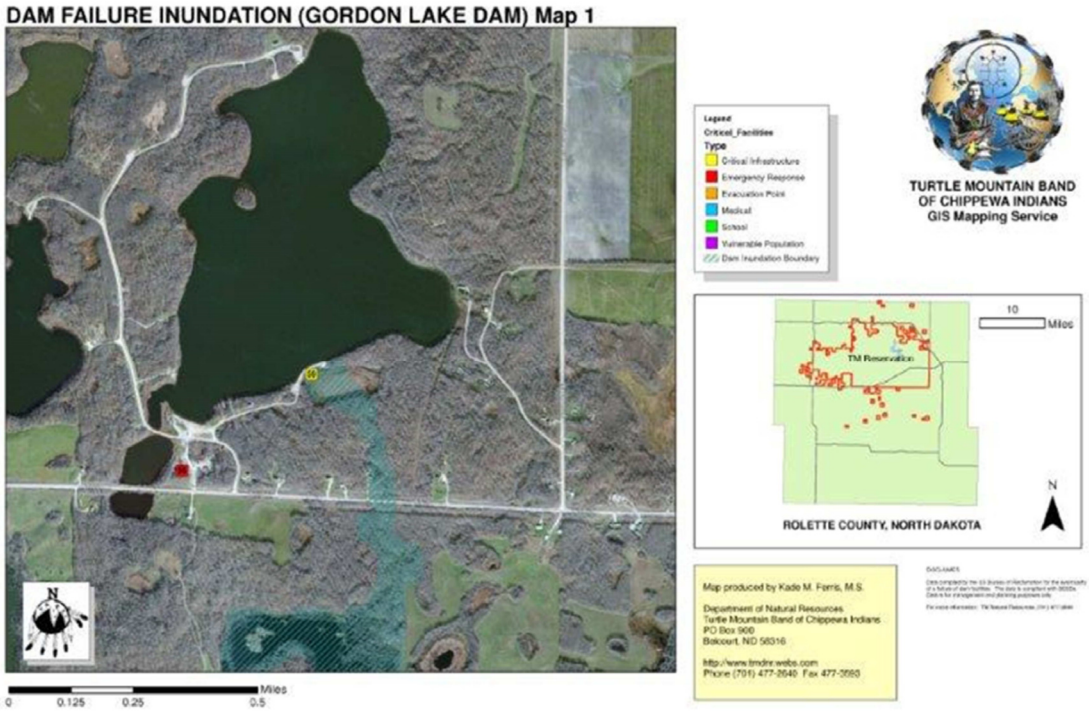


Figure 19: Critical Infrastructure Within Gordon Lake Dam Inundation Map 2

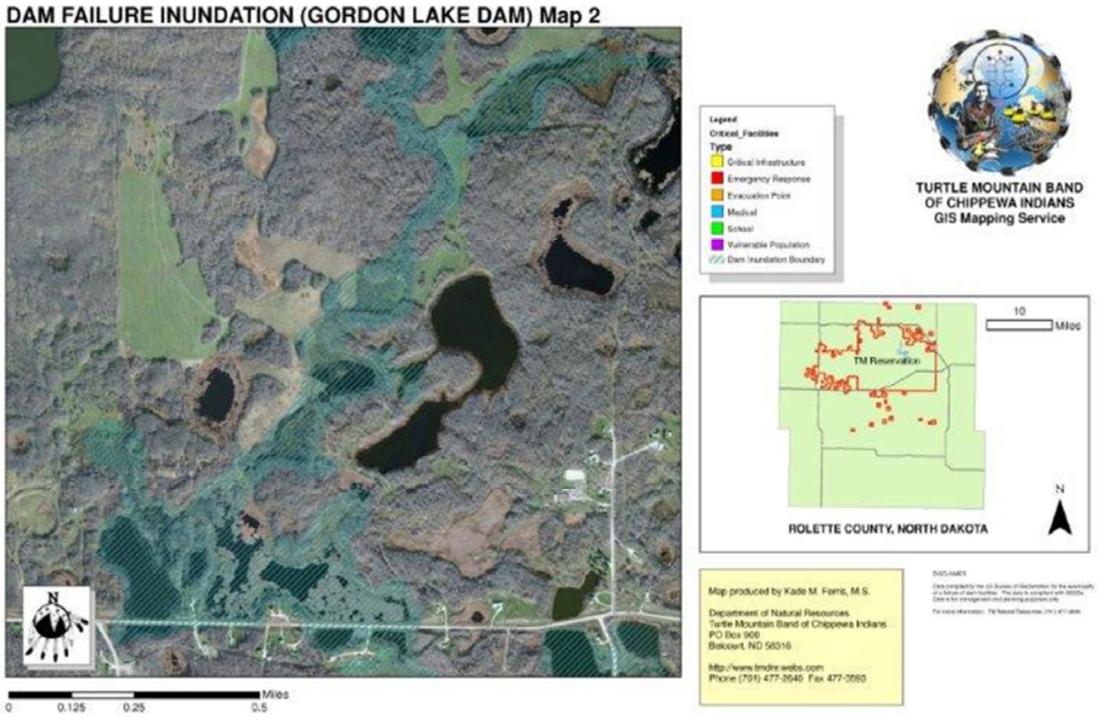


Figure 20: Critical Infrastructure Within Gordon Lake Dam Inundation Map 3

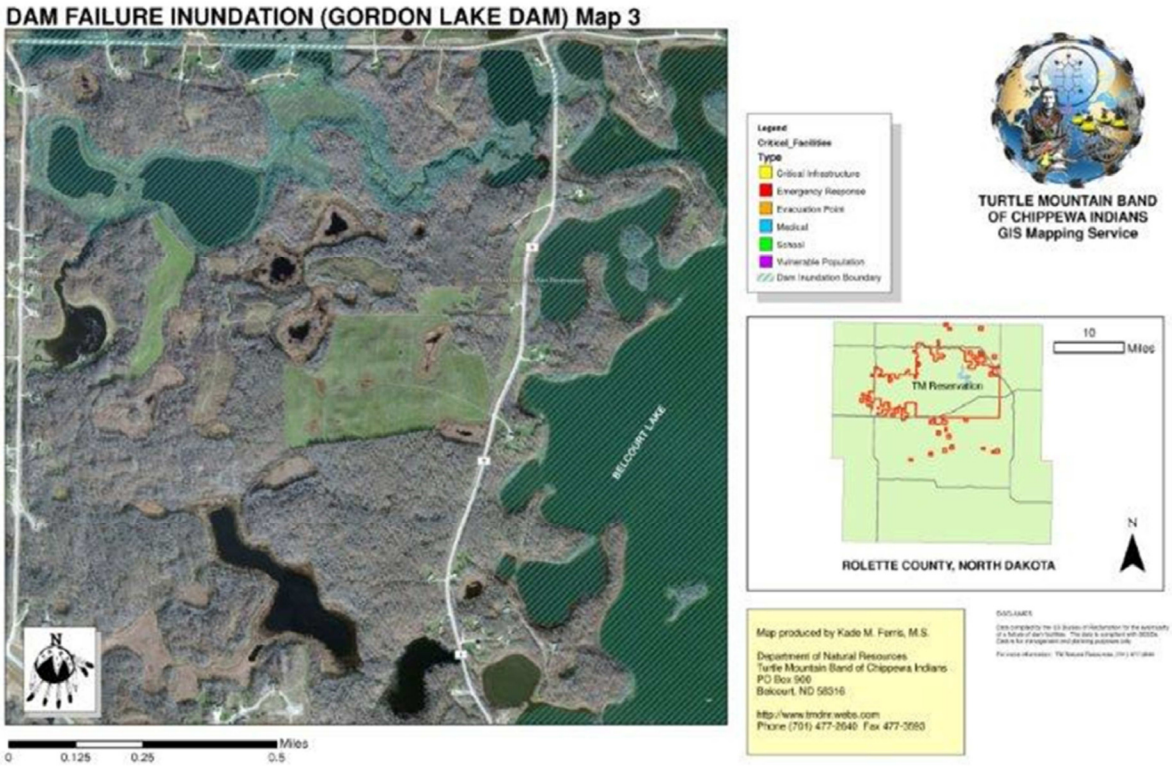


Table 4.2.6B Rolette County Dam Failure Vulnerability Analysis Results Table

# of Medium Hazard Dams (2 pts)	# of High Hazard Dams (3 pts)	# of Medium and High Hazard Dams w/o EPA (2 pts)	Weighted Vulnerability Analysis Score	Vulnerability
0	2	0	6	Low-Moderate

4.2.7 Critical Facilities in Hazard Prone Areas

Like state owned buildings, critical facilities and infrastructure may also be vulnerable to dam failure. More specifically, if in the inundation area, any building is susceptible to damages from flood waters. Other infrastructure, particularly the transportation network, is vulnerable to washouts. There are no critical facilities within the dam failure inundation area.

4.2.8 Development in Identified Hazard Areas

There is no development in identified hazard areas other than farmland.

4.2.9 Other Key Documents

Key documents related to the Dam Failure hazard include:

- Individual Dam Emergency Action Plans
- North Dakota Dam Design Handbook
- North Dakota Emergency Operations Plan, Dam Failure Annex

4.3 Drought

Frequency	Unlikely	
Impact	Critical	
Risk Class	D	
Seasonal Pattern	None-Patterns can last over several season when precipitation is limited but most dramatic effects occur in the summer when temperatures are high, and crops are affected	
Duration	Months/Years	
Speed of Onset	Slow onset-A drought occurs over time; therefore, it can be watched and anticipated, but its exact beginning and end are often difficult to determine.	

4.3.1 Description

Drought is a condition of climatic dryness severe enough to reduce soil moisture below the minimum necessary for sustaining plant, animal, and human life systems. Drought characteristics usually include precipitation levels well below normal and temperatures higher than normal. Under these conditions, topsoil crumbles and is lost due to wind erosion. Streams, ponds, and wells often dry up and water levels in lakes and rivers drastically fall, creating severe strain on vegetation, wildlife, and livestock. Although the agricultural economy may be more negatively impacted, urban economies are also constrained when the amount of domestic and industrial water is in short supply. Prolonged droughts have caused severe economic hardships in Rolette County and for the TMBCI.

A lot of the data calculations in this section include the TMBCI as part of the county information so will be inclusive of both the county and tribe.

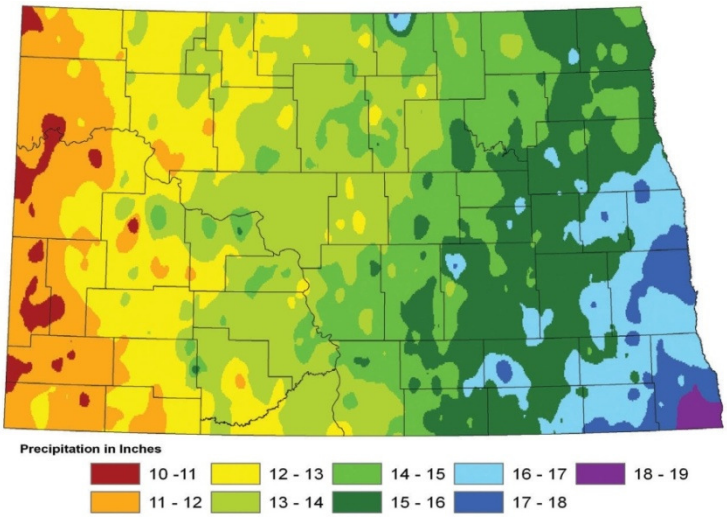
Scientifically, drought can mean many things to many people, depending on the discipline and perspective of the individual. Operational definitions are used to help quantify the

beginning, end, and degree of severity of a drought. The following definitions were provided by the National Drought Mitigation Center:

- *Meteorological drought* is usually an expression of precipitation's departure from normal over some period of time. These definitions are usually region-specific, and presumably based on a thorough understanding of regional climatology. Agricultural drought occurs when there isn't enough soil moisture to meet the needs of a particular crop at a particular 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 stream flow 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.

Annual precipitation in Rolette County is 19.37 inches https://www.usclimatedata.com/climate/rolette/north-dakota/united-states/usnd0595 with about 75 percent of the annual precipitation occurs during the crop season from April to September. Belcourt's KEYA Radio Station is the only station that has an extensive climate record in Rolette County. Furthermore, the station is missing data for most years. The driest year according to recent records was 1958 with 10.29" of precipitation with no missing data. Source: North Dakota State Climatologist, NDSU

Figure 4.3.1A 30 Year (1983 - 2012) Average Rainfall (April -September



Source: North Dakota Water Resources, 2017-2019 Water Development Report

Weather forecasters cannot predict with certainty just when a drought will occur, but they do know that these drier than normal periods tend to alternate with wetter than normal periods. Droughts of the past can be read in the growth rings of trees. In wet periods, the ring is thicker than in dry periods. Precipitation deficits as little as four to six inches can cause severe drought conditions.

Drought severity regarding our agriculture procedures depends on time of year, timing of precipitation, amount of stored soil water, type of crop, stage of growth, and meteorological variables such as temperature, humidity, and wind.

A few secondary hazards are generally associated with drought. Rural grassland fires increase because of dry vegetation. Reduction in vegetation cover will expose the soil to wind, and dust storms and soil erosion will occur. Because of reduction in surface water levels, the water quality of surface water can become stagnant affecting livestock and recreational use.

Deterioration in water quality, in turn, results in injury and death to plants and animals. Stagnant pools provide favorable habitats for insects, particularly mosquitoes which can carry West Nile disease.

Grasshoppers which consume large amounts of remaining vegetation thrive in drought conditions affecting crops, pastures, and hay land. Finally, with the return of the rains, the dry and unstable topsoil is vulnerable to gullying and flooding, and erosion.

There is a wide range of possible consequences that have occurred and can occur again regarding drought.

Drought is a creeping phenomenon, pervasive in nature. The effects of drought slowly accumulate and tend to persist over long periods of time, in contrast to sudden and short-lived impacts of floods, winter storms, and tornadoes. The start and end of drought is difficult to determine. Often the question of whether or not an extended dry spell is, in fact, a drought causes considerable debate among meteorologists, farmers, public officials, and other agricultural experts.

The effects of drought directly impact economic and social stability of the area concerned. Losses do not usually include direct structural damage or traumatic loss of human life. The amount, duration, and extent of moisture deficiency necessary to establish a drought threshold vary considerably. For example, a certain lack of precipitation may cripple the livestock industry early on but not affect urban water systems until later.

Several drought indices are used to measure a drought‘s severity and any combination of these indices and others may be used to trigger a wide variety of response activities by governments, individuals, and organizations. **Table 4.3.1A** lists the more common indices and their use. Note that various response plans may address how these indices are used in response to a drought.

Table 4.3.1A Drought Indices

Index	Use
Percent of Normal	The percent of normal is a simple calculation well suited to the needs of television weathercasters and general audiences.
Standardized Precipitation Index (SPI)	The SPI is an index based on the probability of precipitation for any time scale.
Palmer Drought Severity Index (PDSI)	The Palmer is a soil moisture algorithm calibrated for relatively homogeneous regions.
Crop Moisture Index (CMI)	A Palmer derivative, the CMI reflects moisture supply in the short term across major crop-producing regions and is not intended to assess long-term droughts.
Surface Water Supply Index (SWSI)	The SWSI was originally designed to complement the Palmer in the State of Colorado, where mountain snowpack is a key element of water supply. The SWSI is calculated by river basin, based on snowpack, stream flow, precipitation, and reservoir storage. Other states have modified the SWSI for their areas.
Reclamation Drought Index (RDI)	Like the SWSI, the RDI is calculated at the river basin level, incorporating temperature as well as precipitation, snowpack, stream flow, and reservoir levels as input.
Deciles	Groups monthly precipitation occurrences into deciles so that, by definition, —much lower than normal‖ weather cannot occur more often than 20% of the time

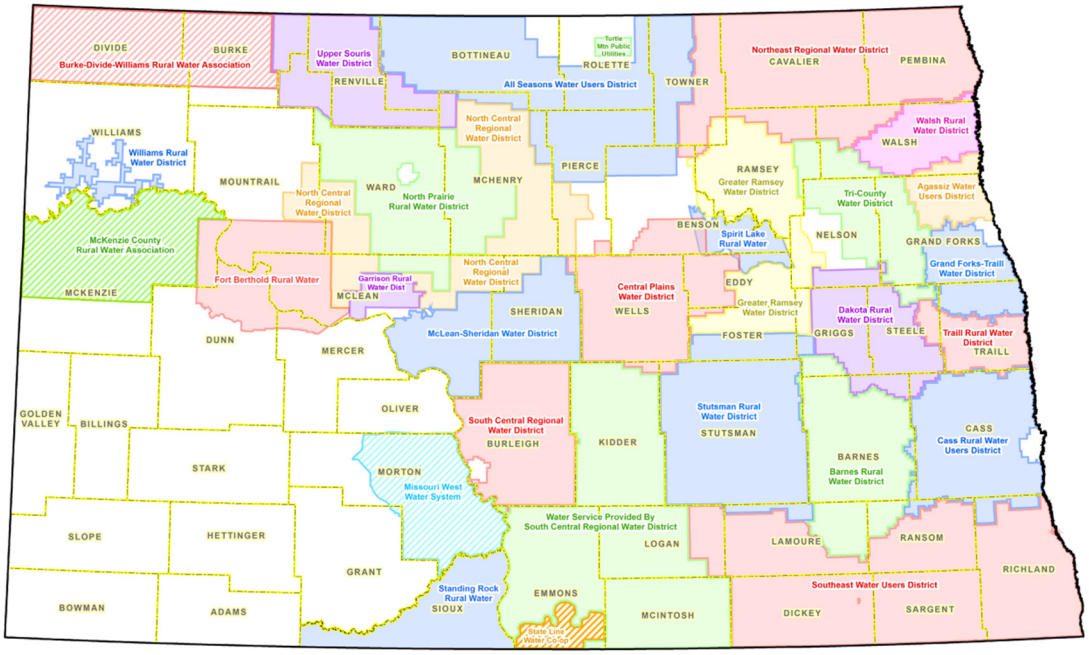
Source: National Drought Mitigation Center, 2014

The geological/physiological distribution of Rolette County contains approximately 942 square miles in north central North Dakota (Tps. 159-164 N., Rs. 69-73 W.) adjacent to the Canadian border. It includes the southeastern part of the Turtle Mountains and part of the

glacial Lake Souris basin. Rolette County is in the Red River drainage basin, with drainage mainly westward toward the Souris River or southward toward the Devils Lake Basin. Most of the water in Rolette County is from ground water sources. Major aquifers include the Shell Valley Aquifer system, which underlies about 56 square miles in south-central Rolette County and is the sole source of water for the community of Belcourt and primary source of water for the TMBCI. https://pubs.er.usgs.gov/publication/wri974291.

The Fox Hill Aquifer underlies all, but eastern townships of the county and the Hell Creek Aquifer underlies the Turtle Mountain area. The aquifers are relatively stable and unaffected by short term droughts because of their size and the volume of water they contain thus can provide a dependable water supply for agricultural uses. The cities and 95% of the rural homes get their water from the All Seasons Water Users District.

Figure 4.3.1B Dakota Rural Water District



Source: North Dakota Water Resources, 2017-2019 Water Development Report

Table 4.3.1B City Water Source

City	Water Source	Purchase Source
Dunseith	Rural Water	Turtle Mountain Public Utilities
Mylo	Rural Water	All Seasons Water Users District
Rolette	Rural Water	Turtle Mountain Public Utilities
Rolla	City Water	Rolla Public Works
St. John	City Water	St John City Water

Source: North Dakota Water Resources, 2017-2019 Water Development Report

4.3.2 Geographic Location

Drought and infestations are usually regional hazards that are not enhanced by county-level mapping. All county areas are assumed to have the same risk level. Mapping of the current drought status is published by the US Drought Monitor each Thursday at http://drought.gov. North Dakota also has an extensive network of ground monitoring wells and surface water gauges. Ground water information, including hydrographs, recent water levels and chemistry conditions, can be found at http://mapservice.swc.state.nd.us/. Daily stream flow conditions are maintained by the US Geological Survey and can be found at http://waterdata.usgs.gov/nd/nwis/rt.

4.3.3 Previous Occurrences

Paleoclimate studies show extreme periods of drought hundreds of years ago in the northern Great Plains including 200-370 A.D., 700-850 A.D., and 1000-1200 A.D. Compared to these periods over the past 2,000 years, the droughts since 1200 A.D. have been relatively wet and minor. (Laird et al, 1996) Droughts cannot be defined with certainty as extremely dry periods often alternate with wetter than normal periods.

1930s Dust Bowl: June 1929 was one of the driest on record in North Dakota, followed by continuing drought conditions throughout the 1930s. The "Dust Bowl," as it is called, resulted in widespread drought conditions, soil erosion, and grasshopper infestations. This drought was exacerbated by poor farming practices, low market prices, and a depressed economy. Lessons learned during the 1930s drought stimulated the creation of

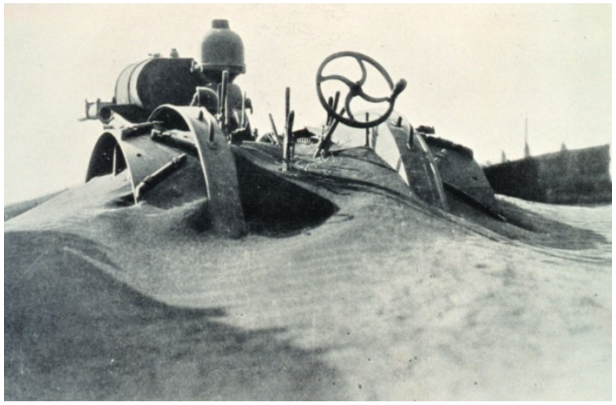


Figure 4.3.2A Dust buried farms and equipment, killed livestock, and caused human death and misery during the height of the Dust Bowl years. Source: National Weather Service, 1935.

governmental agencies to promote conservation, increased irrigation, and education stressing more flexible and diverse operations using improved management practices. The Federal Crop Insurance Program was established, and institutions liberalized credit. The United States Department of Agriculture (USDA), the North Dakota State Agricultural Experiment Station System, and agricultural colleges and universities began an intensifiedresearch effort. This resulted in technologies for control of soil erosion, soil moisture conservation, higher yielding grain varieties that could better withstand dry conditions, improved fertilizers, and better farm management techniques. (North Dakota Multi-Hazard Mitigation Plan, 2013)

1950s: The impact of drought in the early 1950s was less severe than the 1930s. The widespread financial distress, interstate migration, and regional disruption characteristic of the Dust Bowl era were largely absent. Strong emphasis was placed on water conservation and augmentation, weather modification research, weather prediction and control, groundwater recharge, irrigation and river basin development, evaporation control, desalination, phreatophyte control, and irrigation canal lining. (North Dakota Multi-Hazard Mitigation Plan, 2013)

1970s and 1980s: 1976 was the driest year in North Dakota since the 1930s according to the State Historical Society of North Dakota. By 1988, the North Dakota Governor declared a statewide emergency because of the drought. Damages were not limited to agricultural losses. Public water systems and individual wells also began to dry up. Disaster damage in 1988 was estimated to be $3.5 billion, not including the cost of indirect impacts. In the 1970s and 1980s, response to drought by state and federal governments was characterized by provisions for livestock feed assistance, crop loss financial aid packages (deficiency and disaster payments), commodity stock adjustments, disaster credit and forbearance programs for agriculture producers and related small businesses, and some water-related assistance. (North Dakota Multi-Hazard Mitigation Plan, 2013)

2000-2007: North Dakota soils were under some degree of drought and ruled for 78 consecutive months from December 2000 until mid-June 2007. The most severe drought occurred during July 2006 when 100 percent of the State experienced at least moderate drought status on the drought monitor scale. The conditions strained public water supplies and directly affected hydropower production. In 2007, drought cost the livestock industry

more than $32 million. Grazing was reduced due to drought conditions, forcing producers to sell livestock as well as land and many cattle did not survive. Also, approximately 45,000 acres of grassland burned, and 50 percent of counties were under burn bans throughout the summer. In Fargo, the clay beneath the city shrunk from lack of moisture leading to cracked sidewalks, driveways, and streets.

During this time, the U.S. Bureau of Reclamation assisted several communities with low water levels. At Fort Yates, they assisted in relocating the water intake in 2004, and then installing an interim intake screen, intake pump and an air burst system in 2005-2006 which is still in use. At Parshall, they State of North Dakota DRAFT 5.61 2014 Multi-Hazard Mitigation Plan paid for high service pumps, area pipelines and elevated water storage in 2005-2006. In Four Bears, White Shield and Twin Buttes, Reclamation raised and exposed the existing backup intake screens for their water treatment plants as well as rip rap installation/repair at the intakes for both high and low water lake conditions in 2005-2006. (North Dakota Multi-Hazard Mitigation Plan, 2013)

2012: Most locations across western and central North Dakota this year experienced it as one of the top ten warmest years on record, drier than normal conditions, and a snowfall deficit of over 10 inches. Several locations had their warmest March average temperature on record. The average temperatures in March were 12 to 14 degrees Fahrenheit above normal. The drought conditions deteriorated throughout the summer and fall, with below normal precipitation and abnormally dry conditions. In August and September, there were very high and extreme fire dangers in portions of southwest and south-central North Dakota. The west to northwest wind gusts were reported between 45 to 51 mph on several days. The drought conditions improved during November and December as the weather pattern transitioned into wetter than normal conditions. (North Dakota Multi-Hazard Mitigation Plan, 2013)

2017: The Federal Emergency Management Agency's ability to utilize the President's Disaster Fund for drought relief to state and local interests is very limited in scope; however, the US Department of Agriculture frequently declares agricultural disasters because of drought.

Table 4.3.3A North Dakota Drought Declared Disasters and Emergencies

Declaration	Location	Date	Magnitude	Casualties	Damages
DR 3016	North Dakota	1976	Presidential Emergency Declaration; Driest year in North Dakota since 1936	None	Unknown
State EO	North Dakota	1980	State Declared Drought Disaster	Unknown	Unknown
State EO	North Dakota	1981	State Declared Drought Disaster	Unknown	Unknown
State Request	North Dakota	1990	Governor's Request for USDA assistance for Adverse Weather/Drought	Unknown	Unknown
State EO	North Dakota	1993	State Declared Agricultural Emergency	Unknown	Unknown
State Request	North Dakota	2000	Governor's Request for USDA assistance for Dry and Flood Conditions	Unknown	Unknown
State Request	North Dakota	2002	Governor's Request for USDA assistance for Drought	Unknown	Unknown
State EO	North Dakota	2002	State Declared Drought Disaster	Unknown	Unknown
State EO	North Dakota	2003	State Declared Drought Emergency	Unknown	Unknown
State EO	North Dakota	2004	State Declared Agricultural Emergency/Drought Disaster	Unknown	Unknown

Declaration	Location	Date	Magnitude	Casualties	Damages
State EO	North Dakota	2005	State Declared Drought Disaster/Fire Danger Emergency	Unknown	Unknown
USDA S2388	Entire State of North Dakota	January 1, 2006 through December 31, 2006	Also included impacts from hail, high winds, excessive heat, winter storms, and excessive moisture.	None	Unknown
State EO 2006-05.1	North Dakota	7/12/2006	State declared agricultural drought emergency	Unknown	Unknown
USDA Secretarial	Entire State of North Dakota	January 1, 2007 through December 31, 2007	Also included impacts from frost, high temperatures, overland flooding, torrential rainfall, severe storms, hail, and high winds.	None	Unknown
USDA Secretarial	Entire State of North Dakota	January 1, 2008 through December 31, 2008	Also included impacts from frost, general lack of timely precipitation, high temperatures, insect and disease pressure, heavy rainfall, overland flooding, hail, and high winds.	None	Unknown
State EO 2008-02	North Dakota	5/8/2008	State declared early-phase agricultural drought emergency	Unknown	Unknown

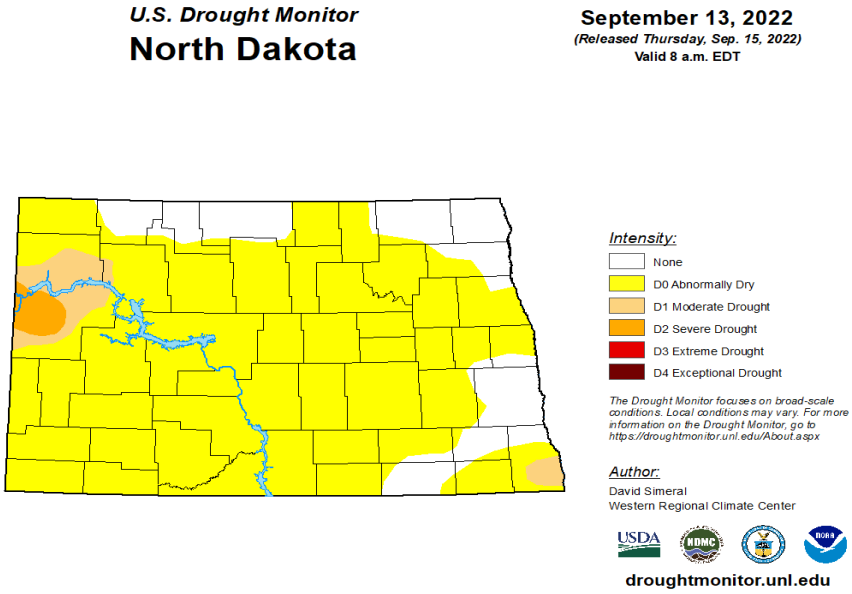
Declaration	Location	Date	Magnitude	Casualties	Damages
USDA S2942	42 counties in Central and Eastern North Dakota	January 1, 2009 through July 26, 2010	Also includes impacts from frost, cool temperatures, excessive rain, excessive late-season snowfall, flooding, ground saturation, hail, high winds, and weather-related losses from insects and diseases.	None	Unknown
USDA S3377	16 counties in the eastern half of ND including Rolette	July 10, 2012 through September 3, 2012	Also includes impacts from high winds, fire, excessive heat, and insects.	None	Unknown
USDA S3405	18 counties throughout ND including Rolette	July 24, 2012 through September 24, 2012	Also includes impacts from high winds, fire, excessive heat, and insects.	None	Unknown
USDA S3467	31 counties throughout ND including Rolette	January 1, 2012 – continuing	Also includes impacts from flood, severe storms, hail, high winds, frost, insects and disease.	None	Unknown
State EO 2012-08	North Dakota	August 14, 2012	State declared early-phase agricultural drought emergency		
USDA 202-720-7962	18 counties in central and eastern ND including Rolette	January 1, 2015 and continuing through the growing season	Natural Disaster Areas caused by the combined effects of excessive heat, excessive rain, frost, excessive snow, drought, hail, flooding, high winds, lightning, weather	None	Unknown

Declaration	Location	Date	Magnitude	Casualties	Damages
			related insects, and diseases		
State EO 2017-12	North Dakota	June 26, 2017	Drought	Unknown	Unknown
USDA S4346	Bottineau McHenry Pierce Renville Rolette Counties	May 1, 2018 – N/A	Drought	None	Unknown
USDA 4640	22 counties across the northern half of ND to include Rolette	April 1, 2019 – August 31, 2019	Drought	None	Unknown
USDA 4949	22 counties across the northern and central section of ND to include Rolette	July 15, 2020-continuing	Drought	None	Unknown
USDA 4939	42 counties across the state to include Rolette	April 15/2021-N/A	Drought	None	Unknown
USDA 5203	45 counties across the state to include Rolette	Drought	4/15/2021-continuing	None	Unknown

Declaration	Location	Date	Magnitude	Casualties	Damages
USDA 4204	Benson Bottineau McHenry Pierce Rolette Sheridan Towner Wells Counties	6/13/2017-N/A	Drought		
USDA 4227	Bottineau McHenry Pierce Renville Rolette Counties	7/25/2017-N/A	Drought		
USDA 4263	23 Counties including Rolette	5/30/2017-continuing	Drought		

Source: North Dakota Multi-Hazard Mitigation Plan, 2013, and fsa.usda.gov release 0017.16, www.FEMA.gov, Disaster Designation Information (usda.gov),

A severe drought struck much of North Dakota in 2017; however, Rolette County was not affected. The spring of 2018 was much different in that much of Rolette County is included in the "Severe Drought" category while the rest of the county was included in the "Moderate Drought" category. However, the current US Drought Monitor map demonstrates slightly improved conditions:



Crop Insurance Data

In 2016, North Dakota farmers insured 99% of their eligible acres with Federal Crop Insurance. Interviews with the Multi-Hazard Mitigation Planning Committee confirm that Rolette County would be like the rest of the state. Therefore, of Rolette County's 365,920 acres of cropland, 362,260 acres would be insured. https://www.rainhail.com/pdf

4.3.4 Probability and Magnitude

Figure 4.3.4A is a graphical representation of the range of events that can occur within the drought hazard. Generally, the more frequent events have a low impact, and the high impact events occur less frequently. All types of events may not appear in the figure, but the information presented can assist when comparing hazards (high frequency, low impact events versus low frequency, high impact events) or when assessing the range of magnitudes possible from the drought hazard. The impact categories are defined at the beginning of this chapter.

Table 4.3.4A Hazard Frequency and Impact Ranges

Frequency	*No regional history*				Statewide Loss of Potable Water	
	No local history					
	100 years			Loss of Public Water Supplies		
	50 years		High Water Users Impacted			
	Annually					
		Negligible	*Limited*	*Critical*	*Catastrophic*	
		Impact				

The National Oceanic and Atmospheric Administration Paleoclimatology Program studies drought by analyzing records from tree rings, lake and dune sediments, archaeological remains, historical documents, and other environmental indicators to obtain a broader picture of the frequency of droughts in the United States. According to their research, "…paleoclimatic data suggest that droughts as severe as the 1950s drought have occurred in central North America several times a century over the past 300-400 years, and thus we should expect (and plan for) similar droughts in the future. The paleoclimatic record also indicates that droughts of a much greater duration than any in the 20th century have occurred in parts of North America as recently as 500 years ago." Based on this research, the 1950s drought situation could be expected approximately once every 50 years or 20% chance every ten years. An extreme drought, worse than the 1930s "Dust Bowl," has an approximate probability of occurring once every 500 years or a 2% chance of occurring each decade. (National Oceanic and Atmospheric Administration, 2003)

A 500-year drought with a magnitude like that of the 1930s that destroys the agricultural economy is an example of a high magnitude event. Coupled with an insect infestation, the drought problems would cause serious economic and possibly health problems in Rolette County.

4.3.5 Risk Assessment

Vulnerability Overview

Typically, the most profound impact of drought is to the economy. Important sectors of the Rolette County economy that can experience impacts from drought include agriculture, food processing, and tourism/recreation. Reduced precipitation or low irrigation supplies may damage crops and reduce the amount of feed available for livestock. Non-irrigated croplands and rangelands are most susceptible to moisture shortages. Irrigated agricultural lands do not feel the effects as quickly, but their yields can also be greatly reduced, particularly if irrigation supplies are rationed. With an agricultural market value of $91,542,000 drought can severely diminish profits for the roughly 453 farms and ranches in Rolette County. Over the past 3 years, the conditions in Rolette County have been from dry to drought with an average of 3,163 crop insurance policies sold with an average of loss ratio of 1.31% based on the policies of the 14 types of commodities sold. Sources: 2017 Census of Agriculture, North Dakota 2012 Mitigation Plan, UDSA Risk Management Agency, Summary of Business, 2022

The municipal and farmstead water supply is not considered at risk due to drought. The aquifers that provide water to the county are large and have adequate amounts of water to withstand drought. Dunseith, Rolette, and Rolla are provided water from the Turtle Mountain Public Utilities, and Mylo and St. John and the majority of farmsteads are served by the All-Seasons Water Users District.

The economic impact due to drought is difficult to measure in today's agricultural economy. Most farmers enroll in crop insurance because of their large annual crop investments in land, machinery, seed, fertilizer, herbicides, and pesticides. As a result, if a drought were to destroy the crop the farmers still realize an income not from the agricultural products but from crop insurance. Crop insurance payments are not as much as the value of a good crop, but farmers still have disposable income to spend on personal items and items needed for their farming operation. Programs may have to be implemented to educate people on water conservation measures and store potable water.

Ground water in the Rolla, St. John, and Mylo areas in the Drift Prairie physiographic region of Rolette County obtain water from glacial till, sand, and gravel lenses within the till, and from a sandy zone in the upper part of the Pierre shale of Late Cretaceous age which is the area's bedrock. No important aquifer was located by test drilling. Small aquifers contained within the glacial till supply zmost of the wells with water. Generally, the wells produce only small quantities of water (1-6 gpm) but are adequate for farm or domestic needs. The production of wells of this type is controlled by the sand/clay ratio of the till in the well site vicinity. Where the glacial till is sandy the water production increases. The yield of wells that penetrate aquifers surrounded by till will decrease rapidly as the aquifers become un-watered. Recharge through the glacial till to sub aquifers is quite slow and pumping rates

must not exceed recharge to maintain production. The older wells of Rolla are believed to obtain water from this type of well. At many locations in the area, the till is composed mainly of clay and will not yield sufficient water to supply individual farms. Where this situation occurs, the wells are continued through the till and water is obtained from the sandy zone at or near the bedrock surface. Generally, ground water in the area is moderately to highly mineralized and is quite hard. Alkaline earths and alkali sulfates are the prominent dissolved minerals. In addition, iron content of water from the wells was sufficient to cause staining of laundry and plumbing and to impart to the water an objectionable taste.

As a result of the lack of good water in sufficient quantities, especially in years of drought, the cities and rural areas have water provided by the All Seasons Water Users and Turtle Mountain Public Utilities which provide adequate high quality water to TMBCI and Rolette County citizens. In conclusion, drought will have a serious economic impact and public health impact in Rolette County except for the rural water suppliers.

Source:
http://www.swc.nd.gov/info_edu/reports_and_publications/pdfs/gw_studies/gws_28_report.pdf

Rolla, Rolette, and Dunseith are the agricultural economic hubs of Rolette County. They have a limited number of retail establishments as well as agricultural firms and would experience the greatest drought economic impact. The cities of St. John and Mylo are not retail centers, but they do have agriculturally based firms. Rolla has three farm equipment dealers. Drought would impact these businesses and their employees. The drought impact on Dunseith, Mylo, Rolette, Rolla, and St. John would affect the farmers' ability to buy seed, fertilizer, and agricultural chemicals and the selling of their harvested grain which is done mainly through farmer owned cooperatives. There are no livestock markets in Rolette County.

Loss Estimates

Table 4.3.5A in the preceding Vulnerability section provides the annualized estimated crop losses for Rolette County to include TMBCI. Similar annual losses can be expected if drought conditions are like the pattern in this 10-year time. However, as discussed in the previous events section, there is a natural cycle of wet conditions followed by dry conditions. Additionally, the magnitude of dry periods can vary. So, this analysis is limited in determining accurate future loss estimates due to the many variables involved.

The impacts of drought are so diffuse and far-reaching that financial estimates of loss are often difficult to quantify. **Table 4.3.5B** shows the types of losses that may occur with drought.

Table 4.3.5B Categories of Potential Drought Losses

Drought Type/Severity	Loss Type	Causes
Agricultural	Costs and losses to agricultural producers	- Annual and perennial crop losses - Damage to crop quality - Reduced crop yields - Reduced productivity (wind erosion, loss of organic matter) - Insect infestation - Plant disease - Wildlife damage to crops - Increased irrigation costs - Water resource development (wells, dams, pipelines)
Agricultural	Costs and losses to livestock producers	- Reduced productivity of rangeland - Reduced milk production - Forced reduction of foundation stock - Closure/limitation of public lands to grazing - High cost/unavailability of water/feed for livestock - Water resource development (wells, dams, pipelines) - Increased feed transportation costs - High livestock mortality rates

Drought Type/Severity	Loss Type	Causes
		- Disruption of reproduction cycles - Decreased stock weights - Increased predation - Range fires
Agricultural	Loss from timber production	- Wild land fires - Tree disease - Insect infestation - Impaired productivity of forest land - Direct loss of tress, especially young ones
Agricultural	General economic effects	- Decreased land prices - Loss to industries directly dependent on agricultural production (machinery, fertilizer, food processors, dairies) - Unemployment from declines in production - Strain on financial institutions (foreclosures, more credit risk, capital shortfalls) - Revenue losses to government (reduced tax base) - Reduction of economic development - Fewer agricultural producers (due to bankruptcies, new occupations) - Rural population loss
Hydrological	Loss from fish production	- Damage to fish habitat - Loss of fish and other aquatic organisms due to decreased flows

Drought Type/Severity	Loss Type	Causes
Hydrological	Loss to recreation and tourism industry	- Loss to manufacturers and sellers of recreational equipment - Losses related to curtailed activities: hunting, fishing, bird watching, boating
Hydrological	Damage to animal species	- Reduction and degradation of fish and wildlife habitat - Lack of feed and drinking water - Greater mortality (increased contact with producers) - Disease - Increased predations - Migration and concentration - Increased stress to endangered species - Loss of biodiversity
Hydrological	Hydrological effects	- Lower water levels in reservoirs, lakes, and ponds - Reduced flow from springs - Reduced stream flow - Loss of wetlands - Increased groundwater depletion, land subsidence, reduced recharge - Water quality effects (salt concentration, increased water temperature, pH, dissolved oxygen, turbidity)
Socioeconomic	Water suppliers	- Revenue shortfalls and/or windfall profits - Cost of water transport or transfer - Water resource development (wells, dams, pipelines)

Drought Type/Severity	Loss Type	Causes
Socioeconomic	Decline in food production/disrupted food supply	- Increase in food prices - Increased importation of food (higher costs)
Socioeconomic	Damage to plant communities	- Loss of biodiversity - Loss of trees from urban landscapes, shelterbelts, wooded conservation areas
Socioeconomic	Health and values	- Mental and physical stress - Low-flow problems - Reductions in nutrition - Loss of human life (heat stress, suicides) - Public safety from forest and range fires - Increased respiratory ailments - Increased disease caused by wildlife concentrations - Increased conflicts (water use, political, management) - Increased poverty in general - Population migrations - Loss of aesthetic values - Reduction or modification of recreational activities - Disruption of cultural belief systems - Reevaluation of social values - Dissatisfaction with government response - Perceptions of inequity in relief

Drought Type/Severity	Loss Type	Causes
		- Loss of cultural sites - Increased data/informational needs - Recognition of institutional restraints on water use

Source: National Drought Mitigation Center

4.3.6 Critical Facilities in Hazard Prone Areas

Generally, facilities/buildings themselves are not physically threatened by drought. However, critical infrastructure, particularly those systems that rely on water for operations, can be negatively affected by drought. If public water supplies are lost, this would in turn negatively impact the function of state and tribal government services. Ground water in Rolette County generally is not of high quality as it is laden with minerals and salts that affect the taste and use of ground water. Ground water in Rolette County is rainfall dependent for recharge and a drought may impact the ground water recharge. Thus, the water supplied by the All Seasons Water Users and Turtle Mountain Public Utilities is important to the county. All Seasons Water Users water source is the Northwest Area Water Supply which gets its water from Lake Sakakawea.

The North Dakota Water Resources in its January, 2017-2019 Water Development Report listed several projects that may receive partial funding from the State Water Resources to help mitigate the effects of drought. The project listed that affects Rolette County is the Northwest Area Water Supply. There are phases of this project still being constructed per the 2021-2023 Water Development report that impacts the All Season Water Users.

Source: North Dakota Water Resources, 2017-2019 Water Development Report, 2021, 2021-2023 Water Development Report

Figure 4.3.6C Active Water Permits

PERMIT	PRIORITY DATE	NAME	USE	STATUS
969	1962-02-15	DUNSEITH, CITY OF	Municipal	Perfected
1149	1964-02-13	ROLETTE, CITY OF	Municipal	Perfected
1185P	1927-10-01	ROLLA, CITY OF	Municipal	Perfected
1311	1965-07-28	FAUSKE, RUSSELL	Recreation	Perfected
1392	1966-09-10	N.D. GAME AND FISH DEPT.	Recreation	Perfected
1718	1970-06-22	ST. JOHN CHAPT. ISAAK WALTON LEAGUE	Recreation	Perfected
2252	1975-04-03	TURTLE MT. BAND CHIPPEWA INDIANS	Rural Water	Perfected
2469	1976-04-20	SLAUBAUGH, FLOYD & BARBARA	Irrigation	Perfected
2776	1977-03-14	MONGEON, JAMES R.	Irrigation	Perfected
2994	1977-11-15	MONGEON, JAMES R.	Irrigation	Perfected
3200	1979-09-07	NELSON, GARY L.	Irrigation	Perfected
3262	1980-05-14	ALL SEASONS WATER USERS DISTRICT	Rural Water	Perfected
3506	1981-10-09	TURTLE MT. BAND CHIPPEWA INDIANS	Rural Water	Perfected
4976	1996-01-24	INTERNATIONAL PEACE GARDEN	Rural Water	Conditionally Approved
5130	1997-05-14	SLAUBAUGH, LARRY AND CARLAN	Irrigation	Held In Abeyance

Figure 4.3.6C, Source: http://www.swc.nd.gov/info_edu/map_data_resources/waterpermits/

In addition to the importance of surface water supplies, ground water supplies can also be affected by drought, diminishing the water available from wells. Shallow wells may even dry up. Should a public water or sewer system be affected, the losses could be into the millions of dollars if equipment is damaged and outside water is shipped in. Individuals with

residential wells may also be impacted. Individual ground water users may have additional information regarding the vulnerabilities of their specific ground water systems. The levels at which specific areas begin to experience ground water impacts depend on the local ground soil and water conditions and the depth of the well.

4.3.7 Development in Identified Hazard Areas

Future development's greatest impact on the drought hazard would possibly be to ground water resources. New water and sewer systems or significant well and septic sites could use up more of the water available, particularly during periods of drought. Fortunately, public water systems are monitored by the North Dakota Department of Health, but individual wells and septic systems are not as strictly regulated. Therefore, future development could have an impact on the drought vulnerabilities.

4.3.8 Data Limitations and Other Key Documents

The data limitations related to the drought hazard include:

- Difficulties in pinpointing the start and end of drought periods
- Limitation in quantifying economic losses from drought and infestations
- Lack of a publicly available database listing historical USDA drought declarations and the associated losses

Other key documents include:

- Climatic and Hydrologic Aspects of the 1988-1992 Drought and the Effect on People and Resources of North Dakota, North Dakota State Water Resources, 1994.
- North Dakota Drought Response Plan
- North Dakota Emergency Operations Plan, Drought Overview and Checklist

4.4 Flood

Including Flash Floods, Fluctuating Lake Levels, Ground Water, Ice Jam, Riverine, and Surface Runoff

Frequency	Highly Likely	Nearly 100% probability in the next year
Impact	Critical	More than 50% of jurisdiction affected
Risk Class	A	Critical Risk Required prompt action Address via Mitigation and Contingency Plans
Seasonal Pattern	Late March to late April, throughout summer for flash flood	
Duration	1 week to 45 days	
Speed of Onset	Hours if flash flooding, days if seasonal spring flooding	

4.4.1 Description

Flooding is a natural hazard that is defined as an overflow of water on land not normally covered by water. The USGS (2010) defines a flood as any relatively high stream flow overtopping the natural or artificial banks in any reach of a stream. Floods occur for many reasons, such as long-lasting rainfall over a broad area, locally intense thunderstorm-generated rainfall, or rapid melting of a large snowpack with or without accompanying rainfall.

Flood hazards may come from a multitude of variables which affect the behavior of water on land surfaces and the pressure of the water. Floods will occur when the ground in frozen and/ or saturated with moisture and cannot absorb any further moisture. This moisture can come from several different sources and circumstances. One source is heavy snowpack which is affected by rapid warming trend as well as spring rain falling directly on the snowpack. In the spring often drainage culverts are frozen which prevent controlled drainage. Another source of flooding occurs when heavy rain falls in such a short time that the soil cannot absorb it. Flooding is also caused when heavy rain falls over a prolonged period and the ground becomes saturated and cannot absorb the additional moisture.

Flooding may occur from the overflow of rivers, creeks, drainage channels, streams, lakes, and other bodies of standing water. An incident may also be caused from the inundation of lowlands, the rise of ground water, and the temporary backup of sewer and storm water drainage systems. Flooding may also be the result of the failure of man-made flood control devices and facilities such as dams, dikes, levees, and storm water management systems.

Types of Flooding

A gradual flood is a slow developing event with a predictable source of water or moisture such as snow melt, slow rain, or a controlled dam release. These flood incidents can often be forecasted by the amount of moisture and time of occurrence which can be very closely calculated. Protective measures can usually be implemented in a timely manner to mitigate the potential damage and loss. Rapidly moving water only a few inches deep can lift people off their feet and with only one to two feet of water, automobiles can be swept away. The different types of flooding that occur in Rolette County amd TMBCI include:

- Flash Flooding
- Fluctuating Lake Levels
- Ground Water Flooding
- Ice Jam Flooding
- Riverine Flooding
- Surface Water Runoff/Overland Flooding

Flash Flood

"Flash flood**"** is a term widely used by flood experts and the general population. The National

Weather Service defines a flash flood as "*A rapid and extreme flow of high water into a normally dry area, or a rapid rise in a stream or creek above a predetermined flood level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). However, the actual time threshold may vary in different parts of the country. Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters.*" This type of flood happens with little warning giving communities and response organizations little time to prepare and react. Most flood deaths result from flash floods.

Flash floods are also characterized by a large volume of rain fall in a short period time which the soil cannot absorb and/or drainage systems (natural or man-made) cannot carry the volume of water away as quickly as it accumulates. Flash flooding also occurs when heavy rain falls over a prolonged period of time and the ground becomes too saturated to absorb the additional moisture fast enough. Dam failure, release of ice jams, and collapse of debris dams may also be factors causing flash floods. These incidents often occur rapidly with significant impacts. 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.

Fluctuating Lake Levels

Water levels in lakes can fluctuate short-term or seasonally with episodes of heavy rainfall that may cause high water levels for short periods of time. Lake levels can also fluctuate long-term or on a yearly basis with annual snowmelt that can result in higher water levels in the spring. Long-term lake level fluctuations are a less-recognized phenomenon that can cause high water and subsequent flooding problems lasting for years or even decades.

Some bodies of water are completely landlocked or have outlets that are inadequate for maintaining a balance between inflow and outflow. These lakes are commonly known as closed basins and are very susceptible to dramatic fluctuations in water levels during wet periods which may also fill normally dry locations with water. In a closed basin, surface water cannot flow naturally out of the basin as a river does (until a certain elevation is reached). Rolette County has numerous small, closed basins. Closed Basin Flooding is the primary cause of flood damages in Rolette County.

Ice Jams

Flooding may also result from ice jamming or blocking streams and rivers. Ice breaking up into pieces, called floes, move along with the flowing rivers or streams. The ice floes can jam at curves, where the channel narrows, and in spots where there is a collection of debris or structures. Ice jams create a temporary dam that causes water backup and overflow. Failure of the jam results in sudden downstream flooding.

Riverine Flooding

Riverine flooding originates from a body of water, typically a river, creek, or stream, as water levels rise onto normally dry land. Flooding will vary with different landforms, areas that are mostly flat will be covered with shallow, slower moving water for a longer period of time while an area that is hilly will happen quickly with deeper water and higher water velocities.

Surface Water Runoff or Overland Flooding/Sheet Flooding

If the amount of precipitation exceeds the rate that the soil can absorb water or how fast the water can evaporate, surface water runoff occurs. It also occurs when rainfall falls on impervious surfaces, such as roadways and other paved areas. Overland flooding occurs as water flows across country, not following a defined drainage system. The lack of land relief or a drainage system taking in water beyond its capacity may cause overland flooding and it is generally unpredictable. Culverts may become plugged by debris or ice, or excessive water may exceed the capacity of the culvert. This will make the roads act as a dam resulting in water back up behind the road until the water current either over tops the

road or causes erosion around the culvert, both compromising the integrity of that road. Unrestricted flows move in broad sheets of water often causing sheet erosion. Damage that may occur includes damages to roads, crops, electrical and telephone systems.

Groundwater Flooding

Groundwater levels fluctuate from season to season and from year to year. Excessive groundwater may flood basements and crawlspaces but never reach the Earth's surface. Basement flooding can cause extensive damage to homes and businesses. Often this type of flooding occurs during or following lengthy periods of heavy rainfall or melting of a heavy snowpack. All of Rolette County and the TMBCI Reservation is subject to ground water flooding. Numerous rural areas within Rolette County have high water tables which cause ground water flooding.

Table 4.4.1.1 Rolette County Flood Occurrences

Historically in Rolette County and on the TMBCI Reservation flash floods are usually caused by severe thunderstorms producing heavy rains along with a notable amount of snowpack or by slow moving thunderstorms.

Flash Flood Events from 1/1/2000 to 9/30/2022

Location	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:						0	0	213.00K	0.00K
DUNSEITH	06/26/2005	20:30	CST	Flash Flood		0	0	33.00K	0.00K
BELCOURT	07/07/2005	22:20	CST	Flash Flood		0	0	0.00K	0.00K
DUNSEITH	07/10/2005	20:00	CST	Flash Flood	12	0	0	0.00K	0.00K
NANSON	07/11/2005	01:15	CST	Flash Flood	8	0	0	0.00K	0.00K
DUNSEITH	06/24/2007	23:45	CST-6	Flash Flood		0	0	150.00K	0.00K
ROLETTE	08/21/2008	20:15	CST-6	Flash Flood		0	0	20.00K	0.00K
DUNSEITH	06/18/2009	19:00	CST-6	Flash Flood		0	0	10.00K	0.00K
Totals:						0	0	213.00K	0.00K

Source: http://www.ncdc.noaa.gov/stormevents/2017

Flood Events from 1/1/2000 to 9/30/2022

Location	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:						0	0	450.00K	0.00K
SAN HAVEN	03/06/2009	00:00	CST-6	Flood		0	0	105.00K	0.00K
SAN HAVEN	04/01/2009	00:00	CST-6	Flood		0	0	145.00K	0.00K
BELCOURT	02/15/2011	00:00	CST-6	Flood		0	0	200.00K	0.00K
Totals:						0	0	450.00K	0.00K

Source: http://www.ncdc.noaa.gov/stormevents/2017

The extent of flooding experienced by the Turtle Mountain Band of Chippewa Indians has varied over the years. Minor, localized flooding (affecting primarily low-lying areas adjacent to Ox Creek) occurs rather rapidly due to rapid melting ice water and the saturation level of grounds nearby. As a result of the flooding in February of 2011, the Quentin N. Burdick Health Care Facility had to be sandbagged to prevent damage to the facility. A nearby TM Dialysis building was flooded and sustained structural damage which had to be repaired by both tribal and federal budget funds.

The probability of flooding on TMBCI lands is likely because the grade of the creek and the inadequacy of the culverts along the creek bed; flooding is a yearly experience. Winter weather can cause the culverts to freeze and not function properly. Vegetation in the area that has not been regularly cleared, including beaver dams, can impede stream flow. Throughout Ox Creek, there are several storm water and snowmelt drainpipes that empty and add to the volume of water.

Past Occurrences

Table 18: Flooding Events

Location	Date	Property Damage
Rolette County	4/12/1979	$1,282,051.28
Rolette County	3/1/1995	0
Belcourt	5/4/1999	0
Rolette	5/4/1999	0
Dunseith	6/26/2005	$33,000
Belcourt	7/7/2005	0
Dunseith	7/10/2005	0
Nanson	7/11/2005	0
Dunseith	6/24/2007	$150,000
Rolette	8/21/2008	$2,000
San Haven	3/6/2009	$10,500
Rolette County	4/1/2009	$145,000
Dunseith	6/18/2009	$10,000
Belcourt	2/15/2011	$1,543,795 (approximate)
Total		**$3,176,346.28**

Data: NCDC, SHELDUS, TM Tribal Government

February 15, 2011

Turtle Mountain Band of Chippewa officials battled flooding in Belcourt. Water from the swollen Ox Creek flowed through the center of town Wednesday, and officials used sandbags to protect buildings including a hospital. Sandbaggers worked tirelessly throughout 2-3 days keeping the rushing water at bay. Kidney dialysis patients were transferred to Minot due to flooding of the dialysis center on the reservation. U.S. Highway 281/5 through town was closed to traffic.

4.4.2 Geographic Location

Rolette County and the TMBCI Reservation is in North Dakota's Drift Prairie Region with the Turtle Mountains as a sub-region in the north and western part of the county. The Drift Prairie is located between the Red River Valley to the east and the Missouri Plateau to the west.

The Drift Prairie region of the county has an undeveloped or interior drainage system with the main drainage going to lakes or potholes. Problems arise when a lake or pothole fills and overflows to other lakes or potholes. This results in overland flooding which can be

damaging to roads and farmland. There are some un-named small creeks on the drift prairie and man-made drainage systems that remove excess water from the land. Rolette County is in the Red River drainage basin, with drainage mainly westward toward the Souris River or southward toward the Devils Lake Basin. Major rivers include Willow Creek, Wolf Creek, and Ox Creek. The Devils Lake Basin is a non-contributing sub-basin within the Red River drainage system. The Devils Lake Basin became a closed basin after the last continental ice sheets receded and southerly drainage to the Sheyenne River ceased. The drainage system of the basin is formed by chains of waterways and connecting lakes, with the majority of the water ultimately flowing into Devils Lake.

The Rolla-St. John and Mylo areas in the Drift Prairie physiologic region of Rolette County obtain water from glacial, till, sand, and gravel lenses with the till, and from a sandy zone in the upper part of the Pierre-shale of Late Cretaceous age which is the bedrock of the area.
Source: http://www.swc.nd.gov/info_edu/reports

The dams in Rolette County are made to store excess water that flows out of the Turtle Mountains and the Drift Prairie into the Souris River Valley or towards Devils Lake. As the water flows from the Turtle Mountains which has a steeper gradient onto the lesser gradient of the Drift Prairie, flooding may result.

Dams in Rolette County Table 4.1.1.2

Structure Name	Owner	Location
Azure Dam	City of Belcourt	Lake Upsilon SW
Belcourt Lake Dam	Bureau of Indian Affairs	North of Belcourt
Charbonneau Dam	City of St. John	St. John
Gordon Lake Dam	Bureau of Indian Affairs	North of Belcourt
Wakopa Dam	North Dakota Game and Fish Department	Carpenter Lake

The type and magnitude of flooding varies from year to year. In Rolette County and on the TMBCI Reservation flooding most commonly occurs in the springtime, although a flood can happen at any time when the conditions are right. The spring flood danger period is generally from late March through May. The type of flooding incident is dependent on such factors as characteristics of the snow cover, soil moisture conditions, frost depth, winter temperatures, temperatures during spring melt, spring precipitation, and the extent of ice jams. A wet fall, early freeze up with saturated ground at the time of freezing, heavy winter precipitation, and warm rains during and after spring thaw add to the seriousness and type of the spring flooding situation.

4.4.3 Flood Damages

History has shown, essentially all jurisdictions in Rolette County and on the TMBCI Reservation are at risk from flood damages. The damages can be to private property such as homes, businesses, and utility infrastructure, public property such as government owned facilities, roads, and infrastructure, and the economy through agricultural and business disruption losses. These losses can vary from flood to flood and city to city.

Flooding disasters impact a community in many ways secondary to closed roads. Many times, social activities are cancelled, and travel needs to be restricted. Floods change the natural environment and hydrology of the affected area which may essentially be beneficial to the natural processes within a floodplain and can aid riparian areas by filling the prairie potholes and lakes with water.

All jurisdictions in Rolette County and on the TMBCI Reservation are at risk from flood deaths even though none have occurred in recent years. According to the National Weather Service, an average of 93 people died each year from floods, based on the 30-year history from 1980-2009. According to state disaster reports, a total of 31 people have died from floods in North Dakota from 1993 to May 2013 leading to an average of nearly two deaths per year in the state from flood. (Source: North Dakota Hazard Mitigation Plan, 2014)

Public Infrastructure Flood Damages

There have been four Presidential Disaster Declarations due to flooding since 2009. An overview of damage statistics are shown in Table 4.4.3.1.

Table 4.4.3.1 Flood Public Infrastructure Damages

DISASTER NUMBER	YEAR	NUMBER OF LOCATIONS	COST OF DAMAGES
FEMA-1829-DR-ND	2009	108	$1,036,735.67
FEMA-1907-DR-ND	2010	30	$298,000.06
FEMA-1981-DR-ND	2011	39	$458,638.14
FEMA-4323-DR-ND	2017		

Source: ND Department of Emergency Services

Most public infrastructure damages relate to roads, but they may also account for government or public owned buildings and properties that may be damaged in a flood. Critical structures (sewer, water, pump stations) located throughout the communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John have been and will continue to be affected by ground saturation and overland flooding in low lying areas. All county, township, tribal, BIA, city, and state highways in Rolette County and TMBCI are vulnerable to the overland and closed basin flood damages that predominantly occur in Rolette County when there is a flash flood or flooding event.

Flood Property Losses

When comparing loss of life and property damages floods are second only to tornadoes as the top natural disaster. In the United States, flood damages totaled $8.41 billion in 2011 alone with 113 flood related fatalities. (Live Science, 2012)

Floods can affect any structure or equipment in Rolette County and on the TMBCI Reservation; both rural and developed areas are prone to damages depending on where rain may occur. Flood events may also cut off customer access to businesses as well as close businesses for repairs. The closure of key roadways and rail lines and equipment may additionally have an impact on commerce.

Flood Crop Losses

Flooding affects the agricultural areas of Rolette County by reducing profits and delaying the beginning of the planting season. When an extreme flood event occurs over a wide area, the economy of the affected area could be seriously affected.

Dirty floodwaters often contaminate or destroy everything they touch especially flood waters that carry toxic chemicals, many of them agricultural products. Road washouts often disrupt economic activities when farm to market roads are damaged further impacting the agricultural community.

Table 4.4.3.2 Flood-Related Crop Insurance Payments Analysis 2012

Value of Crops-2007 Census of Agriculture	Crop Insurance Paid2003-2012	Annualized Crop Insurance Paid	Annualized Estimated Crop Losses	Crop Loss Ratio (Annualized Estimated Crop Losses/Value of Crops
$52,837,000	$33,999,846	$3,399,984.60	$3,820,207.42	7.2%

Source: State of North Dakota Multi-Hazard Mitigation Plan

In 2016, North Dakota farmers insured 99% of their eligible acres with Federal Crop Insurance. Interviews with the Multi-Hazard Mitigation Planning Committee confirm that Rolette County would be like the rest of the state. Therefore, of Rolette County's 365,520 acres of cropland, 361,864 acres would be insured.

Source: https://www.rainhail.com/pdf

4.4.4 National Flood Insurance Program

The Federal Disaster Protection Act of 1973 requires state and local government to participate in the National Flood Insurance Program (NFIP) as a condition to the receipt of any federal loan or grant for construction projects in flood prone areas.

The NFIP is an insurance program that requires communities to adopt and enforce floodplain management ordinances for property owners to purchase federally backed insurance. These ordinances provide some measure of protection for new construction and significant renovations in the floodplain. Unrestricted development may occur in areas prone to flooding but not mapped and in those communities that have identified flood hazard areas but do not participate in the NFIP and lack floodplain management ordinances.

Community Status Book Report							
NORTH DAKOTA							
Communities Participating in the National Flood Program							
CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
380101	Rolette County	Rolette		07/06/10	NSFHA	07/06/10	No
380103#	Dunseith,City of	Rolette	01/23/74	07/05/10	07/06/10	02/19/86	No
380104#	Rolette,City of	Rolette	03/08/74	07/06/10	NSFHA	07/15/85	No
380105#	Rolla,City of	Rolette	06/14/74	07/06/10	NSFHA	01/30/84	No
380106#	St. John, City of	Rolette	12/08/74	07/06/10	07/06/10	10/01/06	No
380714#	TMBCI	Rolette		07/06/10	07/06/10	07/06/10	Yes

Source: www.fema.gov/cis/ND.html

According to the National Flood Insurance Program, "to identify a community's flood risk, FEMA conducts a Flood Insurance Study. The study includes statistical data for river flow, storm tides, hydrologic/hydraulic analyses, and rainfall and topographic surveys. FEMA uses this data to create the flood hazard maps that outline different flood risk areas" (National Flood Insurance Program, 2010). FEMA conducted a flood insurance study (FIS) in July of 2010 for the Turtle Mountain Reservation, FIS numbers 38079CIND0A, 38079C0234C, 38079C0251C, 38079C0253C.

Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special-purpose floodplain ordinances. Flood insurance was created to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. By implementing sound floodplain management requirements and asking property owners to purchase flood insurance, damage caused by flooding on the Turtle Mountain Band of Chippewa Indians Reservation can be greatly reduced. Tribal council and the Tribe's attorney are reviewing the flood plain ordinance.

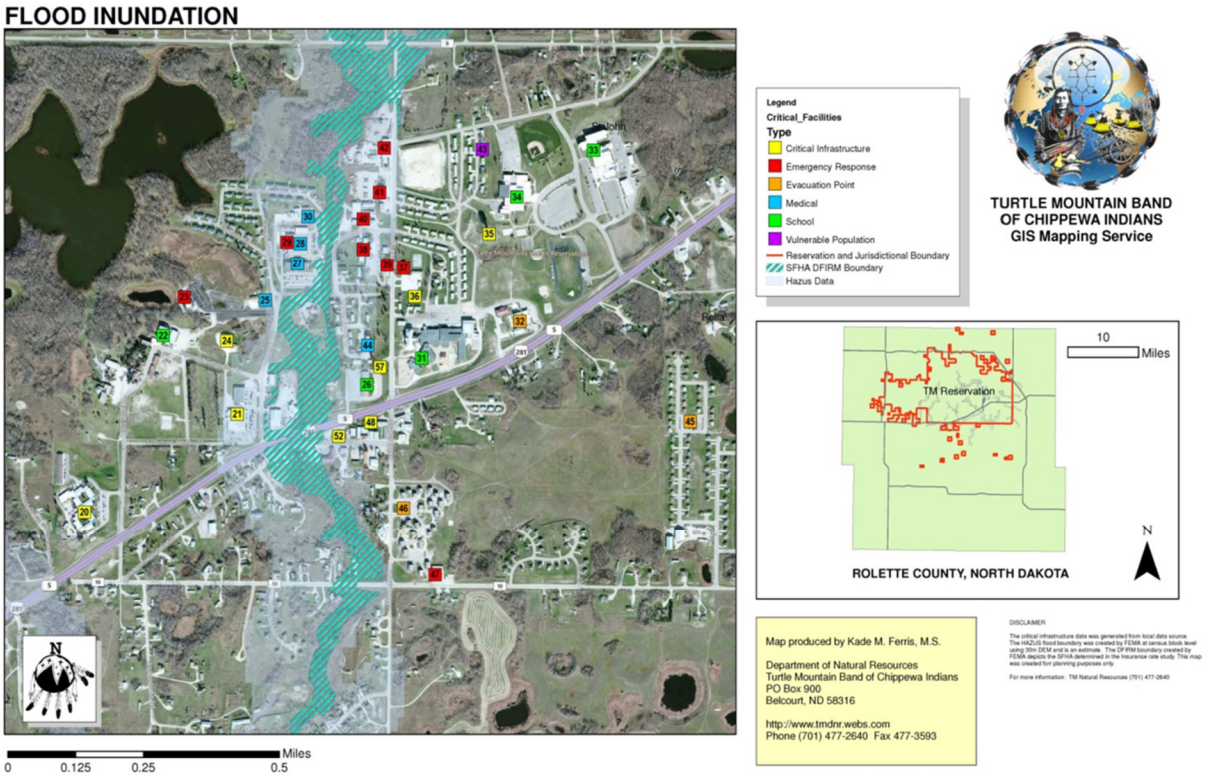
The area of high concern is that area which has been flooded in the past nearby or adjacent to Ox Creek which creates an overflow situation that begins in the northern area near Fish Lake and subsequently flows south into Ox Creek. This creek runs north and south and through the downtown area of Belcourt where critical facilities, such as the Quentin N.

Burdick Memorial Healthcare Facility, are located. Smaller tributaries flow into Ox Creek, some of which can put community structures at risk.

Although TMBCI is a participating community in NFIP since July 7, 2010, there are currently no policyholders on tribal lands. The current grant programs covered under NFIP are not accessible to the tribal residents or businesses residing in this special flood hazard area without an active flood insurance policy. Because of the lack of policies in force, data on repetitive flood losses is not available. An emphasis on floodplain management, including a dedicated position and training for said position, would serve to decrease the vulnerability of the TMBCI community to flooding.

Flood Insurance Rate Maps (FIRMs) were produced, and flood-prone areas were identified. The map below shows special flood hazard areas (SFHA) with an aerial photo base layer. FEMA defines an SFHA as "the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year" (2010).

There are no NFIP repetitive loss properties in Rolette County including the TMBCI Reservation.

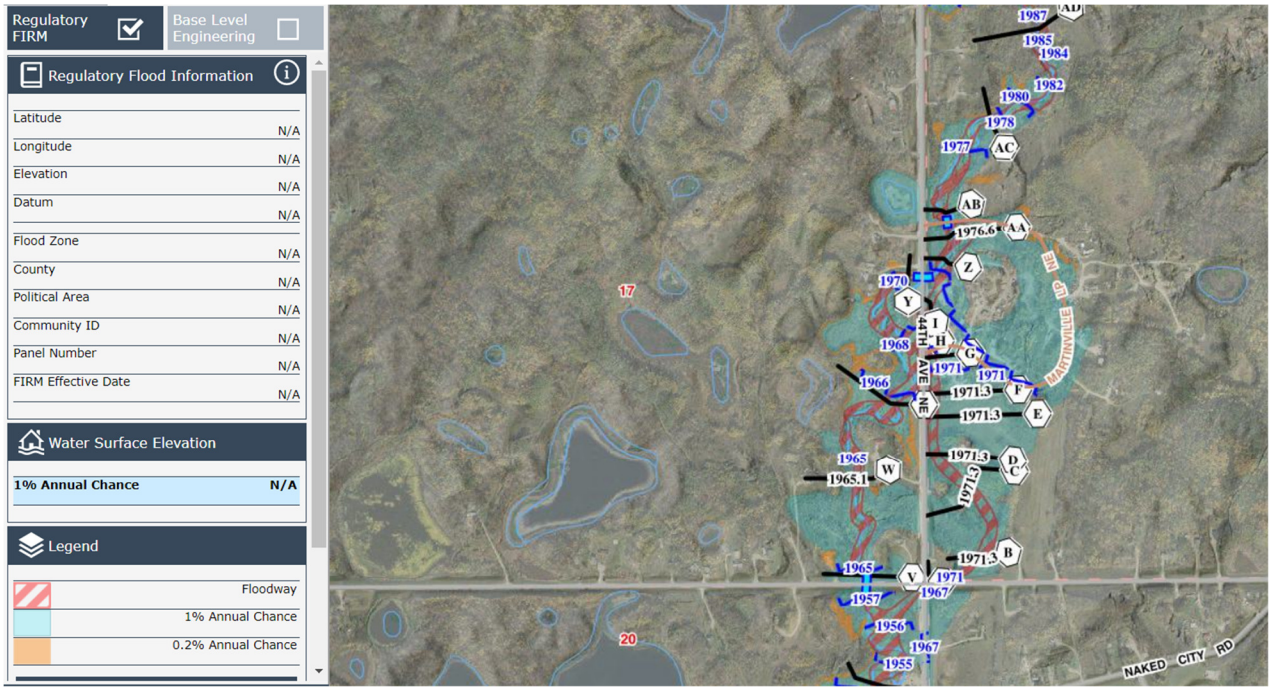


National Centers for Environmental Information Storm Events Database

The Federal Emergency Management Agency and the North Dakota Water Resources initiated a large-scale (32 eastern North Dakota counties including Rolette County and the TMBCI) base-level engineering project. The project provided high quality, current flood risk

assessment of all streams and tributaries. It has been determined that Belcourt, St. John, and Dunseith have flood zones; Mylo, Rolla, and Rolette do not have flood zones. The map of Belcourt is the map developed through the base-level engineering project. It is approximately 10 years newer than the National Centers for Environmental Information Storm Events Database map previously listed. The TMBCI/Rolette County Planning Team hopes to leverage data to help make informed, risk-based decisions for building safer, more resilient communities.

Belcourt Flood Zone Map



Dunseith Flood Zone Map

St. John Flood Zone Map

4.4.5 Probability and Magnitude

Table 4.4.5.1 is a graphical representation of the range of events that can occur within the flood hazard. Generally, the more frequent events have a low impact, and the high impact events occur less frequently. All types of events may not appear in the figure, but the information presented can assist when comparing hazards (high frequency, low impact events versus low frequency, high impact events) or when assessing the range of magnitudes possible from the flood hazard. The beginning of this risk assessment chapter provides additional information on frequency and impact ratings.

Table 4.4.5.1 Hazard Frequency and Impact Ranges

Frequency	*No regional history*					
	No local history				Event Similar to 1997 Flood	
	100 years					
	50 years	Waterways Reaching Bankful	Flood with Some Road Damages	Flood Impacting Communities		
	Annually					
		Likely	*Highly Likely*	*Critical*	*Catastrophic*	
		Impact				

Considering the extensive history of flooding in Rolette County, this history will be used to express the probability and magnitude of floods in the state.

4.4.6 Risk Assessment

Vulnerability Overview

As history has shown, Rolette County and the TMBCI Reservation are at risk to suffer from flood damages. The damages can be to private property such as homes, businesses, utility infrastructure, public property (such as government owned facilities, roads, and infrastructure), and the economy through agricultural and business disruption losses.

Slow-rising riverine floods usually have a fair amount of warning time and allow people to evacuate from the hazard areas while flash floods and ice jam floods may not have as lengthy of lead times. Heavy rains can quickly inundate areas not typically prone to flooding, roads can washout and become a hazard to vehicle occupants, normally dry channels may fill up with rushing waters, and ice jam breakups can cause rapidly rising waters along rivers, creeks, and streams.

Flooding regularly affects the agricultural areas of Rolette County. Should an extreme flood event occur over a wide area, the economy of the involved area could be seriously affected. Flood events can cut off customer access to businesses as well as close businesses for extended periods of time.

Dirty floodwaters often contaminate or destroy everything they touch. Restricted travel could disrupt social values as activities are cancelled and travel is limited. Floods are an important part of the health of rivers and streams and therefore should not significantly affect ecological values, unless large quantities of toxins are released into the floodwaters. Maintaining and restoring natural systems help mitigate the impact of flood events on the built environment. Floods change the natural environment and hydrology of the affected area.

Rolette County is in two geographical regions of North Dakota. The eastern and southern part of the county is located on the Drift Prairie and the northwestern part of the county is located on the Turtle Mountains. The land on the Drift Prairie and in the Turtle Mountains has an undeveloped or interior drainage system. The main drainage is to lakes or potholes. Problems arise when a lake or pothole fills and overflows to another lake or pothole. This results in overland flooding which can be damaging to roads and farm land. There are some un-named small creeks on the drift prairie and man-made drainage systems that remove excess water from the land. The Souris River which flows northward through neighboring Bottineau County has tributaries that originate in Rolette County, namely Willow Creek, Wolf Creek, and Ox Creek. These rivers originate in the Turtle Mountains and flow south and southwestward to the Souris River. The dams in Rolette County are placed to store excess water that flows out of the Turtle Mountains onto the Drift Prairie. As the water flows through the Turtle Mountains, it flows rapidly, as it enters the Drift Prairie in southern Rolette County and Bottineau County, it reaches a lesser gradient slowing it down causing flooding of farmland further downstream. However, the county rural areas do have a low to moderate vulnerability.

Belcourt is one of the most vulnerable cities to flooding. Flood waters would flow through the middle of the city. Affected at Belcourt would be the IHS Hospital, a major highway (US 281/ND5) BIA Road #7, the business district, Belcourt Fire Hall, BIA Law Enforcement Building, and about 200 homes. Rural homes in the vicinity of Belcourt would also be affected. It is estimated about 450 people would be affected. As the water would flow down the gradient of the Turtle Mountains, it would flow out onto the Drift Prairie town of Rolette via Ox Creek affecting the eastern part of the city and Wolf Creek affecting the northeastern part of the city which would include about 100 homes and about 250 people in the city and the vicinity. Also affected would be the school, nursing home, and other critical infrastructure. St. John would be affected on the northeast corner of the city. Officials are striving to improve drainage of this area. The extreme western part of Dunseith would be affected. Mylo and Rolla have little or no risk from flooding.

Table 4.1.5A Population living within Rolette County

Jurisdiction	Population (2020 Census)
Rolette County	12,187
Belcourt	1,510
Rolla	1,223
Dunseith	632
Rolette	484
St. John	322
Mylo	21

Source: https://www.census.gov/

Critical Facilities in Hazard Prone Areas

Critical facilities not only include government owned property but also emergency response agencies. Damage to public water, sewer systems, transportation networks, electric infrastructure, utilities, and flood control facilities can hinder the ability of the government to deliver services. Other critical facilities that support government services and private utilities may also be in flood hazard areas. Damages to such facilities may seriously disrupt emergency and other essential services.

Drinking water, surface water, and wastewater services are provided by a variety of entities throughout the state. During flood events, the infrastructure that supports the water service providers can be damaged and sometimes destroyed. Well contamination may also occur during significant floods. Sewer systems such as municipal facilities and individual septic systems frequently suffer damages.

Road and culvert washouts are common with heavy runoff. Federal, state, county, city, and township governments all have a stake in protecting roads from flood damage. Road networks often traverse floodplain and floodway areas. Bridges are key points of concern during flood events because they are important links in road networks and provide watercourse crossings. Rapidly moving higher than average waters can cause scouring,

removing rocks and sand from around the bridge abutments or piers of the bridge compromising the integrity of the structure making it dangerous to use. Bridges can also be obstructions in watercourses, inhibiting the flow of water during flood events.

4.4.7 Mitigation of Flood Damages

Flood mitigation is used to manage and control flood water movement and/or the damages caused by uncontrolled water, such as redirecting overland flooding and run off rather than trying to prevent floods altogether. The analysis of flood damage reduction needs, and alternative corrective measures recognizes the nature of the areas subject to flooding, number of people affected, present and projected annual flood damages, probabilities of flooding, and the duration and depth of flooding. Both structural and nonstructural approaches for reducing or preventing flood damages require evaluation.
Structural measures are considered essential to the economic and social well-being of those urban areas where existing damages are high, and many people are affected by recurring floods. Structural measures are assumed to be designed to provide protection for urban areas against floods having a one- percent chance of being exceeded during any single year (100-year flood). The regulation of floodplain land use and development in areas subject to urban growth is viewed as an integral element in any overall urban flood damage reduction program.

A variety of nonstructural measures, including channel modification, developing drains to remove water from low lying to properly drain and distribute flood water are considered appropriate elements for reducing flood damages. The installation of home drainage systems with a sump pump can effectively reduce the water table around a home and eliminate or reduce basement flooding. Measures for rural flood damage reductions are assumed to be designed to provide protection against floods having a ten-percent chance of being equaled or exceeded during a single year. A much higher degree of protection for rural areas is usually not economically feasible.

Local government often works with state and federal agencies to jointly plan and implement large mitigation projects. Mitigation events must consider the effects that the project may have on not only the community but other communities both up and down stream of the proposed project. The Rolette County Water Resource District is currently working with the North Dakota Water Resources to implement water management/mitigation projects for water management.

Other key documents related to the flood hazard:

- 2011 Flood Report: Response and Recovery
- North Dakota Emergency Operations Plan, Flood Annex
- North Dakota Water Development Reports
- North Dakota NFIP Map Modernization Plan
- Interagency Hazard Mitigation Team Reports

4.5 Hazardous Material Release

Frequency	Possible	
Impact	Limited	
Risk Class	B	
Seasonal Pattern	None	
Duration	Averages 1 to 6 hours	
Speed of Onset	Minimal warning	

4.5.1 Description

Hazardous materials are any substances posing an unreasonable risk to safety and health, the environment, and the property of citizens. The term "hazardous materials" envelops a vast array of products, from the relatively innocuous types, such as creosote, to highly toxic or poisonous types, such as anhydrous ammonia and phosgene gas. The severity of potential hazards caused by these materials is varied, but the primary reason for the 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 and poison inhalation (Class 6)
- Radioactive materials (Class 7)
- Corrosive substances (Class 8)
- Miscellaneous hazardous materials/products, substances, or organisms (Class 9)

Hazardous material incidents are categorized as uncontrolled releases occurring during transportation (truck or pipeline) or at a fixed source such as a manufacturing or storage facility. Accidental releases may be due to equipment failure, human error, or a natural or man-made hazard event. Although the listed hazardous materials are classified essentially the same in both transportation and fixed facility incidents, the U.S. Department of Transportation is responsible for determining hazardous materials associated with transportation, including pipelines, and the U.S. Environmental Protection Agency (EPA) determines which materials are considered hazardous in fixed facility releases.

Generally, with a fixed facility, the hazards are pre-identified, and the facility is required by law to prepare a risk management plan and provide a copy to the local emergency planning committee (LEPC) and local fire departments.

Fixed facilities housing hazardous substances in Rolette County include the usual facilities within communities such as swimming pools, gas stations, and supply stores containing substances such as fuel, farm chemicals, propane, fuel oil, paint, and small amounts of chlorine.

Hazardous materials releases often are viewed in a worst-case scenario. Some have resulted in the loss of several lives and contamination of soils, rivers, lakes, streams, underground water supplies, and fish and wildlife habitat; however, most incidents involve small spills and releases requiring little response or recovery action. The problem for decision-makers at all levels of government is to create a safe system for the use, storage, and transportation of hazardous materials while expanding the economic viability.

A hazardous material release may also occur due to a transportation accident. The most likely locations for a transportation-related hazardous material release are along the primary federal and state highways. Another hazardous material transporter is the railroad.

Fixed Facility Locations

In 2022, there were 34 Tier II reporting facilities housing or using hazardous chemicals in Rolette County identified by the Community Right to Know Act. Table 4.5.1A lists all Tier II reporting facilities in Rolette County. The facilities must maintain a material safety data sheet and submit the list of chemicals to the North Dakota Department of Emergency Services, Hazardous Chemicals Preparedness and Response Program, the Local Emergency Planning Committee (LEPC) and local fire departments. The typical facilities reporting are: bulk fuel plants, anhydrous ammonia plants, propane plants, and agricultural supply plants.

Table 4.5.1.A Hazardous Materials (Tier II) Facilities* (SEHS= Storage Of Extremely Hazardous Substances)

Facility Name	Address	City	State	SEHS
JOC Bulk Plant	3950 Hwy 66	Rolette	ND	NO
JOC Station	507 1st Ave	Rolette	ND	NO
JOC Warehouse	507 1st Ave	Rolette	ND	NO
Turtle Mountain Communication - Rolla	114 1st ST SE	Rolla	ND	NO
Turtle Mountain Communication - BIA 4	4393 BIA RD 4	Belcourt	ND	NO
Turtle Mountain Communication - BIA 11	9497 County RD 15	Belcourt	ND	NO
Turtle Mountain Communication - St. John	103 Church ST	St. John	ND	NO
Turtle Mountain Communication - Rolette	403 1st Ave West	Rolette	ND	NO
Turtle Mountain Communication - 300-1	10222 35th ST NE	Dunseith	ND	NO
Legacy Cooperative Rolette Propane Facility	201 Airport RD	Rolette	ND	NO
Rolette Agronomy	60 Main ST	Rolette	ND	NO
Agate Anhydrous Ammonia and Bulk Fuel Plants	5389 83 H ST	Agate	ND	NO
Rolla Bulk Fuel Plant	203 Front ST S	Rolla	ND	NO
Rolette Elevator Propane Plant	108 State ST	Rolette	ND	NO
R&O Warehouse	206 Main ST	Rolette	ND	NO
Legacy Cooperative Rolette Bulk Fuel Plant	4th Ave	Rolette	ND	NO
Dunseith Indian Day school	2994 99th ST NE	Dunseith	ND	NO
Rolla Agronomy	9934 Hwy 30	Rolla	ND	NO
Rolette 115kV Substation	8694 34th Ave NE	Rolette	ND	NO
Dunseith Substation	2847 Hwy 5	Dunseith	ND	NO
Kelvin Substation	10575 Hwy 3	Dunseith	ND	NO

Facility Name	Address	City	State	SEHS
Rolette Substation	8708 34th Ave NW	Rolette	ND	NO
Turtle Mountain Substation	9797 36th Ave NE	Dunseith	ND	NO
Wolf Creek Substation	9570 42nd Ave NE	Belcourt	ND	NO
Thorne 115kV Substation	9501 35th Ave NE	Dunseith	ND	NO
Wilbur-Ellis Corporation-Rolla	10124 County RD 23	Rolla	ND	NO
Bill's Service	19 Main Ave West	Rolla	ND	NO
Dales Cash Supply	612 Main ST S	Dunseith	ND	NO
NDDOT Rolla	113 First Ave, NE	Rolla	ND	NO
Rolla Grain Elevator	116 Front ST S	Rolla	ND	NO
Turtle Mountain Communication - Dunseith	112 1st ST SE	Dunseith	ND	NO
Rolla Oil Co. Bulk Plant	Highway 30 S	Rolla	ND	NO
Rolla Propane Facility	9855 50th Ave ND	Rolla	ND	NO
Hwy 3 Anhydrous Ammonia Facility	7884 Hwy 3, 7884 29th Ave NE	Willow City	ND	NO
Harris Oil	4576 Highway 281	Belcourt	ND	NO

*The local locations of the Tier II facilities are on file at the Rolette County Emergency Management Office. Source: ND Department of Emergency Services

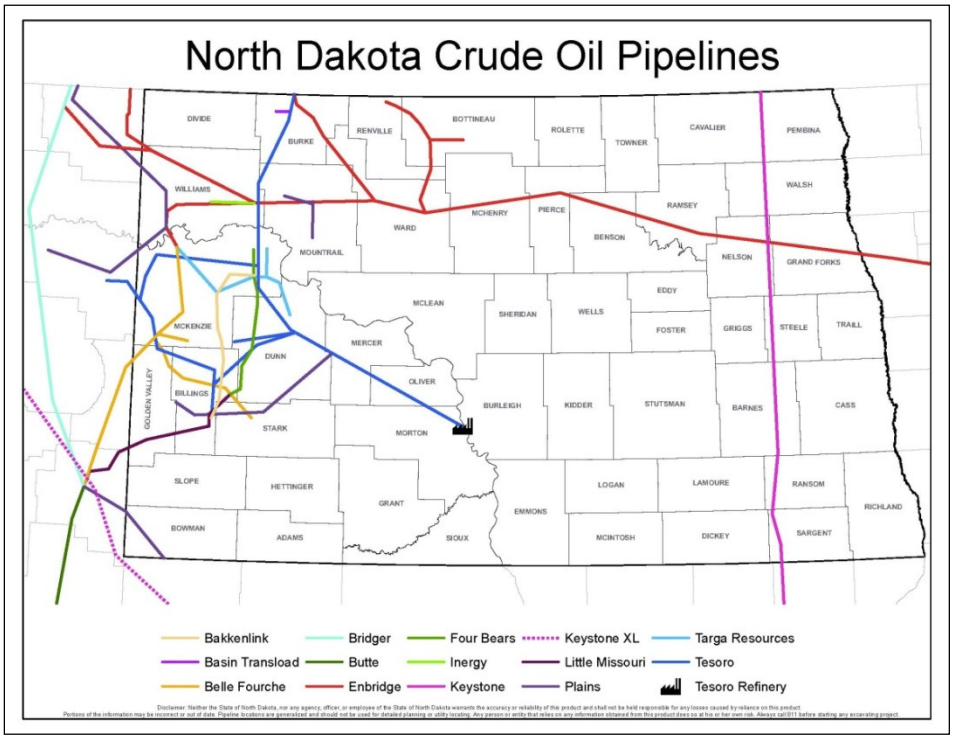
In 2022, there were seven facilities housing extremely hazardous chemicals in Rolette County. These facilities are required under Occupational Safety and Health Administration regulations to maintain the material safety data sheets and report the chemical quantities that equal or exceed either 500 pounds or the threshold planning quantity.

4.5.2 Pipelines, Geographic Location

According to the North Dakota Pipeline Authority, none of the Keystone Pipeline, which carries crude oil, runs through Rolette County. The Keystone Pipeline enters the state the Canadian border at the corners of Cavalier and Pembina County and exits the Southwest corner of Sargent County into South Dakota (Figure 4.5.2A). No petroleum

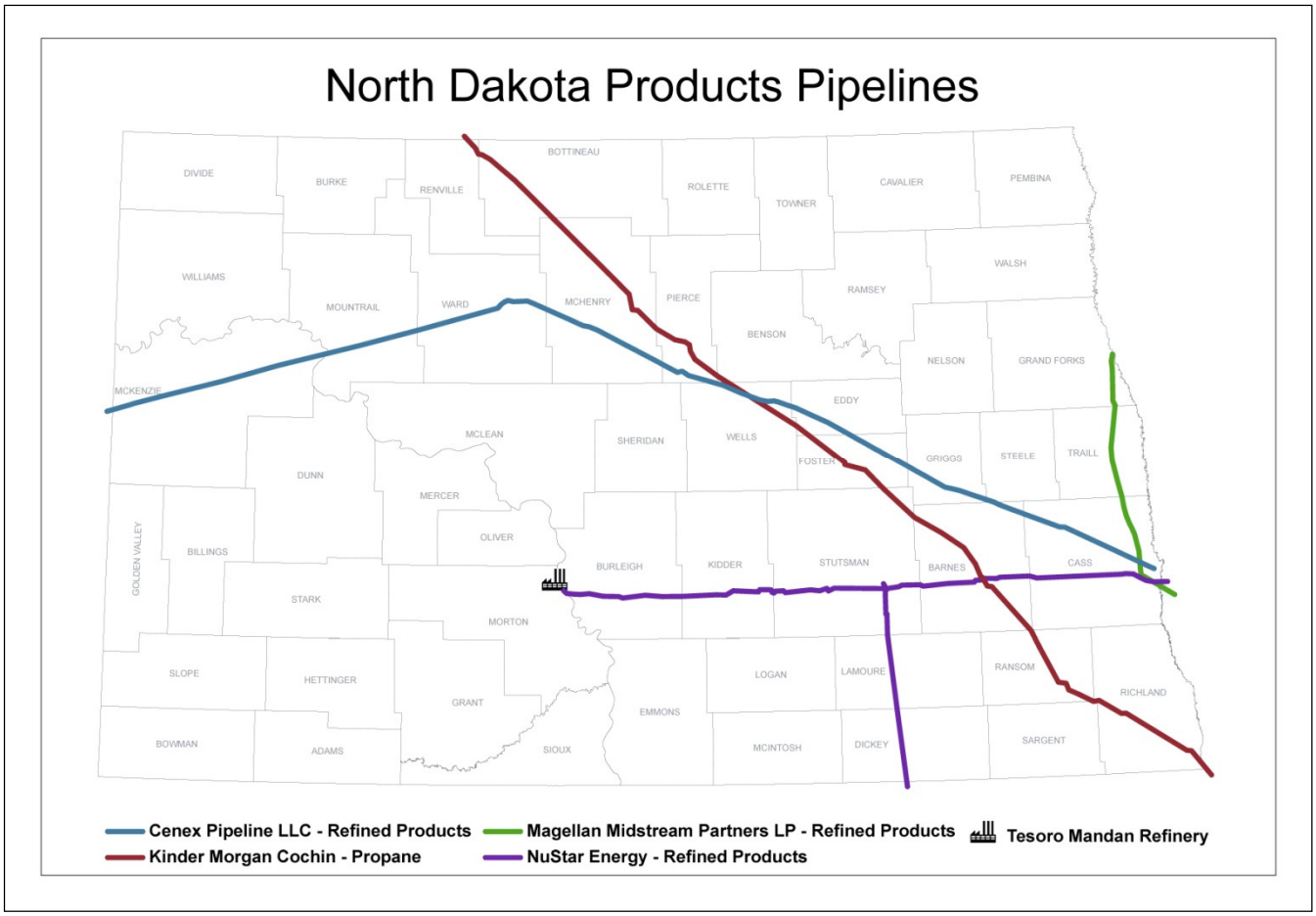
products such as gasoline or natural gas lines travel through Rolette County (Figure 4.5.2B).

Figure 4.5.2A North Dakota Crude Oil Pipeline Routes



Source: ND Pipeline Authority, *DAPL was added to the map.

Figure 4.5.2C, North Dakota Products Pipelines, Source: ND Pipeline Authority



4.5.3 Previous Occurrences

From 1992 to 2022, there were 31 Environmental Incident Reports filed with the State of North Dakota Department of Environmental Equality for Rolette County. The largest spill involved 800 gallons of unleaded gasoline on 2/28/07; with most spills involving fuel oil, hydraulic fluid or diesel fuel.
Source: North Dakota Department of Environmental Quality

Past Occurrences on Turtle Mountain Band of Chippewa Indians Reservation

Though there were 2 different incidents that stood out as hazardous materials incidents on the reservation, no further information could be found. These incidents are listed below:

- ~1996 Turtle Mountain Manufacturing Building. Unknown chemicals spilled.
- 2004 Uniband Inc. Unknown chemicals spilled.

However, a search with the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration[2] revealed the following incident:

- On June 26th, 2001 [sic] 1940 hours, a Ferrellgas transport was off-loading propane at Belcourt oil on Highway 5 east of Belcourt, North Dakota 58316- our employee was filling customer 18,000-gallon storage tank. The release occurred when driver had off-loaded 20% into storage tank. 90 gallons of propane was released from the liquid fill value on the storage tank. Our employee stopped the delivery and called security. The Belcourt Fire Department arrived and sprayed the vapor. The fire department felt it was safe to unhook the hose from the truck and our driver moved the truck to another storage tank & off loaded the remaining propane on transport. Employee then went back and off-loaded the 18,000-gallon storage tank. A contractor hired by Skydancer Casino began making repairs to the liquid fill value on storage tank. No injuries, road closures, evacuations. Source: https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/

U.S. Department of Transportation's Pipeline & Hazardous Materials Safety Administration

Reports from the U.S. Department of Transportation's Pipeline & Hazardous Materials

Safety Administration's provides detail and incident history for the pipeline systems between 2003 and February 2013. Significant incidents are those incidents reported by pipeline operators with any of the following conditions met: 1) fatality or injury requiring in-patient hospitalization; 2) $50,000 or more in costs, measured in 1984 dollars; 3) highly volatile liquid releases of five barrels or more or other liquid releases of 50 barrels or more; 4) liquid releases resulting in an unintentional fire or explosion. According to these reports, Rolette County has had no fatalities or injuries over the period of 2003 - February 2013.

Table 4.5.3B Rolette County Hazardous Material Release Declared Disasters and Emergencies

Declaration	Location	Date	Magnitude	Casualties	Damages
None					

4.5.4 Probability and Magnitude

Table 4.5.4A is a graphical representation of the range of events that can occur within the hazardous material release hazard. Generally, the more frequent events have a low impact, and the high impact events occur less frequently. All types of events may not appear in the figure, but the information presented can assist when comparing hazards (high frequency, low impact events versus low frequency, high impact events) or when assessing the range of magnitudes possible from the hazardous material release hazard. The beginning of this risk assessment chapter provides additional information on frequency and impact ratings.

Table 4.5.4A Hazard Frequency and Impact Ranges

Frequency					
	No regional history				Nuclear Release in an Urban Area
	No local history			Hazardous Plume in an Urban Area	
	100 years		Release Requiring Large Evacuation		
	50 years	Spill Requiring Response			
	Annually				
		Negligible	*Limited*	*Critical*	*Catastrophic*
		Impact			

Since 2007, no reports of hazardous material incidents have been documented in Rolette County to the State Department of Environmental Quality. Based on this history, there is a negligible likelihood that a hazardous material release can be expected in Rolette County each year.

Although no hazardous material releases have occurred in Rolette County in recent years, the potential exists for a release with serious human and property impacts. A serious, yet plausible, scenario includes the release and explosion of a highly toxic substance such as anhydrous ammonia or more common substance such as propane, particularly in the vicinity of the railroad and primary highways, or other substances from the fixed facilities. Affected areas from these types of releases could extend as far away as 5 miles downwind. The greatest magnitude events include those that occur within proximity to a populated area.

4.5.5 Risk Assessment

Vulnerability Overview

The impacts to people are often greater than the structural impacts because of a hazardous material incident. Depending on the material, the health impacts to humans can be long and short term. A hazardous material incident could have a greater impact on those areas with higher population concentrations such as cities, special needs facilities, and businesses, than more rural areas. In a hazardous material release, those in the immediate isolation area would have little to no warning, whereas the population further away in the dispersion path may have some time to evacuate, depending on the weather conditions, material released, and public notification.

Vulnerabilities to public water supplies also threaten jurisdictions, and contamination could come from sources outside of the county. Surface waters, such as rivers and reservoirs, and underground aquifers used as drinking water sources could each be threatened by releases from fixed facilities, pipelines, and transportation.

Significant losses can also occur to the environment and other ecological values. Clean-up efforts may mitigate the effects, but some losses may occur. Sensitive habitats could be damaged or air and water quality reduced.

The statistical analysis method was used to refine and assess the relative vulnerability to Rolette County to Hazardous Materials. The State assigned ratings to five pertinent factors that were examined at the county level. These factors are: number of Tier II facilities, and number of incidents reported to NDDES in 2022, the miles of gas transmission and hazardous materials liquid pipelines and the number of pipeline incidents from the U.S. Department of Transportation, Pipeline Safety Stakeholder

Communications. A rating value of 1-5 was assigned to the data obtained for each factor to obtain vulnerability scores for comparison and to determine the most vulnerable counties. Table 4.5.5B shows the overall hazardous material vulnerability for Rolette County. Rolette County's rating is low which is like other mainly agriculturally based counties that are not along an interstate.

Belcourt, Rolette and Rolla have the greatest risk to hazardous materials releases in that they are in the heart of Rolette County's agricultural region and have the largest population and greatest number of Tier II facilities. Dunseith would be the rated second in vulnerability due to its Tier II facilities and population. St. John and Mylo with no tier II facilities and populations are at the lowest risk.

Table 4.5.5A Population living within Rolette County and TMBCI

Jurisdiction	Population (2020 Census)
Rolette County	12,187
Belcourt	1,223
Rolla	1,223
Dunseith	632
Rolette	484
St. John	322
Mylo	21

Source: https://www.census.gov/search-results.html?q

Table 4.5.5B Rolette County and TMBCI Hazardous Materials Vulnerability Analysis

# of Tier II Facilities	Tier II Facility Rating	# of Reported Incidents to NDDES in 2016	Incident Rating	Gas Transmission Pipeline Miles	Gas Pipeline Rating
69	1	0	0	0	0
Haz-Mat Liquid Pipeline Miles	Liquid Pipeline Rating	Pipeline Incidents 2016	Pipeline Incident Rating	Total Ratings	HAZMAT Analysis
0	0	0	0	1	Low

Source: ND Department of Emergency Services and ND State Multi-Hazard Mitigation Plan

Hazardous materials such as gasoline are extremely dangerous and are a hazard to our potable water system. Any leak or explosion can permeate into the local Shell Valley aquifer. This is the one drinking source the TMBCI Reservation uses and is extremely vulnerable to any type of contamination.

Due to the high traffic of Anhydrous Ammonia on the roads, there is high risk of transportation accidents involving the chemical. This chemical is extremely dangerous (see Table 27 below). In dealing with contaminated individuals, IHS does have an "Exposure to Hazardous Materials" Emergency and EMS Staff Procedure that they are able to follow, including a supply of personal protective equipment.

Table 27: Anhydrous Ammonia: Exposure Levels and the Human Body

Anhydrous Ammonia: Exposure Levels and The Human Body		
Exposure (ppm)	**Effect on the Body**	**Permissible Exposure**
50 ppm	Odor is detectable by most people	No injury from prolonged, or repeated exposure
134 ppm	Irritation of nose and throat	Eight hours maximum exposure
700 ppm	Coughing, severe eye irritation, may lead to loss of sight	One hour maximum exposure
1,700 ppm	Serious lung damage, death unless treated	No exposure permissible
2,000 ppm	Skin blisters and burns within seconds	No exposure permissible
5,000 ppm	Suffocation within minutes	No exposure permissible

- Source: North Dakota State University http://www.ag.ndsu.edu/pubs/ageng/safety/ae1149-1.htm

There is no Hazardous Materials Incident Team on the Turtle Mountain Band f Chippewa Indians Reservation. First responders for the TMBCI Reservation have an extremely limited supply of personal protective equipment available. Should an incident occur, the reservation would alert the state to request assistance and resources. In the time that it would take for a HazMat team to respond adequately to an incident, many more people would be exposed to the hazard and at a higher risk of death or injury.

- Probability: Possibly
- Magnitude: Negligible
- Warning Time: Less than 6 hours
- Duration: More than 1 week
- CPRI Score: 2.2

The TMBCI Reservation is variably populated, dense in Belcourt and sparse in rural areas. Therefore, when a HazMat incident occurs, the chance of a large amount of people being exposed varies. The effects of a large incident in town would be considerable, and therefore, the hazard is addressed in this plan.

As can be seen in the figure below, hazardous waste materials can be generated by small businesses as well as individual community members. The Turtle Mountain Band of Chippewa Indians Reservation does not have a disposal drop site for these materials. As a result, many of these materials end up in illegal dump sites such as their own property or public property. Some hazmat materials are left on frozen lakes during the winter which then sink into the lake water during the snowmelt. The nearest disposal sites for used oil are in Rolla (7 miles away) and Bottineau (36 miles away). The closest certified landfill where industrial waste and other hazmat materials can be disposed of is McDaniel Landfill in Sawyer, ND (120 miles away).

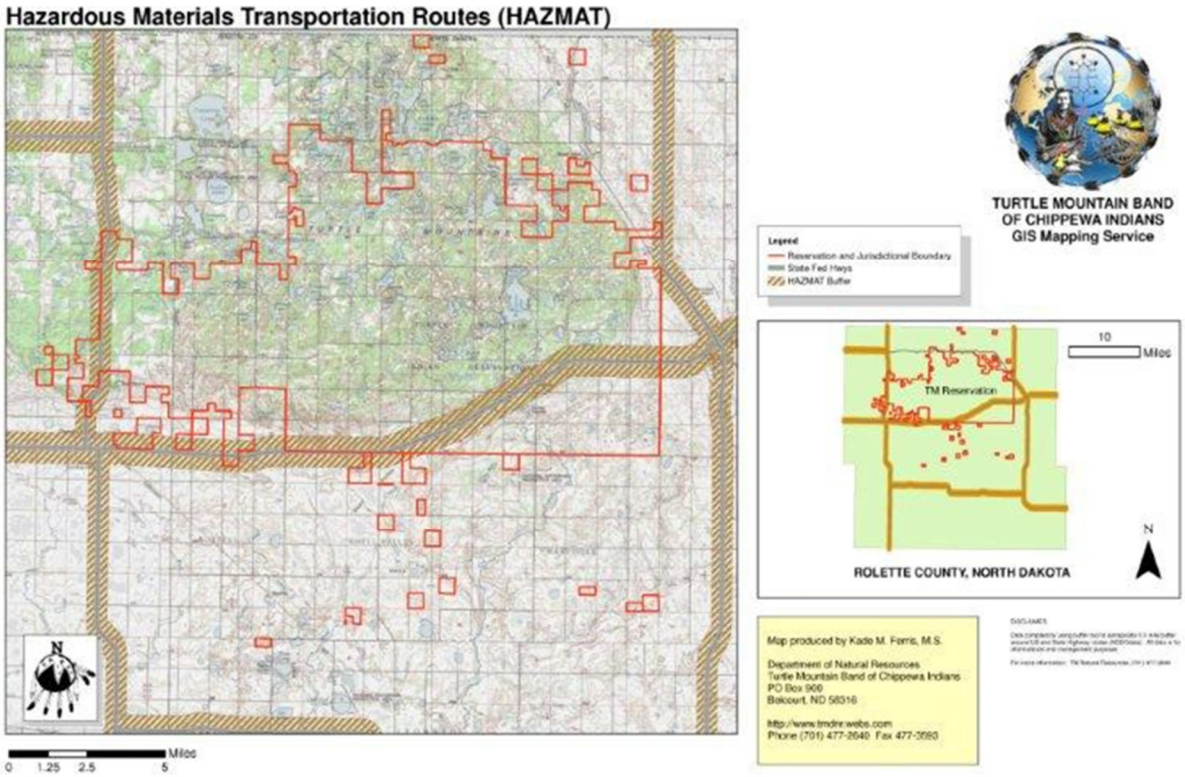
- **Table 29: Typical Hazardous Wastes Generated by Small Businesses**

Typical Hazardous Wastes Generated by Small Businesses			
Business Type	**Generation Processes**	**Waste Types**	**Waste Codes**
Drycleaning and Laundry Facilities	Commercial dry cleaning processes	Still residues from solvent distillation, spent filter cartridges, cooked powder residues	D001, D039, F002
Construction	Painting prep and operations, carpentry and floor work, specialty contracting, heavy construction, wrecking and demolition, vehicle and equipment maintenance	Ignitable wastes, toxic wastes, solvent wastes, paint wastes, used oil, acids/bases	D001, D002, D003, F001-F005
Vehicle Maintenance	Degreasing, rust removal, painting prep and operations, spray booth, spray guns, brush cleaning, paint removal, tank cleanout, lead/acid batteries	Acids/bases, solvent wastes, ignitable wastes, toxic wastes, paint wastes, used batteries, used oil	D001, D002, D006, D007, D008, D018, F001-F005
Printing and Allied Industry	Plate prep, stencil prep for screen printing, photoprocessing, printing, cleaning	Acids/bases, heavy metal wastes, solvent wastes, toxic wastes, used ink	D002, D006, D007, D008, F001-F005
Equipment Repair	Degreasing, rust removal, painting prep and operations, spray booth, spray guns, brush cleaning, paint removal	Acids/bases, solvent wastes, ignitable wastes, toxic wastes, paint wastes, used batteries, used oil	D001, D002, D006, D007, D008, D018, F001-F005
Educational and Vocational Shops	Auto engine and body repair, metalworking, graphic arts-plate prep, woodworking	Ignitable wastes, solvent wastes, acids/bases, paint wastes	D001, D002, F001-F005

Source: North Dakota Hazardous Waste Compliance Guide, ND Dept of Health, Division of Waste Management, January 2009

Should a hazmat incident occur near a store or other populated area, there is a higher chance of losses. The spatial dispersion of hazmat materials on the TMBCI Reservation makes the chance of this kind of incident highly possible.

Hazardous Material Transportation Routes



The generator of hazardous waste materials has a "cradle to grave" responsibility for their hazardous waste, and this includes during transportation and after disposal. Selecting a hazardous waste transporter and treatment, storage, disposal or recycling facility is an important aspect of a waste management program. Self-transportation demands careful consideration, as does the treatment, storage, disposal, or recycling of such materials.

Loss Estimates

Sufficient data is not available currently to make estimates of potential losses by jurisdiction for all types of HAZMAT Incidents. However, the following assumptions have been made that begin the process of estimating these actual losses:

- Most HAZMAT events are localized and affect only the immediate area.
- Most events are small in nature and are quickly contained and cleaned.
- Fixed sites can be identified through the federal reporting requirements and some historical event data is available by jurisdiction.
- Maps for highways, railroads and pipelines are available thereby designating the jurisdictions at risk to these specific hazards.
- Most HAZMAT events involve an immediate response and an expedited cleanup with relatively fixed costs.

- Depending on the size and location of a release, the associated costs can range from a few thousand dollars to hundreds of thousands of dollars.
- Losses could include limited loss of life, injuries and sickness for the general population and for the first responders.
- Losses could include the financial costs for response and cleanup.
- There could be significant loss of reputation or confidence in associated organizations.
- There could be short-term impacts to the local economy due to a major event.

The State of North Dakota has identified hazardous material specialized teams in each of the four corners of the State and equipped them with resources to assist in hazardous material response. Rolette County would have mutual aid from the Regional Response Team in Grand Forks ND.

4.5.6 Critical Facilities in Hazard Prone Areas

Since hazardous material releases can occur virtually anywhere, critical facilities and infrastructure are at risk from hazardous material releases. Those near hazardous fixed facilities and transportation, pipeline, or utility infrastructure are at greatest risk. Much of the vulnerability depends on specifically where a release occurs in proximity to the critical facilities and infrastructure. Should a hazardous material release affect one of the critical facilities, the level of emergency services available could be reduced. A release near a special need's facility may present unique evacuation challenges.

Anhydrous Ammonia is a concern throughout the area.

- Anhydrous Ammonia is transported regularly on Hwy 5 and Hwy 281, which runs directly through the reservation. Many of the trucks originate in Rolla, on the east side of the reservation, and then travel through Belcourt to their destination on farms and fields using the chemical as fertilizer.

- Anhydrous Ammonia is also used in the creation of the illicit use of methamphetamines. Storage tanks located on farms have been tampered with and/or stolen in the past and have caused problems when they are disposed of in isolated areas.

- Fuel tanks are plentiful on the reservation. Most residences on the TMBCI Reservation are heated by liquid propane stored in 500–1000-gallon tanks. None of them are anchored. The hazard this poses is in the case of a flood, these tanks would float and be compromised by debris. Tanks are located above ground because it is cheaper for installation, cheaper for insurance, less regulated. They are often contained within berms. Buried storage tanks are less likely to be tampered with and are less vulnerable to the elements and are therefore the preferred method of storage.

- **Table 25: Above-Ground Storage Tanks on the Turtle Mountain Reservation**

Location	Business	Size (gallons)	# of tanks	Latitude	Longitude	Elevation	Type of fuel
East hospital rd Belcourt	I.H.S.	40,000	2	N 48’50.594’	W099’44.996’	1950 ft	Diesel
Belcourt	Police Department	5,000	2	N48’50.619	W099’44.791’	1922 ft	Propane
Belcourt	BIA Facilities	10,000	1	N48’50.652’	W099’44.726’	1923 ft	Diesel
Belcourt	BIA Facilities	8,000	1	N48’50.652’	W099’44.726’	1924 ft	Gasoline
BIA rd #7 Belcourt	Tribal Road Department	10,000	2	N48’50.652’	W099’44.728	1944 ft	Diesel
BIA rd #7 Belcourt	Tribal Road Department	2,000	1	N48’50.652’	W099’44.729	1945 ft	Gasoline
Belcourt	T.M. Middle School	30,000	1	N48’50.734’	W099’44.427	2023 ft	Propane
Belcourt	T.M. High School	30,000	1	N48’50.725’	W099’44.110’	2007 ft	Propane
Belcourt	T.M. High School	500	1	N48’50.725’	W099’44.110’	2008 ft	Gasoline
Belcourt	T.M. Elementary	30,000	1	N48’50.479’	W099’44.480’	1971 ft	Propane
		1,000	1	N48’50.474’	W099’44.622	1973 ft	Propane
Belcourt	5th Generation	1,000	1	N48’50.470’	W099’44.759’	1945 ft	Propane
Belcourt	Dialysis Center	1,000	1	N48’50.507’	W099’44.884’	1936 ft	Propane
Belcourt	Belcourt Drug	1,000	1	N48’50.395’	W099’44.993’	1943 ft	Propane
	Schindler Cable	1,000	1	N48’50.383’	W099’44.974’	1944 ft	Propane
Belcourt	Sheen-Wah	1,000	4	N48’50.385’	W099’45.061’	1944 ft	Propane
Belcourt	Jollies Supermarket	1,000	1	N48’50.306’	W099’45.096’	1944 ft	Propane
Belcourt	St Anns Gym	2,000	2	N48’50.480’	W099’45.248’	1969 ft	Propane
Belcourt	Queen of Piece	2,000	2	N48’50.398’	W099’45.390’	1951 ft	Propane
Belcourt	Ladots Laundry/car wash	1,000	2	N48’50.357’	W099’45.926’	1925 ft	Propane
Belcourt	Ladots gas station	10,000	2	N48’50.324	W099’45.324’	1924 ft	Gasoline
Belcourt	Ladots gas station	5,000	2	N48’50.325	W099’45.324’	1925 ft	Diesel

Location	Business	Size (gallons)	# of tanks	Latitude	Longitude	Elevation	Type of fuel
Belcourt	Head start	1,000	2	N48’50.388’	W099’44.774’	1937 ft	Propane
Belcourt	Utter stop	1,000	1	N48’50.325’	W099’44.648’	1979 ft	Propane
Belcourt	Arrowhead Printing	1,000	1	N48’50.292’	W099’44.726’	1954 ft	Propane
Belcourt	Public Utilities	1,000	1	N48’50.303’	W099’44.840’	1908 ft	Propane
Belcourt	Eagle View Maintenance	500	2	N48’50.146’	W099’43.971	1940 ft	Propane
Belcourt	All Stars Pizza	500	2	N48’50.248’	W099’45.008’	1888 ft	Propane
Belcourt	T.M. Bank	500	1	N48’50.255’	W099’44.942’	1901 ft	Propane
Belcourt	Belcourt Oil	30,000	1	N48’49.928’	W099’45.567’	1925 ft	Propane
Belcourt	Belcourt Oil	10,000	3	N48’49.928’	W099’45.567’	1925 ft	Diesel
Belcourt	Belcourt Oil	1,000	1	N48’49.928’	W099’45.567’	1925 ft	Propane
Belcourt	Belcourt Oil	1,000	4	N48’49.928’	W099’45.567’	1925 ft	Propane
Belcourt	K.C. Hall	1,000	1	N48’49.958’	W099’45.670’	1917 ft	Propane
Belcourt	1-Stop (new)	10,000	2	N48’49.913’	W099’45.699’	1928 ft	Diesel
Belcourt	1-Stop (new)	10,000	3	N48’49.913’	W099’45.699’	1929 ft	Gasoline
Belcourt	1-Stop (new)	500	2	N48’49.913’	W099’45.699’	1930 ft	Gasoline
Belcourt	1-Stop (old)	1,000	3	N48’48.863’	W099’45.854’	1928 ft	Gasoline
Belcourt	1-Stop (old)	500	1	N48’48.863’	W099’45.854’	1929 ft	Propane
West Belcourt	Ojibwa School Bus garage	1,000	1	N48’48.573’	W099’46.848’	1929 ft	Propane
Hwy 5 W Belcourt	Tribal Building (front)	1,000	2	N48’49.188’	W099’47.680’	1860 ft	Propane
Hwy 5 W Belcourt	Tribal Building (back)	1,000	2	N48’49.128’	W099’47.722’	1847 ft	Propane
Hwy 5 W Belcourt	T.M. Manufacturing	20,000	1	N48’49.050’	W099’47.830’	1851 ft	Propane
Hwy 5 W Belcourt	T.M. Manufacturing	1,000	1	N48’49.050’	W099’47.830’	1851 ft	Storage
Hwy 5 W Belcourt	T.M. Manufacturing	500	1	N48’49.050’	W099’47.830’	1851 ft	Diesel

Location	Business	Size (gallons)	# of tanks	Latitude	Longitude	Elevation	Type of fuel
Hwy 5 W Belcourt	T.M. Manufacturing	250	1	N48’49.050’	W099’47.830’	1851 ft	Gasoline
Hwy 5 W Belcourt	Horsemen’s Bar	1,000	1	N48’49.091’	W099’47.984’	1843 ft	Propane
Hwy 5 W Belcourt	Child Welfare	1,000	3	N48’48.830’	W099’49.406’	1834 ft	Propane
Hwy 5 W Belcourt	Old Tribal Building	500	1	N48’48.567’	W099’49’696’	4806 ft	Propane
Hwy 5 W Belcourt	Fleet Farm	1000	1	N48’48.497’	W099’50.066’	1792 ft	Propane
Hwy 5 W Belcourt	Fleet Farm	5,000	1	N48’48.497’	W099’50.066’	1793 ft	Diesel
Hwy 5 W Belcourt	Fleet Farm	500	1	N48’48.497’	W099’50.066’	1794 ft	Propane
Hwy 5 W Belcourt	Sky Dancer Casino	500	1	N48’48.689’	W099’50.730’	1857 ft	Gasoline
Hwy 5 W Belcourt	Sky Dancer Casino	500	2	N48’48.689’	W099’50.730’	1858 ft	Diesel
Hwy 5 W Belcourt	Sky Dancer Casino	1,000	1	N48’48.689’	W099’50.730’	1859 ft	Diesel
Hwy 5 W Belcourt	Sky Dancer Casino	10,000		N48’48.689’	W099’50.730’	1860 ft	Propane
Hwy 5 W	Crossroads	500	1	N48’48.363’	W099’51.308’	1802 ft	Propane
Hwy 5 W Belcourt	Crossroads	1,000	1	N48’48.363’	W099’51.308’	1803 ft	Gasoline
Hwy 5 W	Crossroads	800	1	N48’48.363’	W099’51.308’	1802 ft	Diesel

Table 26: Below-Ground Storage Tanks on the Turtle Mountain Reservation

Location	Business	Size (gallons)	# of tanks	Latitude	Longitude	Type of fuel
Hwy 5 E Belcourt	Utter Stop	10,000	1	N 48’50.329	W -99’44.663	Gasoline
Hwy 5 E Belcourt	Utter Stop	5,000	1	N 48’50.329	W -99’44.663	Gasoline
BIA RD #7 S Belcourt	United Oil	10,000	2	N 48’50.149	W -99’44.708	Gasoline
BIA RD #7 N Belcourt	Bus Garage	10,000	1	N 48’50.692	W -99.44.707	Diesel
BIA RD #7 N Belcourt	Bus Garage	10,000	1	N 48’50.692	W -99.44.707	Gasoline
BIA RD #10 W	Azure C-Store	1,000	1	N 48’50.097	W -99’53.956	Gasoline
BIA RD #25	Vivian’s C-Store	1,000	2	N 48’51.197	W -100’1.755	Gasoline
Hwy 5 W Belcourt	Dakota C-Store	1,000	2	N 48’50.967	W -100’2.967	Gasoline
Belcourt	T.M. Middle School	2,000	1	N 48’50.732	W -99’49.433	Fuel Oil
Belcourt	T.M. High School	2,000	1	N 48’50.717	W -99’44.101	Fuel Oil
Belcourt	T.M. Elementary School	2,000	2	N 48’50.44	W -99’44.635	Fuel Oil

4.5.7 Development in Identified Hazard Areas

Generally, future development is not threatened by hazardous material releases. The primary exceptions are those developments that occur near existing hazardous material facilities. In addition, new industries could introduce additional hazardous materials to the area. The threat to and from future development cannot be entirely mitigated but smart land use planning and zoning can locate sites containing hazardous materials away from residential developments, critical facilities, and vulnerable populations. None of the existing land use mechanisms in Rolette County specifically address this issue, but most are effective at promoting compatible land uses.

4.5.8 Data Limitations and Other Key Documents

The data limitations related to the hazardous material release hazard include:

- Estimating what substances and the quantity that may be released in any given location
- Lack of a study with the numbers and types of hazardous materials being hauled on the highways and railroad in the county

Other key documents related to the Hazardous Material Release hazard include:

- North Dakota Emergency Operations Plan, Hazardous Materials Annex

4.5.9 Hazardous Materials Resources

Below is a list of resources available to the TMBCI and Rolette County in the event of a Hazardous Materials Incident:

Table 28: HAZMAT Resources Available

Aboveground Storage Tanks	Registration: Petroleum Tank Compensation Fund 425 North 5th St., Bismarck, ND 58501 701-328-9600
	Installation plan review: Office of Attorney General State Fire Marshall's Office PO Box 1054, Bismarck, ND 58502 701-328-5555
	Other information: Department of Environmental Quality Division of Waste Management Underground Storage Tank Program 701-328-5166
Air Quality Technical Assistance	Department of Environmental Quality Division of Air Quality 701-328-5188
Environmental Health Section Fax Line	On your fax, identify the recipient and division. 701-328-5200
Environmental Health Section East	2301 8th Ave. North, Fargo, ND 58102 701-476-4121 701-241-8109 (fax)

Technical Assistance	Department of Environmental Quality Division of Waste Management 701-328-5166
Non-regulatory OSHA Technical Assistance	ND Occupational Safety and Health Assistance Consultation Program PO Box 5587, Bismarck, ND 58506 1-800-852-5685 www.bismarckstate.edu/ndsafety.com
Occupational Safety and Health Assistance	Occupational Safety and Health Administration 1640 E. Capitol Ave., Bismarck 58501 701-250-4521
Pesticides	Department of Agriculture Pesticide Program 600 E. Blvd, 6th Floor, Bismarck 58505 701-328-2231 1-800-242-7535
Sewage	Local Publicly Owned Treatment Works (POTW) Department of Environmental Quality Division of Water Quality 701-328-5210
Small Business Assistance Hotline	Department of Environmental Quality Small Business Assistance Hotline 1-800-755-1625
Solid Waste Technical Assistance	Department of Environmental Quality Division of Waste Management Solid Waste Program 701-328-5166
Special Wastes. (Used Oil, Medical Wastes, etc.)	Department of Environmental Quality Division of Waste Management Hazardous Waste Program 701-328-5166
Spills	Department of Emergency Services Division of State Radio Communications PO Box 5511, Bismarck, ND 58506 701-328-8100 After Hours: 1-800-472-2121
	Department of Environmental Quality Division of Water Quality 701-328-5210

	National Response Center 1-800-424-8802
Toxic Release SARA Title III	"Community Right to Know." Department of Emergency Services
	Division of Homeland Security SARA Title III Coordinator 701-328-8112
Transportation Requirements	ND Department of Transportation 608 E. Blvd., Bismarck, ND 58505 701-328-2500
	Federal Highway Administration Office of Motor Carriers 1471 Interstate Loop, Bismarck 58503 701-250-4346 701-250-4204
Underground Storage Tanks	Department of Environmental Quality Division of Waste Management Underground Storage Tank Program 701-328-5166
Water Quality Technical Assistance	Department of Environmental Quality Division of Water Quality 701-328-5210
Other Important Telephone Numbers	North Dakota Homeland Security Fusion Center……866-885-8295 (during business hours) 800-472-2121 (after hours)
	Federal Bureau of Investigation 701-232-7241
	North Dakota Department of Environmental Quality (NDDoH) 800-472-2121 (via State Radio) Request the NDDoH Case Manager be paged.
	North Dakota Division of Emergency Management 800-472-2121 State Radio

4.6 CRIMINAL, TERRORIST OR NATION/STATE ATTACK

Frequency	Possible	
Impact	Unlikely	
Risk Class	D	
Seasonal Pattern	None	
Duration	Unknown	
Speed of Onset	Minimum	

4.6.1 Description

(Source: NDDES, 2018)

A criminal, terrorist, or nation attack incident includes chemical attacks, biological attacks, radiological attacks, nuclear attacks, explosive attacks, food/food production attacks, and armed assaults. These can broadly be defined as any intentional adversarial human-caused incident, domestic or international, that causes mass casualties, large economic losses, or widespread panic in the country. These incidents are examples of human-caused hazards that are intentional and often planned. An attack can result in a variety of hazards; for example, terrorists might compromise a dam leading to catastrophic dam failure. Other hazards that can be intentionally initiated by human actions given the appropriate materials and motivation include infectious disease, transportation incidents, hazardous material releases, utility or communications failures, and wildland fires. Terrorism, both domestic and international, is a violent act performed with the intent of influencing the government or the population politically or socially. Terrorist acts present in many recognized forms and perpetrators increasingly utilize non-traditional methods. Some recognized forms of terrorism are chemical, explosive, biological, radiological, nuclear, food production, and armed assault, as described below:

Chemical Attack: A chemical attack is the use of chemical agents to poison, kill, or incapacitate the population or animals, destroy crops or natural resources, or deny access to certain areas. Chemical agents can be grouped into five different categories: nerve agents, vesicants, cyanide, pulmonary agents, and incapacitating agents. Known nerve agents include tabun, sarin, soman, cyclosarin (GF), and VX, and can cause a variety of conditions affecting the central nervous system either through vapor or liquid form. Vesicants cause blisters on the skin and can damage eyes, airways, and other tissues and organs. Vesicant agents include sulfur mustard, Lewisite, and phosgene oxime. Cyanides can be in solid salt or volatile liquid format, or when combined with acid, a vapor or gas. Their absorption can cause everything from nausea to death, depending on the amount absorbed. Pulmonary agents such as phosgene and perfluroroisobutylene cause pulmonary edema usually hours after exposure. Incapacitating agents can affect cognitive abilities,

produce reversible disturbances within the central nervous system and include the agent BZ (Sidell, 1996).

Explosive Attack: Terrorism using explosive and incendiary devices including bombs and any other technique that creates an explosive, destructive effect. Bombs can take many forms, from a vehicle-borne Improvised Explosive Device (lED) to a mail bomb. They can be remotely detonated using a variety of devices or directly detonated as in the case of a suicide bomb.

Biological Attack: A biological attack, or bioterrorism, is the use of biological agents, such as Anthrax, Ricin, and Smallpox, to infect the population, plants, or animals with disease. The impacts of bioterrorism may be similar to those discussed in Section 3.7.10, with the primary exception being that the infection of the population was intentionally caused.

Radiological Attack: The United States Department of Homeland Security (DHS) defines a radiological attack as the spreading of radioactive material with the intent to do harm. A radiological attack would likely be carried out using a "dirty bomb." A dirty bomb is a low-tech, easily assembled and transported device made up of simple explosives combined with a suitable radioactive agent. These types of explosives are also known as Radiological Dispersal Devices (ROD). Exposure to radiation can cause radiation sickness, long-term illness, and even death, in addition to contamination of the environment.

Nuclear Attack: A nuclear attack can be defined as the use of nuclear weapons or nuclear facilities to attack the population. A nuclear explosion is caused by an uncontrolled chain reaction that splits atomic nuclei (fission) to produce an intense wave of heat, light, air pressure, and radiation, followed by the production and release of radioactive particles. Fallout from a nuclear attack can expose people at great distances to radiation (National Academies and DHS, 2005). North Dakota is also home to United States intercontinental ballistic missiles located in silos in north central North Dakota. These missiles contain nuclear material and could be hazardous if accidentally or intentionally damaged or tampered with; however, these systems contain a very high level of security and protection by the United States Air Force.

Rolette County and TMBCI ares located midway between the Grand Forks Air Force Base and the Minot Air Force Base. Grand Forks Air Force Base is at the center of Drone development for national defense while Minot Air Force Base has Minute Man Missile Silos and B-52 Bombers. It may be perceived that the bases may pose a “threat” to other countries and may become a target during times of international unrest.

Food/Food Production Attack: An attack on food or food production can be considered agroterrorism, or "the deliberate introduction of an animal or plant disease for the purpose of generating fear, causing economic losses, or undermining social stability." An agroterrorism attack might target agricultural facilities, impact food production and food supply, affect restaurants and grocery stores, and have detrimental effects on public health.

Armed Assault: An armed assault is defined as a hostile non-state actor(s) using assault tactics to conduct strikes on vulnerable target(s) within the U.S. resulting in at least one fatality or injury (DHS, 2011).

Vehicle Attack: A vehicle attack is characterized by the use of a vehicle to cause death, injury, and damage. Examples include the use of commercial airliners to attack the World Trade Center in New York City and the Pentagon in Arlington, Virginia on Sept 11, 2001, and the May 18, 2017 vehicle ramming attack in Times Square, also in New York City. The 9/11 attacks killed 2,977 people with several thousand injuries, while the 2017 attacks killed one and injured at least 22. Such attacks may be directed at large gatherings of people and/or buildings in areas of limited mobility due to the terrain or crowd mass.

The mission of the North Dakota State and Local Intelligence Center (SLIC) is to gather, evaluate, analyze and disseminate information and intelligence data (records) on crimes, both real and suspected, to the law enforcement community, government officials and private industry concerning dangerous drugs, fraud, organized crime, terrorism and other criminal activity for the purposes of decision making, public safety and proactive law enforcement while ensuring the rights and privacy of citizens.

Information and communication technology has played an essential role in discussing and disseminating radical ideologies as well as serving to help coordinate, facilitate, and provide support for would-be terrorists' plans. Social networking media and the Internet have replaced many of the physical networks that were previously integral to radicalization and plot development. The Dark Web, YouTube, Skype, email interfaces, blogs, message boards, and other social networking websites have become invaluable tools and resources to those seeking out information on joining or supporting terrorist groups or wishing to attack the United States. The Internet has made terrorist acts easier for individuals to plan and carry out without significant external support. Because it can be accessed from almost any location, it allows extremists to prepare for their attacks without making themselves significantly vulnerable to detection.

Many times, homeland security incidents, both domestic and international, are driven by a terrorist group or criminal organizations. Other times, incidents may be driven by a nation/state attack. Occasionally, individuals perform independent acts, also known as lone wolves/actors. In many cases, perpetrators have an underlying belief that drives the act. Definitions of different types of Terrorist and Criminal Organizations are listed below:

Eco-terrorism/ terrorists: Use or threatened use of violence of a criminal nature against innocent victims or property by an environmentally oriented, subnational group for environmental-political reasons, or aimed at an audience beyond the target, often of a symbolic nature.

State Sponsors of Terrorism: Countries determined by the Secretary of State to have repeatedly provided support for acts of international terrorism are designated pursuant to three laws: section 6(j) of the Export Administration Act, section 40 of the Arms Export Control Act, and section 620A of the Foreign Assistance Act. Taken together, the four main categories of sanctions resulting from designation under these authorities include restrictions on U.S. foreign assistance; a ban on defense exports and sales; certain controls over exports of dual use items; and miscellaneous financial and other restrictions.

Gangs: The United States Department of Justice (USDOJ) defines a gang as:

(1) an association of three or more individuals;

(2) whose members collectively identify themselves by adopting a group identity which they use to create an atmosphere of fear or intimidation frequently by employing one or more of the following: a common name, slogan, identifying sign, symbol, tattoo or other physical marking, style or color of clothing, hairstyle, hand sign or graffiti;

(3) the association's purpose, in part, is to engage in criminal activity and the Association uses violence or intimidation to further its criminal objectives;

(4) its members engage in criminal activity, or acts of juvenile delinquency that if committed by an adult would be crimes;

(5) with the intent to enhance or preserve the association's power, reputation, or economic resources;

(6) the association may also possess some of the following characteristics:

- the members employ rules for joining and operating within the association;
- the members meet on a recurring basis;
- the association provides physical protection of its members from other criminals and gangs;
- the association seeks to exercise control over a particular location or region, or it may simply defend its perceived interests against rivals; or
- the association has an identifiable structure.

(7) This definition is not intended to include traditional organized crime groups such as La Cosa Nostra, groups that fall within the Department's definition of "international organized crime," drug trafficking organizations or terrorist organizations. Examples of gangs include Outlaw Motorcycle Gangs (OMGs) and Criminal Street Gangs.

Foreign Terrorist Organizations: Foreign Terrorist Organizations (FTOs) are foreign organizations that are designated by the Secretary of State in accordance with section 219 of the Immigration and Nationality Act (INA), as amended. FTO designations play a critical role in our fight against terrorism and are an effective means of curtailing support for

terrorist activities and pressuring groups to get out of the terrorism business (United States State Department).

Organized Crime: Transnational Organized Crime refers to those self-perpetuating associations of individuals who operate internationally for the purpose of obtaining power, influence, monetary and/or commercial gains, wholly or in part by illegal means, while protecting their activities through a pattern of corruption or violence. There is no single structure under which international organized crime groups operate; they vary from hierarchies to clans, networks and cells, and may evolve to other structures (USDOJ).

Homegrown Violent Extremism/Extremists (HVEs): An HVE is a person of any citizenship who has mostly lived in the United States and who engages in a terrorist activity to advance an ideology (FBI).

Left Wing Extremists: Left-wing terrorism (sometimes called Marxist–Leninist terrorism or revolutionary/left-wing terrorism) is terrorism meant to overthrow conservative or capitalist systems and replace them with Marxist–Leninist, socialist, or anarchist societies (USDOJ).

Right Wing Extremists: Right-wing terrorism is terrorism motivated by a variety of ideologies and beliefs, including Islamophobia, anti-communism, neo-fascism and neo-Nazism, and a mindset against abortion. This type of terrorism has been sporadic, with little or no international cooperation (USDOJ). During the 2019 election cycle, various right wing extremist groups including the Proud Boys; a far right neo fascist white nationalist, all male political organization, and QAnon; followers of a far-right conspiracy theory, led demonstrations and engaged in political violence which continued into 2021 during a national heightened awareness of White Nationalist Domestic Terror threats.

Table 4.6A below, identifies those facilities in the county and tribe that have been identified as being at risk from a civil disorder/terrorist event. The method for calculating the total risk was identified by the Department of Homeland Security for their 2018 Office for Domestic Preparedness Assessment and included:

- Visibility of the target on an area, local, regional, state and national level.
- Criticality of the target to the local jurisdiction, regional and national level.
- Impact on the community, region, and nation.
- Potential threat elements within the area that have reason to target the facility.
- Other hazards such as CBRNE that may have a secondary effect.
- Population that may be affected at the facility.
- Collateral population that may be affected near the facility.

Table 4.6A Terrorism Prone Critical Facilities

Facility	Visibility	Criticality	Impact	PTE	Hazard	Site	Collateral	Total
Water Treatment Plants	Information is confidential and held in 2018 ODP Assessment							5
Natural Gas Pipeline								0
Natural Gas Pumping Stations								0
Natural Gas Pipeline Ports								0
Oil Pipeline								0
Railroad								0
Interstate								0
Telephone								5
Public Health Unit								2
Military Base (Air Force)								0
Health Clinic								8
Nursing Home/Senior Housing								2
Schools								12
Government buildings								
Bulk Fuel								
Anhydrous Ammonia plants								
Fertilizer / Ag Chemical Plant								
Grain and Ag Chemical handling facilities.								

For security reasons the total score was utilized to represent the overall assessment of the facility. Further questions should be addressed to local law enforcement and the emergency manager.

4.6.2 Geographic Location

Given the uncertainties associated with homeland security incidents, uniform risk is assumed throughout the county. In general, jurisdictions with large, dense population areas are more vulnerable to Homeland Security Incidents as special events with large populations gathered at a specific site.

4.2.3 Previous Occurrences

On 01/27/2021, the United States Department of Homeland Security (DHS) issued a Terrorism Advisory Bulletin due to a heightened threat environment across the United States, which DHS indicated would persist in the weeks following the successful Presidential Inauguration. According to DHS: *"Information suggests that some ideologically-motivated violent extremists with objections to the exercise of governmental authority and the presidential transition, as well as other perceived grievances fueled by false narratives, could continue to mobilize to incite or commit violence."*

North Dakota is not immune to homeland security incidents; however, in many cases information about past threats that have been thwarted is not publicly distributed. Since January of 2014, there have been forty-three Terrorist Screening Center (TSC) hits or encounters within North Dakota, in which the North Dakota SLIC provided support when requested. Also, since January of 2014, the North Dakota SLIC has received hundreds of suspicious activity reports (SARs), of which two hundred and sixty-six of have been deemed to have a "possible nexus to terrorism." These vetted SARs were passed onto the FBI for follow up and possible investigation. Source: (NDDES, 2018)

The North Dakota SLIC and the State Historical Society of North Dakota (SHSND), as well as news and media reports, provided the following information on recent, previous occurrences of Homeland Security Incidents that have occurred in North Dakota possibly relating to Terrorism and/or Organized Crime:

April 6, 2018: A Walmart store in Jamestown, North Dakota received a bomb threat via telephone around 2330 hours. Law enforcement set up a perimeter, evacuated customers and employees, and searched the store and surrounding area.

March – April 2018: Legacy High School in Bismarck, North Dakota received seven separate bomb threats by telephone between March and April. The school was evacuated and searched by law enforcement.

August 10, 2016 - March 23, 2017: One of the longest unlawful assemblies and civil disorders in United States history occurred in response to the construction of the Dakota Access Pipeline, which connected the Bakken and Three Forks production areas in North Dakota to Patoka, Illinois. Individuals first lawfully protested this construction project, believing that a pipeline leak would contaminate the water supply on the nearby Standing Rock Reservation. The protest escalated into an unlawful assembly and civil disorder on August 10, 2016. This occurred along North Dakota State Highway 1806, just north of Cannonball, North Dakota. More information on this is discussed in the Civil Disturbance profile in Section 3.7.1.

October 2016: An activist from Seattle named Michael Foster cut through a chain link fence and turned a shut-off valve on the Keystone Pipeline as part of a four-state protest to draw attention to climate change and support demonstrations against the Dakota Access pipeline. This was a coordinated attack which occurred in North Dakota, Montana, Minnesota, and Washington State. Activists trespassed onto private property and turned shut-off valves at five pipelines (Nicholson, 2018). Foster was convicted in October 2017 of conspiracy, criminal mischief and trespass but acquitted of reckless endangerment. He was sentenced in Cavalier, North Dakota to serve one year in prison for targeting an oil pipeline in North Dakota.

April-May 2008 - A Jewish student at the University of North Dakota was harassed by a group of students using racial slurs and obscenities. Five swastikas in four months were drawn on a building on campus.

September 2011 – In adjacent Grand Forks, replacement workers and security workers were allegedly called racial slurs by union supporters outside a sugar plant. A monkey-like figure hanging from a noose attached to a large inflatable rate was also hung outside the plant.

June 2011 – A Nelson County farmer refused to return three cow/calf pairs that had strayed onto his land. The farmer threatened whoever tried to retrieve the cattle. He was tasered while being arrested for not complying with law enforcement orders. After being placed in a squad car, he did damage to the vehicle. His daughter was arrested at this time after hitting a deputy sheriff. While serving the warrant to retrieve the cattle, the farmer's three sons pointed weapons at the Sheriff and one deputy. A representative of the North Dakota Stockmen's Association was also present. The Grand Forks SWAT, Grand Forks Bomb Squad, Griggs County Sheriff, Lakota Ambulance and Michigan Ambulance responded at this time. The Devils Lake Ambulance contacted Nelson County officials to make available their services. A United States Border Patrol Drone was used to locate the family members resulting in the three sons being arrested the next day by the Grand Forks SWAT when they attempted to water and feed the three cow/calf pairs. Nelson County Deputies transported the three sons to the Devils Lake Law Enforcement Center. After making bail the family refused to attend court and warrants were re-issued. The three sons refused to leave their farm resulting in an arrest three months later. The farmer was sentenced to jail and his sons were placed on probation.

June 2012 – In Grand Forks, a threatening anti-gay epithet was written on the back window of a car that had rainbow bumper stickers, which sometimes symbolize gay pride.

January 6, 2021 – The outgoing President convinced supporters that he won the 2020 Presidential election, however the Electoral College and popular vote was counted in favor of the incoming President. These supporters consisting of several right wing groups became known as a group, the MAGA's (Make America Great Again). In support of the outgoing President the MAGA group stormed the United States Capital with the motive of disrupting

the United States Congress counting of the Electoral College. The result was delaying the Electoral College vote counting but the count was carried out. To date, political unrest continues by different groups on both sides of the issue.

Table 4.6B Rolette County/TMBCI Homeland Security Incident Declared Disasters and Emergencies

Declaration	Location	Date	Magnitude	Casualties	Damages
None					

4.6.4 Probability and Magnitude

Table 4.2C is a graphical representation of the range of events that can occur within the homeland security incident hazard. Generally, the more frequent events have a low impact, and the high impact events occur less frequently. All types of events may not appear in the figure, but the information presented can assist when comparing hazards (high frequency, low impact events versus low frequency, high impact events) or when assessing the range of magnitudes possible from the homeland security incident hazard. The beginning of this risk assessment chapter provides additional information on frequency and impact ratings.

Table 4.6C Hazard Frequency and Impact Ranges

Frequency	*No regional history*			Bombing of Large Building	Statewide Nuclear Attack
	No local history				
	100 years	Disruptive Strike	Multiple Victim Shooting		
	50 years				
	Annually				
		Negligible	*Limited*	*Critical*	*Catastrophic*
		Impact			

The probability of a criminal, terrorist, or nation attack incident affecting Rolette County and the TMBCI directly is difficult to determine. The county and tribe ares not considered a specific terrorist target nor is it an area at high risk for civil disorders. As with any area, a shooting by a disgruntled person, employee, or student is always possible. A large- scale attack cannot be ruled out, and therefore, a small probability exists. Of greater probability is a terrorist attack that has an indirect effect on the county through its economy. The September 11th terrorist attacks in New York, Washington, and Pennsylvania had a significant impact on the national economy and required the activation of local resources. Another attack could have a similar effect. Such an attack in another part of the country has a greater probability than a direct attack within the TMBCI or Rolette County, but even the probability of such an attack elsewhere is unknown and is the subject of much debate.

An attack on the United States that collapses the national economy, agricultural economy, or requires warfare and the drafting of soldiers is considered a high magnitude event. On a smaller but very significant scale would be an attack on a facility such as a school or business involving shooters, homemade bombs, or the taking of hostages. Schools and universities across the country have struggled with similar events, and therefore, such an incident is possible, in the TMBCI or Rolette County.

4.6.5 Risk Assessment Vulnerability Overview

The effects of criminal, terrorist, or nation attack incidents are usually felt by the general population. During attacks and times of unrest, the greatest risk is to human lives. Terrorists typically try to make a dramatic statement that will generate media interest. Attacking the population through a large loss of life is a common tactic. Depending on the type of attack, casualties could be light or encompass much of an urban population.

Terrorist attacks generally have a damaging effect on the economy as well. Any time the publics' safety is compromised, more people stay home until they are more confident in their safety. Therefore, depending on the type of attack and remaining threat, the tourism and travel industries may be affected. Additionally, attacks on the national informational or financial infrastructure could lead to significant declines in the national economy. Specific to Rolette County and the TMBCI, attacks on agriculture could lead to substantial direct losses in the state.

Ecological values could be harmed if a damaging chemical, biological, or radioactive agent is used. Additionally, social values can be affected with any sort of homeland security incident, particularly one that occurs locally. Community members may not feel safe and may have lasting emotional impacts.

In 2002, each county and tribe conducted a homeland security risk assessment, including the threat, vulnerability, and an optional agricultural vulnerability assessment for their jurisdiction. This was followed up by completion of the Threat Hazard Index Risk Assessment in (THIRA) 2020. The jurisdictional working groups were able to use planning factors to provide a numerical focus for homeland security scenarios. Shortfalls or gaps discovered during the assessment process target specific resources required to respond to homeland security incidents. These tiers measure the ability of the county or tribe to respond to a homeland security incident. The assumption is that those jurisdictions with a higher ability to respond are also at higher risk due to a larger population base and more commercial and industrial values at risk. This assumption may not be entirely accurate but is the best basis available for the jurisdictional ratings. Rolette County was determined to have less than a 1.25 tier from this 2002 assessment. This is the lowest rating possible. Only ten counties/tribes in the county were found to have this low tier assessment. The Hazard

Ranking in the 2018 ND MAOP lists Rolette County as a Medium Risk with no loss information profiled. The TMBCI, if rated separately, would mimic Rolette County's assessment.

Criminal, Terrorist and Nation/State attacks are commonly aimed at major population centers where the degree of impact may be more significant. Such attacks on Rolette County and the TMBCI are unlikely due to its low population density and lack of targets of national significance. In general, more densely populated areas have a higher risk, in Rolette County and the TMBCI, the communities of Rolla and Belcourt are the most populated. Rolla has a higher vulnerability because it is the County Seat and contains the County Courthouse which may be targeted by people with extremist views. Belcourt is also at a higher risk because it has the TMBCI Tribal Headquarters and various federal offices such as BIA and IHS. People may disagree with tribal leadership causing conflict. Belcourt, Dunseith, Rolla, Rolette, and St. John have schools, which increases their vulnerability. Mylo is not as vulnerable because of its size and location. Rolla and Belcourt are located on ND Highway 5, a major highway in the North Dakota.

The Quentin A. Burdick Hospital is located in Belcourt and has the potential to be overwhelmed should an incident involve multiple injuries or fatalities.

Criminal attacks may result from different motivations, be less predictable, and more likely in rural areas like Rolette County and the TMBCI. An active shooter type incident is completely unpredictable and could happen at any location.

Loss Estimates

Potential losses from Homeland Security Incidents include all infrastructure, critical facilities, crops, humans and animals. The degree of impact would be directly related to the type of incident and the target. Potential losses could include cost of repair or replacement of damaged facilities, lost economic opportunities for businesses, loss of human life, injuries to persons, loss of food supplies, disruption of the food supply chain, and immediate damage to the surrounding environment. Secondary effects of infrastructure failure could include public safety hazards, spread of disease, increased morbidity and mortality among the local and distant populations, public panic and long-lasting damage to the environment. Terrorism events are rare occurrences and specific amounts of estimated losses for previous occurrences are not available due to the complexity and multiple variables associated with these types of hazards. In some instances, information about these events is secure and unavailable to the public in order to maintain national security and prevent future attacks.

As discussed previously, it is difficult to quantify potential losses in terms of the jurisdictions most threatened by homeland security events due to the many variables and human element. A major terrorist attack would make a direct impact in Rolette County and the TMBCI. Perhaps the greatest threat to the communities is a disgruntled student, employee, or resident threatening others with violence. The extreme example of a bomb, depending

on its size, could cause structural losses to a critical facility. Homeland security officials emphasize that potential targets include our nation's delicate infrastructure. Should an attack occur, Rolette County and the TMBCI could locally lose electricity, telephone, or internet services. More localized incidents could disrupt water or sewer services. Other attacks could limit fuel or propane supplies and affect transportation and heating capabilities. During times of unrest, the greatest risk is to human lives. Terrorists typically try to make a dramatic statement that will generate media interest. Attacking the population through a large loss of life is a common tactic. Depending on the type of attack, casualties could be light or involve much of the Rolette County/TMBCI population. A consequence analysis exercise was conducted by the state in 2017 to predict impacts from different hazard scenarios; however, the consequence analysis did not include a scenario specifically for a criminal, terrorist, or nation/state attack.

4.6.6 Critical Facilities in Hazard Prone Areas

State-owned buildings and property, as well as critical facilities and infrastructure, are at risk to an attack or armed assault event. Often, terrorists target facilities that are highly important for government services and community stability. Government facilities can become targets if an individual or group disagrees with actions they associate with the facility. Certainly, some state-owned buildings and property may be more vulnerable to incidents than others due to the activities performed at the facility or the level of security at the building. Critical Government, state and local assets are identified in Section Three of this plan. The North Dakota Homeland Security Advisor's Critical Infrastructure Sector priorities as of April 2018 align with the Presidential Policy Directive 21 and are as follows: Energy Sector, Information Technology Sector, Water and Wastewater Systems Sector, Healthcare and Public Health Sector, Food and Agriculture Sector, Emergency Services Sector, Financial Services Sector, Chemical Sector, Communications Sector, Transportation Systems Sector, Government Facilities Sector, Dams Sector, Critical Manufacturing Sector, Nuclear Reactors, Materials, and Waste Sector, Defense Industrial Base Sector and Commercial Facilities Sector.

The criteria used in identification of specific facilities and facility names and specific locations are protected for security reasons and cannot be directly published in a public plan such as this. However, a summary of the number of CIKR facilities critical to homeland security from the State's perspective has been provided and is shown in Table 4.6D Rolette County and the Turtle Mountain Band of Chippewa Indians has some of the fewest CIKR facilities of counties in North Dakota.

Table 4.6D Rolette County/TMBCI Summary of Selected CIKR Facilities Critical to Homeland Security

Food/Agriculture	Energy	Public Health	Transportation	Emergency Services	Communications	Water	Total

Critical facilities and infrastructure play prominent roles in Rolette County and on the TMBCI. Often, criminal, terrorist, or nation state attacks target facilities that are highly important for government services and community stability. According to the North Dakota Tornado and Fire Fund, Rolette County has had no losses paid out of for vandalism and theft in 2022 at state agency facilities, local government critical facilities (including: counties, cities, townships, airport authorities, fire districts, water districts, and other categories), state-owned universities and school districts; all of which can be considered critical or essential facilities since 1989. (ND Insurance Reserve Fund, 2022)

4.6.7 Development in Identified Hazard Areas

Development should have little to no impact on the homeland security incident hazard, except for the increase in population and the associated increase in potential for life and property losses should an event occur. Rolette County has a smaller projected 2030 population than it has in 2020, making it less vulnerable to an attack due to fewer people that could be impacted by an event. However, the TMBCI population is projected to increase increasing their vulnerability.

An attack may be over very quickly or may be prolonged, but in most cases, effects will last for a week or more. In incidents that cause death or injuries, and even those that don't, psychological trauma on a large scale may be seen; whole communities are affected not only physically but mentally by an actual or perceived loss of safety. The impact may be felt in the local economy as tourism slows and people stay home rather than go out to eat or shop; businesses damaged or destroyed by an incident may lose revenue for a number of days, weeks, or months.

4.6.8 Data Limitations and Other Key Documents

The data limitations related to the homeland security incident hazard include:
- Inability to quantify the probability and magnitude of an event
- General uncertainties related to criminal, terrorist, nation attack incidents

Other key documents related to this hazard include:

- North Dakota State Emergency Operations Plan, Terrorism Annex
- North Dakota THIRA North Dakota State Preparedness Report (SPR)

4.7 Civil Disturbance

Frequency	Possible	Information is scant, questionable, or fragmented which makes difficult to make analytical inferences
Impact	Unlikely	
Risk Class	D	
Seasonal Pattern	None	
Duration	Weeks to Months	
Speed of Onset	Minimal	

4.7.1 Description

Civil disturbances can occur when large groups, organizations, or distraught individuals act with potentially disastrous or disruptive results. Many issues can cause civil disturbance, but most are due to political grievances, economic disputes or social discord, terrorism, or foreign agitators. Additionally, civil disturbance can result following a disaster that creates panic in the community. Forms of civil disturbance can range from groups blocking sidewalks, roadways, and buildings to mobs rioting and looting to gang activity. Civil disturbance may be spontaneous, as when a mob erupts into violence, or they may be planned, as when a demonstration or protest intentionally interferes with another individual's or group's lawful business. These types of incidents typically do not escalate to the traditional definition of a disaster but can have significant impacts on the community and require additional resources to manage.

4.7.2 Previous Occurrences

While there have been no civil disturbances recorded in Rolette County or on the Turtle Mountain Band of Chippewa Indians Reservation, there is always a possibility that someone may become dissatisfied with a situation and try to handle it as they see fit.

In the past 50 years, there have been three civil disturbance events in North Dakota – in 1969, 2016, and 2020. In 1969 the Zip to Zap riot was initially intended as a large-scale party but turned into a riot after tensions arose between students and authorities. College

campuses currently were rife with dissatisfaction for the nation's involvement in the Vietnam War and nuclear proliferation.

In 2016, the Dakota Access Pipeline (DAPL) project resulted in multiple criminal activities including acts of vandalism, trespassing, riots, vehicles, hay bales and tires set on fire, and the arrest of 709 protesters. The protestors gathered to express concern about the installation of an 1134-mile-long crude oil pipeline across North Dakota and other states. The protest transitioned into an unlawful assembly and civil disorder on August 10, 2016, when individuals attempted to block access to construction activities associated with the pipeline. Originally an environmental-focused event, it quickly grew from a few hundred participants to numbers estimated near 10,000. It also expanded its scope to include real or perceived concerns surrounding Native American rights, as well as a myriad of other environmental concerns not necessarily associated with construction of the DAPL. Widespread criminal activity spawned from the protest, to include vandalism, terroristic threats, and intimidation tactics directed at local landowners as well as law enforcement and their families, doxing of law enforcement and other officials (doxing is the Internet-based practice of researching and broadcasting private or identifiable information), arson, poaching, and the theft and killing of livestock in the area. Among the most notable impacts to the area was the closure of North Dakota Highway 1806 from the vicinity of Fort Rice to the Cannonball Bridge. This key and critical public roadway remained closed for most of the protest out of concerns for public safety. This closure contributed to hardships experienced by local landowners, the tribe, and others who depend on the road for commerce and access to the surrounding area.

In May of 2020, riots in Fargo emerged from a peaceful protest in memory of George Floyd in an event advertised as a celebration. The one Fargo event precipitated threats and turned violent with at least twelve arrests and vandalism with damage to downtown buildings as well as vehicles and injuries to officers including concussions from thrown objects. The MN Governor sent National Guard troops to the Fargo-Moorhead area for response. Several other smaller protest events occurred through the state over the next week requiring increased presence of law enforcement.

4.7.3 Location and Extent

Civil disturbances can occur anywhere in the state or county or on the TMBCI Reservation. While it is not possible to predict the location of civil disturbance, large venue locations such as stadiums, government facilities, industrial facilities, colleges and those locations with correctional facilities are somewhat more likely to be susceptible to such incidents. Correctional facilities and other facilities in which inmates are housed in North Dakota are listed below, not including county jails. North Dakota does not contract with private prisons.

Rolette County has a jail within the county located in Rolla and TMBCI has a jail located in Belcourt.

- North Dakota State Penitentiary, Bismarck, ND – Burleigh County
- Dakota Women's Correctional and Rehabilitation Center, New England, ND – Hettinger County
- James River Correctional Center, Jamestown, ND – Stutsman County
- Missouri River Correctional Center, Bismarck, ND – Burleigh County
- North Dakota Youth Correctional Center, Mandan, ND – Morton County
- Lake Region Correctional Center, Devils Lake, ND-Ramsey County

TMBCI has a college located three miles North of Belcourt. The Turtle Mountain Community College (TMCC) has an average enrollment of between 400-500 students during the academic year and an average of 100-200 students during the summer semester.

Civil disturbances may escalate to an act of terrorism depending on the circumstances and acts of terrorism can occur associated with civil disturbances. Additionally, the effects of a civil disturbance can spread beyond the immediate area where such activity is occurring. For example, when people unlawfully assemble on a public roadway, other people from outside the area or critical services may need to delay their trip or divert around the unlawful assembly. Table 4.1A displays the anticipated spatial extent of a civil disturbance in North Dakota.

Table 4.7A Spatial Extent of Civil Disturbance Incident

Resources	Extent of Impacts
People	Regional
Property	Local
Infrastructure	Local
Government Operations	Regional
Environment / Natural Resources	Local
Cultural Resources	Local

Source: 2018 ND Enhanced Mitigation MAOP

4.7.4 Probability

Civil disturbances are difficult to predict, because they may be motivated by any number of criminal or ideological goals, or because of the second and third order effects of an adversarial threat or natural or technological hazard event. However, it is likely that civil disturbances will continue to occur in North Dakota.

4.7.5 Risk Assessment

Vulnerability Assessment

Those who are considered vulnerable to the hazard and could need assistance if an incident did occur are the older population aged 65 and older representing 12.1 percent and those under the age of five making up 8.2 percent of the county population. Those under the age of 65 that are disabled make up 12.1% of the county population who may also require assistance.

As demonstrated in the DAPL unlawful assembly and civil disorder, a large civil disturbance can have a notable impact on both the local communities and the state. Additionally, as detailed above, the impact of a civil disturbance can spread far beyond the immediate area of the incident. Authorities can maintain awareness of activities for threats concerning public safety. Rolette County and TMBCI are vulnerable to the impacts of a civil disturbance; however, government facilities and large gathering areas have a greater potential to be the target of a civil disturbance. The Rolette County Courthouse is in the city of Rolla, which is the official county seat of Rolette County and therefore has increased vulnerability to civil disturbance. It is the responsibility of the Sheriff's office to provide security within the jurisdictional center. Rolette County has limited law enforcement staff. The communities of Dunseith, Rolette, St. John, and Mylo all have limited security measures at city and county buildings. TMBCI governmental offices are located at Belcourt on the Turtle Mountain Band of Chippewa Indians Reservation. The BIA and Tribal Law Enforcement agencies oversee the security for the governmental agencies on the reservation.

4.7.6 State Assets and/or Critical Facilities at Risk

Any government building or facility can be the target for large protests that have the potential to turn into civil disturbance. The Rolette County Courthouse in the city of Rolla as well as the city halls within the county pose potential risks for disturbances as does the governmental agencies on the Turtle Mountain Band of Chippewa Indians Reservation. Additionally, industrial infrastructure such as oil and gas operations may also be targets for civil disturbance, as can any utility.

State and Tribal assets and critical infrastructure can be the targets of protests and may grow to become civil disturbances without warning. State and Tribal assets may also be the target of intentional disturbances. State and Tribal assets and critical infrastructure are considered vulnerable to the impacts of a civil disturbance, though areas that are more political or controversial to specific groups are more vulnerable

4.7.7 Civil Disorder Prone Critical Facilities

Facility	Visibility	Criticality	Impact	PTE	Hazard	Site	Collateral	Total
Water Treatment Plant	Information is confidential and held in 2003 ODP Assessment							
Natural Gas Pipeline								
Natural Gas Pumping Stations								
Natural Gas Pipeline Ports								
Oil Pipeline								
Railroad								
Public Safety Communication Towers								
Telephone								
Public Health Unit								
Military Base, Missile Sites (Air Force)								
Health Clinic								
Nursing Home/Senior Housing								
Schools								
Government buildings (Federal, State, and Local)								
Bulk Fuel								
Anhydrous Ammonia plants								
Fertilizer / Ag Chemical Plant								
Grain and Ag Chemical handling facilities.								
Cell Phone towers								

Table 4.7.7 identifies those facilities in the county that have been identified as being at risk from a civil disorder/terrorist event. The method for calculating the total risk was identified by the Department of Homeland Security for their 2003 Office for Domestic Preparedness Assessment and included:

- Visibility of the target on an area, local, regional, state and national level.
- Criticality of the target to the local jurisdiction, regional and national level.
- Impact on the community, region, and nation.
- Potential threat elements within the area that have reason to target the facility.
- Other hazards such as CBRNE that may have a secondary effect.
- Population that may be affected at the facility.
- Collateral population that may be affected near the facility.

Rolette County was identified as having 2 Energy, 1 Public Health, 5 Transportation, 5 Emergency Services including EMS, 6 Communications, and 5 Water critical facilities which include city water towers and rural water system reservoirs. For security reasons the total score was utilized to represent the overall assessment of the facility. Further questions should be addressed to local law enforcement and the emergency manager.

4.7.8 Loss Estimates

The impact of a civil disturbance can include the cost of responding to the disturbance, property damage, and economic loss. The loss estimates are contingent on the location and scope of the disturbance, but the recent DAPL unlawful assembly and civil disorder provides an example of the potential loss and impact from a large disturbance.

4.7.9 Civil Disturbance Impacts

Impact on the public due to a civil disturbance would be localized around the disturbance; however, if the disturbance were directed at or occurring on or near a transportation route including US Highway 281, or with State Highways 3, 5, 30, or 60 the impact may be felt on a regional level. The city of Rolla (the county seat), and the communities of Dunseith, Belcourt and Rolette are located on these major transportation routes. Mass casualties and fatalities among the public are the most severe possibilities; other impacts may include the spread of misinformation via social media, mass panic, and loss of ability for responders to access the scene of the incident. The Northland Health Centers in Rolette, the Presentation Medical Center in Rolla, and the P H S Indian Hospital at Belcourt-Quentin N Burdick could become overwhelmed in a Civil Disturbance incident involving mass casualties or fatalities. Additionally, there can be a loss of productivity and economic loss due to interrupted and/or delayed lawful activities, as well as increased, un-forecasted public and private costs due to response and recovery requirements.

4.7.10 Responders

Depending on the location and number of individuals, a civil disturbance may occur quickly and for an extended amount of time. Increased demand for emergency services may leave other areas close to the incident scene vulnerable. First responders may be delayed or diverted from others that require assistance, especially as a civil disturbance may continue until an appropriate number of responders are on scene and can stop the unlawful actions. Casualties or fatalities among responders can occur.

4.7.11 Continuity of Operations (COOP)

A small localized civil disturbance will likely compromise Continuity of Operations in smaller jurisdictions. However, with a large civil disturbance, these areas would be strained not only at the local level but at the state level as well.

4.7.12 Delivery of Services

Disrupted service delivery due to closed/damaged/destroyed infrastructure. A small localized civil disturbance will likely compromise delivery of services in smaller jurisdictions. However, with a large civil disturbance, these areas would be strained not only at the local level but at the state level as well. Civil Disturbance Impacts Property, Facilities, and Infrastructure Property, facilities, and infrastructure are often targets and/or locations of civil disturbances and many times are damaged or destroyed during an incident. Effects could be catastrophic, including loss of power, loss of utility functions, limited access to transportation, and destruction of both public and private property. Other damages stemming from things like looting, plus the un-forecasted public and private costs due to response and recovery requirements, can have long-lasting effects on the local community. Environment Civil disturbances can take a toll on the environment due to pollution, contamination, waste and debris (human and garbage), destruction of landmarks (natural and manmade), and the consequences of any malfunctioning of facilities and critical infrastructure.

4.7.13 Economy

A small localized civil disturbance will likely compromise this area in smaller jurisdictions. However, with a large civil disturbance this area would be strained not only at the local level but at the state level as well. Commerce may be disrupted due to closed, damaged, or destroyed infrastructure; loss of service delivery options may further compound economic losses. Decreased economic activity in general due to avoidance of civil disturbance areas will also exacerbate the impact on the state economy, as will un-forecasted public and private costs due to response and recovery requirements. Rolette County and TMBCI has limited financial means to address major incidents.

Public Confidence in State, Tribal, and local Governance Social values and public confidence can be affected by any sort of civil disturbance, particularly one that occurs locally. Community members may not feel safe and may have lasting emotional impacts, especially if they or someone close to them is personally affected by the incident. Vigilante justice is possible as members of the public lose confidence in their government’s ability to retain law and order.

4.7.14 Loss Estimates

The impact of a civil disturbance can include the cost of responding to the disturbance, property damage, and economic loss. The loss estimates are contingent on the location and

scope of the disturbance, but the recent DAPL unlawful assembly and civil disorder provides an example of the potential loss and impact from a large disturbance.

The response to the DAPL unlawful assembly and civil disorder was one of the most expensive and lengthy in the history of the state and ranks among the most major long-term civil disturbances in the history of the nation.

4.7.15 Future Conditions

The future vulnerability of North Dakota and the Turtle Mountain Band of Chippewa Indians to civil disturbances is determined by both the current risk and an understanding of how this risk is expected to change in the future. As noted above, it is also important to consider both the direct and indirect impacts from other hazards and how those may also influence future risk. Key factors influencing the future initiation of a civil disturbance include:

- Political grievance
- Real or perceived economic and societal disparity
- Safety and security fears resulting from another event
- The joy or disappointment of a group due to the result of any high-profile event, such as a concert or the win or loss of a favorite sports team
- The widespread use and abuse of substances in a group setting, either independently or in conjunction with another cause for a civil disturbance.

4.7.16 Climate Change

Due to the human-caused nature of civil disturbance, climate change is not expected to impact this hazard. However, the growing public concern over climate change may influence protests that can turn into civil disturbance directed towards the prominent oil and gas industry in North Dakota.

4.7.17 Changes in Development

In general, development should have little to no impact on civil disturbances. However, a large influx of population in a short amount of time in areas that aren't accustomed to these population sizes can be a source of civil disturbance. Rolette County has experienced a decrease in population since 2010. The population in 2020 was 12,162 while the estimated population for 2021 is 12,048 which is 0.9 percent decrease. This shows a continued trend in population loss instead of growth.

The North Dakota projected population for 2030 is 931,506 people, up 38% from the 2010 census. Although development is not the only indicator of risk to civil disturbance, these large influxes of population may make these counties more vulnerable. Future occurrences of civil disturbances can occur for multiple reasons. Recently, civil disturbances have been more likely to begin because of political grievance (e.g., the results of an election, an unpopular court decision, a controversial public or private action such as construction of a crude oil pipeline or disputed law enforcement authorities or actions). These civil

disturbances are the most likely to impact state assets and critical infrastructure. As exemplified in the DAPL protests, development of certain projects may raise controversy and can cause a civil disturbance.

4.7.18 Jurisdictions at Risk

The state's review of local HMPs available at the time of the 2018 state plan update, found no local plans that profiled civil disturbance in the Risk Assessment. However, there is growing recognition that robust and comprehensive hazard mitigation planning should be inclusive of the potential for a civil disturbance.

4.7.19 Summary /Conclusion

Civil disturbance is an example of a human-caused hazard that is intentional and often planned. It is important to note that there is a proud tradition of lawful protest in our nation which has brought about positive change and the recognition and protection of natural rights for all citizens. However, this can be used to justify unlawful civil disturbance actions. The DAPL unlawful assembly and civil disorder in 2016 was one of the largest civil disturbances in the nation's history, having a large impact on the local population and property, as well as state resources. North Dakota and the Turtle Mountain Band of Chippewa Indians continue to be at risk to civil disturbances, especially in large gathering areas as well as areas with critical infrastructure and state and Tribal assets which can be a target for protests. Because civil disturbance is a hazard that is intentional and often planned, it is difficult to quantitatively express the probability of an incident. For this reason, civil disturbances have been understood in the context of the following definitions:

- *Future probability*: If probability cannot be calculated numerically, probability is indicated as either highly likely, likely, or possible.
- *Highly likely probability* generally indicates judgments based on high-quality information and/or the nature of the issue makes it possible to conclude a solid judgment.
- *Likely probability* generally means there are various ways to interpret the information, we have alternative views, or the information is credible and plausible but not corroborated sufficiently.
- *Possible probability* generally means the information is scant, questionable, or very fragmented which makes it difficult to make solid analytic inferences.

There is a possible probability that civil disturbances will continue to occur in North Dakota. The impact of a civil disturbance is likely to be minor, with very few, if any, injuries, minor levels of property damage, and the temporary shutdown of critical facilities. The spatial impact of a disturbance, or to what extent the surrounding area may be affected, is likely to be small, with between 1-10.9% of the area affected. Warning time will be less than six hours, with a disturbance likely lasting for one week or less. These results as well as feedback received during the hazard mitigation planning process indicate that a civil disturbance incident ranks number thirteen out of fourteen hazards present in North Dakota.

4.7.20 Data Limitations / References

Data limitations in researching civil disturbances exist primarily in context with impacts in the United States. Several databases exist that compile information about civil disturbance incidents and impacts globally. An online database of historical civil disturbances and associated losses in the United States would prove beneficial in documenting the effects of disturbances and directing mitigation activities in North Dakota. Key documents and plans that were used to create this hazard profile include the 2015 THIRA and research about the impact of the DAPL protests.

4.8 Severe Summer Weather

Including Tornadoes, Hail, Downbursts, Thunderstorm Winds, Lightning, and Extreme Heat

Frequency	Highly Likely	
Impact	Critical	
Risk Class	A	
Seasonal Pattern	Summer-June to August	
Duration	15 minutes to 24 hours, depends on whether the storm consists of heavy rains, hail, lightening, severe thunderstorms, tornadoes, heavy winds, and/or flash flooding.	
Speed of Onset	Minimal warning	

4.8.1 Description

Severe summer storms can result in loss of life, injuries, and damage to property and crops. Although thunderstorms affect relatively small areas when compared to other hazards such as winter storms, all thunderstorms are dangerous. Every thunderstorm produces lightning, which kills more people each year than tornadoes. Heavy rain from thunderstorms can lead to flash flooding. Strong winds, hail, and tornadoes are also dangers associated with some thunderstorms.

Thunderstorms develop across North Central North Dakota when moisture in the atmosphere rises, usually from a front, unstable atmospheric conditions, or daytime ground heating, and cools higher in the atmosphere, condensing into rain droplets or ice crystals. The cloud grows as these conditions continue and the atmospheric instability allows. Lightning can be produced, with or without rain, as a charge builds up in the cloud. With

the right atmospheric conditions, updrafts and downdrafts form in the thunderstorm structure. Strong updrafts and downdrafts can produce hail, damaging downbursts, and even tornadoes.

The National Weather Service estimates that over 100,000 thunderstorms occur each year in the United States; approximately 10 percent of those storms are classified as severe. A severe thunderstorm is defined by the National Weather Service as a thunderstorm that produces wind gusts at or greater than 58 mph (50 kts), hail 1 inch or larger in diameter, and/or tornadoes. These criteria represent thresholds where significant damages can occur. Strong winds and tornadoes can take down trees, damage structures, tip high profile vehicles, and create high velocity flying debris. Large hail can damage crops, dent vehicles, break windows, and injure or kill livestock, pets, and people.

When severe summer weather is forecast, the National Weather Service may issue a "watch" or a "warning". A "watch" informs the public that severe summer weather may occur and advises people to stay alert for further information. A "warning" is issued when severe summer weather is imminent.

The Cumulus Stage

The cumulus stage occurs when thunderstorm development begins. At this stage, the storm consists only of upward-moving air currents called updrafts. These updrafts reach heights of around 20,000 feet above the ground, but the base of the storm may lower, as moisture becomes more plentiful. As a thunderstorm develops, towering cumulus clouds indicate rising air. There is usually little rain during this stage and only occasional lightning.

The Mature Stage

The mature stage is the strongest and most dangerous stage of a storm's life cycle. As the storm matures, the clouds have a black or dark green appearance. Hail, heavy rain, frequent lightning, strong winds, and tornadoes are most likely to occur during this phase, lasting an average of 10 to 20 minutes. At this stage, the storm contains both upward and downward moving air currents (updrafts and downdrafts) with precipitation in the downdraft areas. These updrafts and downdrafts can reach velocities of 170 mph. When the cool downdraft hits the ground, it spreads out and forms a gust front, which may include damaging wind called a downburst. The updraft also causes the top of the storm to spread out.

The Dissipating Stage

In the dissipating stage, the precipitation and downdraft dominate the storm and weaken the updraft. As the gust front moves away from the storm, the inflow of energy into the storm is cut off. As the thunderstorm dissipates, rainfall may decrease in intensity, but lightning and strong winds remain a danger.

Tornadoes

Tornadoes form when the right amount of shear is present in the atmosphere and causes the updraft and downdraft of a thunderstorm to rotate. A funnel cloud is the rotating column of air extending out of a cloud base, but not yet touching the ground. The funnel cloud does not become a tornado until it touches the ground. Once in contact with the surface, it can create great damage over a small area. In 1971, Dr. Theodore Fujita developed the Fujita tornado damage scale to categorize various levels of tornado damage. In 2006, enhancements to this scale resulted in more accurate categorizations of damage and the associated wind speeds. Both scales are shown in Table 4.8.1A.

Figure 4.8.1A Tornado Stages

Development Stage

Mature State (F1)

Dissipation Stage

Source: National Weather Service, 2007

Table 4.8.1A Tornado Scales

Fujita Scale		Enhanced Fujita Scale	
Scale	**Estimated Wind Speed**	**Scale**	**Estimated Wind Speed**
F0	<73 mph	EF0	65-85 mph
F1	73-112 mph	EF1	86-110 mph
F2	113-157 mph	EF2	111-135 mph
F3	158-206 mph	EF3	136-165 mph
F4	207-260 mph	EF4	166-200 mph
F5	261-318 mph	EF5	>200 mph

Source: Storm Prediction Center, 2008a.

Hail

Hail develops when a super cooled droplet collects a layer of ice and continues to grow, sustained by the updraft. Once the hail stone cannot be held up any longer by the updraft, it falls to the ground. Hail up to three inches in diameter has been reported in Rolette County and on the TMBCI. Nationally, hailstorms cause nearly $1 billion in property and crop damage annually, as peak activity coincides with peak agricultural seasons. Severe hailstorms also cause considerable damage to buildings and automobiles, but rarely result in loss of life.

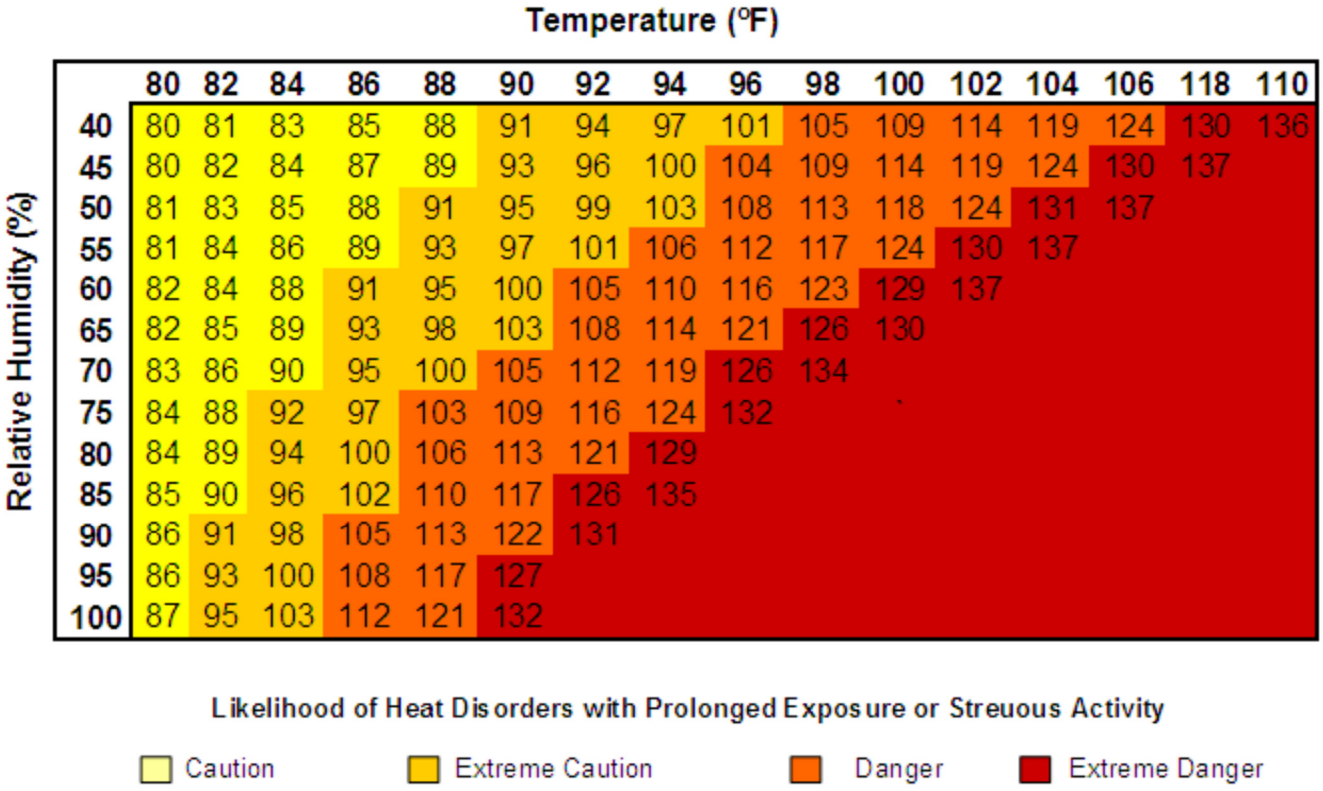
Extreme Heat

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. In a normal year, about 175 Americans succumb to the demands of summer heat. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the heat wave of 1980, more than 1,250 people died.

Heat disorders generally have to do with a reduction or collapse of the body‘s ability to shed heat by circulatory changes and sweating or a chemical (salt) imbalance caused by too much sweating. When heat gain exceeds the level the body can remove, or when the body cannot compensate for fluids and salt lost through perspiration, the temperature of the body‘s inner core begins to rise and heat-related illness may develop. Elderly persons, small children, chronic invalids, those on certain medications or drugs, and persons with weight and alcohol problems are particularly susceptible to heat reactions, especially during heat waves in areas where moderate climate usually prevails.

Figures 4.8.1 and 4.8.2 show the Heat Index (HI) as a function of heat and relative humidity. The Heat Index describes how hot the heat-humidity combination makes it feel. As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration. As the HI rises, so do health risks. When the HI is 90°F, heat exhaustion is possible with prolonged exposure and/or physical activity. When it is 90°-105°F, heat exhaustion is probable with the possibility of sunstroke or heat cramps with prolonged exposure and/or physical activity. When it is 105°-129°F, sunstroke, heat cramps or heat exhaustion is likely, and heatstroke is possible with prolonged exposure and/or physical activity. When it is 130°F and higher, heatstroke and sunstroke are extremely likely with continued exposure. Physical activity and prolonged exposure to the heat increase the risks. A severe hazard is leaving children and/or pets in vehicles during summer weather conditions.

Figure 4.8.1 Heat Index



Note: Since HI values were devised for shady, light wind conditions, exposure to full sunshine can increase HI values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

Figure 4.8.2 Possible Heat Disorders by Heat Index Level

Heat Index	Category	Possible heat disorders for people in high risk groups
130°F or higher	Extreme Danger	Heatstroke risk extremely high with continued exposure.
105° - 129°F	Danger	Sunstroke, Heat Cramps and Heat Exhaustion likely, Heatstroke possible with prolonged exposure and/or physical activity.
90° - 105°F	*Extreme Caution*	*Sunstroke, Heat Cramps and Heat Exhaustion possible with prolonged exposure and/or physical activity.*
80° - 90 °F	Caution	Fatigue possible with prolonged exposure and/or physical activity.

The NWS has in place a system to initiate alert procedures (advisories or warnings) when the Heat Index is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. A common

guideline for the issuance of excessive heat alerts is when the maximum daytime high is expected to equal or exceed 105°F and a nighttime minimum high of 80°F or above is expected for two or more consecutive days. The NWS office in Bismarck, ND can issue the following heat-related advisory as conditions warrant.

- **Excessive Heat Outlook**: are issued when the potential exists for an excessive heat event in the next 3-7 days. An Outlook provides information to Heat Index forecast map for the contiguous United States those who need considerable lead time to prepare for the event, such as public utilities, emergency management and public health officials.
- **Excessive Heat Watch**: is issued when conditions are favorable for an excessive heat event in the next 12 to 48 hours. A Watch is used when the risk of a heat wave has increased, but its occurrence and timing is still uncertain. A Watch provides enough lead time so those who need to prepare can do so, such as cities that have excessive heat event mitigation plans.
- **Excessive Heat Warning/Advisory**: are issued when an excessive heat event is expected in the next 36 hours. These products are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. The warning is used for conditions posing a threat to life or property. An advisory is for less serious conditions that cause significant discomfort or inconvenience and, if caution is not taken, could lead to a threat to life and/or property.

Downbursts and Strong Winds

Downburst winds, which can cause more widespread damage than a tornado, occur when air is carried into a storm's updraft, cools rapidly, and comes rushing to the ground. Cold air is denser than warm air, and therefore, wants to fall to the surface. On warm summer days, when the cold air can no longer be supported up by the storm's updraft, or an exceptional downdraft develops, the air crashes to the ground in the form of strong winds. 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. Downbursts with a diameter of less than 2.5 miles are called microbursts and those with a diameter of 2.5 miles or greater are called microbursts. A derecho, or bow echo, is a series of downbursts associated with a line of thunderstorms. This type of phenomenon can extend for hundreds of miles and contain wind speeds in excess of 100 mph.

Straight-line winds are responsible for most thunderstorm wind damage. During the summer in the western states, thunderstorms often produce little rain but very strong wind gusts and dust storms. Downbursts can be extremely dangerous to aviation. Damage attributed to tornadoes is frequently caused by straight-line winds from a downburst. Downbursts can produce a "roaring" sound and damage similar to a tornado. These strong winds can damage trees, blow vehicles off the road, break windows, down power lines,

damage roofs and fences, and cause other structural damages. Individuals caught outside are also at risk of injury from blowing dust and debris.

Strong winds can also occur outside of tornadoes and severe thunderstorms. These winds typically develop with strong pressure gradients and gusty frontal passages. The closer and stronger two systems (one high pressure, one low pressure) are, the stronger the pressure gradient, and therefore, the stronger the winds are.

Lightning

Although not considered severe by National Weather Service definition, lightning and heavy rain can also accompany thunderstorms. 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. Invisible to the human eye, the negatively charged area of the cloud sends a charge called a stepped leader toward the ground. Once it gets close enough, a channel develops between the cloud and the ground. Lightning is the electrical transfer through this channel. The channel rapidly heats to 50,000 degrees Fahrenheit and contains approximately 100 million electrical volts. The rapid expansion of the heated air causes thunder. (National Weather Service, 2008a)

4.8.2 Geographic Location

Summer storms are of the scale and pattern that the science is not quite sophisticated enough to identify what areas of the county are at greater risk of occurrence. Therefore, all areas of the county are assumed to have the same severe thunderstorm and strong wind risk countywide. Generally, the urban areas have the potential to sustain more damages due the increased exposure to hazards. In Rolette County and on the Turtle Mountain Band of Chippewa Indians Reservation, this would include the communities of Belcourt, Dunseith, Mylo, Rolette, Rolla, and St. John.

4.8.3 Previous Occurrences

Reports of severe thunderstorms and tornadoes are collected from trained spotters by the local National Weather Service (NWS) office in Grand Forks. These records are archived by the National Climatic Data Center. Since official records can only indicate events that have been reported to the National Weather Service, events are often underreported in rural area and areas lacking trained spotters.

Tornadoes

Since 1950, 15 tornado events have been recorded in Rolette County and on the TMBCI. The strongest tornado reported in the county was an F3 on the Fujita scale which was on July 07, 2008 which resulted in three injuries. Table 4.8.3A lists the tornadoes that have occurred in the county since 2000.

Table 4.8.3A Damaging Tornadoes

Location	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:						0	3	2.108M	350.00K
DUNSEITH	07/15/2000	17:00	CST	Tornado	F0	0	0	0.00K	0.00K
DUNSEITH	06/25/2002	13:30	CST	Tornado	F0	0	0	0.00K	0.00K
ROLLA	06/23/2006	12:52	CST	Tornado	F0	0	0	0.00K	0.00K
DUNSEITH	07/07/2008	13:45	CST-6	Tornado	EF0	0	0	8.00K	0.00K
SAN HAVEN	07/07/2008	13:50	CST-6	Tornado	EF3	0	3	1.500M	0.00K
ROLETTE	08/01/2010	20:45	CST-6	Tornado	EF0	0	0	0.00K	0.00K
MYLO	08/03/2016	16:28	CST-6	Tornado	EF2	0	0	600.00K	350.00K
ROLETTE	07/19/2017	08:35	CST-6	Tornado	EF0	0	0	0.00K	0.00K
ROLLA	06/14/2018	20:14	CST-6	Tornado	EF0	0	0	0	0
Totals:						0	3	2.108M	350.00K

Source: National Climatic Data Center, 2022 http://www.ncdc.noaa.gov/stormevents/

The Northwood Tornado in Grand Forks County is worth mentioning as it had a great impact across the State of North Dakota in recent history of severe summer weather. Rolette County and the TMBCI are much like rural Grand Forks County, small towns interspersed with farms. If a tornado, like this hit a Rolette County town or Belcourt on the TMBCI the impact would be very similar. This tornado occurred on August 26, 2007. The tornado touched down about 2 miles west-southwest of Northwood. The tornado crossed the Goose River about one mile west-southwest of the Northwood airport and left a 200-yard-wide stretch of downed trees in its wake. By the time it hit the airport, the ground track was one-third of a mile wide and growing wider. At this point, the tornado was still visible outside the increasingly heavy rain. The tornado reached an incredible width of eight-tenths of a mile as it pushed through Northwood to the east-northeast. The tornado had multiple vortices embedded in the overall wedge-shaped tornado. The tornado was categorized as an EF-4 tornado. The strongest of these vortices appears to have scoured the ground and left broad circulation patterns of debris in the overall damage and debris field. Around this time, the tornado likely became wrapped in heavy rain and would have been difficult to observe from a distance. (National Climatic Data Center, 2013)

Widespread EF-3 and EF-4 damage occurred to main residential and business areas of Northwood. The most extreme damage occurred in the northeast corner of Northwood where Agvise Laboratories and Gabriel Construction buildings were total losses. In Northwood, an estimated 90 percent of the 362 single-family homes, 80 percent of the 110 multi-family homes, 100 percent of the 20 mobile homes, and 89 percent of the 37 municipal buildings were damaged. One death occurred in a mobile home, with 18 other injuries reported. The death occurred in a trailer park on the north edge of town, where 19 total units were demolished. Just to the east of the trailer park, in the area that sustained extreme damage, three businesses were hit particularly hard. An agricultural company, the city's largest employer, had its buildings heavily damaged. A nearby construction company lost two large steel buildings and other equipment. Steel beams from the two steel buildings were twisted and tossed nearby. Finally, a car dealership lost 15 to 20 vehicles from its parking lot along Highway 15. Many of these vehicles were damaged beyond recognition and tossed into nearby fields. Cars and trucks were carried up to one-half mile into corn and bean fields. One corn field to the north of Highway 15 (across from the 3 businesses on the northeast side of town) had its stalks snapped off several inches from the root bases, with pieces of husked corn lying around. Hangers and airplanes were also damaged at the airport. The local health center, school, supermarket, and grain elevator were damaged. Near the elevator, several rail cars were knocked off the tracks. Hundreds of trees were snapped, uprooted, or damaged. A total of about 2,600 truckloads of debris were hauled to the city landfill. (National Climatic Data Center, 2008)

The entire power distribution system was impacted. Basic power was restored within six days to all locations that could structurally accept services. Repairs to the system continued in 2008 to include services that were damaged, street lighting, pole straightening, and re-

sag lines. Some municipal water mains were broken due to uprooted trees and other debris-generated damage, but there was no major loss of service. Wastewater services were not interrupted as a generator was used until regular power was restored. Telephone and cable services were lost citywide. In the days following the tornado, a Presidential Disaster Declaration (DR-1726-ND) was granted.

Hail

During the period from January 1, 1970 through August 17, 2022, 66 hail events were reported. Since 1970, 49 days have been reported with severe hail reports (3/4 inches or greater) in Rolette County with five of these events occurring on the TMBCI.

Table 4.8.3B lists the reports of hail since 2000.

Table 4.8.3B Hail Reports since January 1, 2000

Location	St.	Date	Time	T.Z.	Type	Mag	PrD	CrD
Totals:							250.00K	200.00K
BELCOURT	ND	08/14/2001	13:50	CST	Hail	0.75 in.	0.00K	0.00K
DUNSEITH	ND	05/29/2002	19:50	CST	Hail	1.00 in.	0.00K	0.00K
ROLETTE	ND	07/31/2002	18:54	CST	Hail	0.75 in.	0.00K	0.00K
BELCOURT	ND	07/31/2002	19:02	CST	Hail	1.75 in.	0.00K	0.00K
ROLLA	ND	08/26/2002	18:10	CST	Hail	1.00 in.	0.00K	0.00K
ST JOHN	ND	08/31/2002	16:45	CST	Hail	1.75 in.	0.00K	0.00K
BELCOURT	ND	06/26/2003	14:55	CST	Hail	0.75 in.	0.00K	0.00K
MYLO	ND	07/02/2003	16:27	CST	Hail	0.75 in.	0.00K	0.00K

Location	St.	Date	Time	T.Z.	Type	Mag	PrD	CrD
NANSON	ND	05/19/2004	16:20	CST	Hail	1.75 in.	0.00K	0.00K
ROLETTE	ND	06/06/2004	22:40	CST	Hail	1.00 in.	0.00K	0.00K
BELCOURT	ND	06/06/2004	22:48	CST	Hail	1.00 in.	0.00K	0.00K
MYLO	ND	08/15/2004	17:45	CST	Hail	0.75 in.	0.00K	0.00K
NANSON	ND	08/15/2004	18:45	CST	Hail	0.75 in.	0.00K	0.00K
ROLETTE	ND	06/29/2005	01:30	CST	Hail	1.00 in.	0.00K	0.00K
ROLETTE	ND	07/02/2005	20:15	CST	Hail	1.00 in.	0.00K	0.00K
ROLETTE	ND	07/02/2005	20:15	CST	Hail	2.75 in.	0.00K	0.00K
MYLO	ND	07/10/2005	19:00	CST	Hail	1.00 in.	0.00K	0.00K
MYLO	ND	06/15/2006	20:26	CST	Hail	0.75 in.	0.00K	0.00K
DUNSEITH	ND	08/04/2006	07:30	CST	Hail	0.75 in.	0.00K	0.00K
ROLETTE	ND	05/21/2007	19:35	CST-6	Hail	2.00 in.	0.00K	0.00K
ROLLA	ND	06/22/2007	17:30	CST-6	Hail	1.25 in.	0.00K	0.00K
DUNSEITH	ND	06/22/2007	21:09	CST-6	Hail	0.88 in.	0.00K	0.00K
DUNSEITH	ND	06/24/2007	22:55	CST-6	Hail	0.75 in.	0.00K	0.00K

Location	St.	Date	Time	T.Z.	Type	Mag	PrD	CrD
DUNSEITH	ND	06/24/2007	23:40	CST-6	Hail	0.75 in.	0.00K	0.00K
ROLETTE	ND	08/10/2007	07:46	CST-6	Hail	0.88 in.	0.00K	0.00K
FONDA	ND	08/02/2008	11:15	CST-6	Hail	0.88 in.	0.00K	0.00K
ROLETTE ARPT	ND	08/21/2008	19:25	CST-6	Hail	0.88 in.	0.00K	0.00K
ROLLA	ND	06/27/2009	14:40	CST-6	Hail	0.75 in.	0.00K	0.00K
ROLETTE	ND	07/01/2010	02:30	CST-6	Hail	1.00 in.	0.00K	0.00K
DUNSEITH	ND	08/01/2010	18:15	CST-6	Hail	0.88 in.	0.00K	0.00K
ROLLA	ND	06/17/2012	19:45	CST-6	Hail	1.00 in.	0.00K	0.00K
ROLLA	ND	07/19/2012	19:32	CST-6	Hail	0.88 in.	0.00K	0.00K
THORNE	ND	08/20/2014	14:19	CST-6	Hail	1.00 in.	0.00K	0.00K
BELCOURT	ND	07/12/2015	16:45	CST-6	Hail	1.50 in.	0.00K	0.00K
MYLO	ND	07/23/2015	18:35	CST-6	Hail	0.88 in.	0.00K	0.00K
THORNE	ND	07/04/2016	14:06	CST-6	Hail	1.25 in.	0.00K	0.00K
THORNE	ND	07/04/2016	14:12	CST-6	Hail	1.75 in.	0.00K	0.00K

Location	St.	Date	Time	T.Z.	Type	Mag	PrD	CrD
THORNE	ND	07/04/2016	14:20	CST-6	Hail	2.75 in.	150.00K	50.00K
ST JOHN	ND	07/20/2016	18:16	CST-6	Hail	1.00 in.	0.00K	0.00K
SAN HAVEN	ND	08/03/2016	15:20	CST-6	Hail	3.00 in.	100.00K	150.00K
THORNE	ND	08/03/2016	15:35	CST-6	Hail	0.75 in.	0.00K	0.00K
THORNE	ND	08/03/2016	16:10	CST-6	Hail	1.00 in.	0.00K	0.00K
MYLO	ND	08/03/2016	16:50	CST-6	Hail	1.75 in.	0.00K	0.00K
MYLO	ND	08/03/2016	17:10	CST-6	Hail	1.00 in.	0.00K	0.00K
ST JOHN	ND	07/19/2017	07:30	CST-6	Hail	1.75 in.	0.00K	0.00K
MYLO	ND	06/14.6018	15:18	CST-6	Hail	1.00 in	0.00K	0.00K
MYLO	ND	06/14/2014	15:36	CST-6	Hail	2.00 in	0.00K	0.00K
ST. JOHN	ND	06/14/2018	19:39	CST-6	Hail	1.50 in	0.00K	0.00K
ROLETTE	ND	06/29/2019	06:34	CST-6	Hail	1.00 in	0.00K	0.00K
ROLETTE	ND	07/17/2020	12:56	CST-6	Hail	1.00 in	0.00K	0.00K
ROLETE	ND	07/17/2020	13:00	CST-6	Hail	1.00 in	0.00K	0.00K

Location	St.	Date	Time	T.Z.	Type	Mag	PrD	CrD
MYLO	ND	07/19/2021	17:51	CST-6	Hail	1.00 in	0.00K	0.00K
Totals:							250.00K	200.00K

Source: National Climatic Data Center, 2022

Extreme Heat History

NCDC recorded one extreme heat event in Rolette County and on the Turtle Mountain Band of Chippewa Indian Reservation between 1950 and 2018. That occurred on July 16, 2011.

Severe Thunderstorm Winds / Downbursts

Since 1950, 25 severe thunderstorm wind reports (58 mph or greater) have been recorded in Rolette County and on the Turtle Mountain Band of Chippewa Indians Reservation. Table 4.8.3C lists the reports of severe thunderstorm winds causing damages (besides tree damage) since 2000.

Table 4.8.3C Severe Thunderstorm Wind Reports Causing Damage

Location	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:						1	0	85.50K	0.00K
BELCOURT	07/02/2003	08:52	CST	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
ROLETTE	07/12/2004	00:50	CST	Thunderstorm Wind	70 kts. EG	0	0	0.00K	0.00K
BELCOURT	07/07/2005	22:15	CST	Thunderstorm Wind	65 kts. EG	1	0	0.00K	0.00K
THORNE	08/02/2005	19:05	CST	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K

Location	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
ROLETTE	08/31/2005	01:30	CST	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
DUNSEITH	07/13/2007	16:30	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
DUNSEITH	07/31/2007	20:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.50K	0.00K
BELCOURT	07/01/2010	02:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
ROLLA	07/01/2010	03:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
BELCOURT	07/31/2010	19:22	CST-6	Thunderstorm Wind	55 kts. MG	0	0	0.00K	0.00K
NANSON	06/25/2011	18:30	CST-6	Thunderstorm Wind	74 kts. EG	0	0	30.00K	0.00K
ROLETTE	06/25/2011	18:46	CST-6	Thunderstorm Wind	70 kts. EG	0	0	20.00K	0.00K
ROLETTE	07/02/2012	10:40	CST-6	Thunderstorm Wind	61 kts. EG	0	0	20.00K	0.00K
DUNSEITH	07/13/2013	19:37	CST-6	Thunderstorm Wind	61 kts. EG	0	0	0.00K	0.00K
ROLLA	07/13/2013	20:01	CST-6	Thunderstorm Wind	50 kts. MG	0	0	0.00K	0.00K
SAN HAVEN	08/30/2013	18:40	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
ROLLA	06/09/2016	23:35	CST-6	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K

Location	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
ST JOHN	07/20/2016	18:16	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
MYLO	08/03/2016	16:50	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
BELCOURT	05/31/2018	16:13	CST-6	Thunderstorm Wind	65 KTS EG	0	0	25.00K	0.00K
ROLLA	07/02/2020	20:38	CST-6	Thunderstorm Wind	52 KTS EG	0	0	2.0K	0.00K
ROLETTE	07/08/2020	00:00	CST-6	Thunderstorm Wind	63 KTS EG	0	0	0.00K	0.00K
ROLETTE	07/17/2020	12:49	CST-6	Thunderstorm Wind	52 KTS EG	0	0	0.00K	0.00K
ST JOHN	07/23/2020	11:06	CST-6	Thunderstorm Wind	61 KTS EG	0	0	5.00K	0.00K
Totals:						1	0	117.50K	0.00K

Source: http://www.ncdc.noaa.gov/stormevents/2022

Lightning

Although lightning has the potential to cause damage to property and even fatalities, the National Climatic Data center has recorded only one event of damage cause by lightning for Rolette County and on the Turtle Mountain Band of Chippewa Indians Reservation since 2000 to 2017. The event occurred at Nanson on August 09, 2006 at 15:15. $10,000 in damage was caused by the event.

Non-Thunderstorm Strong Winds

Since 1950, there has been no non-thunderstorm wind events recorded in Rolette County and on the TMBCI Reservation that caused reported damage.
Source: http://www.ncdc.noaa.gov/stormevents/2017

Flash Flood and Significant Rain Event

Severe Summer Weather events may also cause a large amount of rain in very little time. The events that were Presidential Declared Disasters were discussed in the section of Flooding (4.4). The events listed in Table 4.8.3E are events that occurred but not all were declared disasters.

Table 4.8.3E,
Flash Flood Events Since 1/1/2000

Location	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:						0	0	213.00K	0.00K
DUNSEITH	06/26/2005	20:30	CST	Flash Flood		0	0	33.00K	0.00K
BELCOURT	07/07/2005	22:20	CST	Flash Flood		0	0	0.00K	0.00K
DUNSEITH	07/10/2005	20:00	CST	Flash Flood	12	0	0	0.00K	0.00K
NANSON	07/11/2005	01:15	CST	Flash Flood	8	0	0	0.00K	0.00K
DUNSEITH	06/24/2007	23:45	CST-6	Flash Flood		0	0	150.00K	0.00K
ROLETTE	08/21/2008	20:15	CST-6	Flash Flood		0	0	20.00K	0.00K
DUNSEITH	06/18/2009	19:00	CST-6	Flash Flood		0	0	10.00K	0.00K
Totals:						0	0	213.00K	0.00K

Source: http://www.ncdc.noaa.gov/stormevents/2022

Table 4.8.3F,
Flood Events since 1/1/2000

Location	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:						0	0	450.00K	0.00K
SAN HAVEN	03/06/2009	00:00	CST-6	Flood		0	0	105.00K	0.00K
SAN HAVEN	04/01/2009	00:00	CST-6	Flood		0	0	145.00K	0.00K
BELCOURT	02/15/2011	00:00	CST-6	Flood		0	0	200.00K	0.00K
Totals:						0	0	450.00K	0.00K

Source: http://www.ncdc.noaa.gov/stormevents/2022

4.8.4 Probability and Magnitude

Table 4.8.4A is a graphical representation of the range of events that can occur within the summer storm hazard. Generally, the more frequent events have a low impact, and the high impact event occur less frequently. All types of events may not appear in the figure, but the information presented can assist when comparing hazards (high frequency, low impact events versus low frequency, high impact events) or when assessing the range of magnitudes possible from the summer storm hazard. The Introduction to this risk assessment chapter defines the impact categories and provides additional information.

Table 4.8.4A Hazard Frequency and Impact Ranges

Frequency	*No regional history*					
	No local history				EF5 Tornado in Urban Area	
	100 years					
	50 years	Damaging Lightening Strike	Widespread Hail and Wind Damage	Strong Tornado in a Community		
	Annually					
		Negligible	*Limited*	*Critical*	*Catastrophic*	
		Impact				

Generally, the summer months are when the probability of severe thunderstorms in Rolette County and on the TMBCI Reservation is highest, but some have been recorded as early as May and as late as October. High wind events can occur during any time of year. Table 4.8.4B shows a summary of the summer storm events.

Table 4.8.4B Summer Storm Historical Summary

Event Type	Rolette County and the TMBCI Reservation
Reported Tornadoes	15 events (1950-2022) Highest Magnitude: EF3 3 damaging events since 2000
Reported Severe Hail	37 events (2000-2022) Highest Magnitude: 3.0” 2 damaging events since 2000
Reported Extreme Heat Events	One reported event
Reported Severe Thunderstorm Winds	21 events (2000-2022) Highest Magnitude: 74 kts 8 damaging events since 2000
Reported Damaging Lightning Strikes	1 damaging event since 2000
Reported Non-thunderstorm Wind	0 events (2000-2022)
Reported Heavy Rain/Flash Flood	8 events since 2000 4 damaging events since 2000

Source: National Climatic Data Center, 2022.

Based on the historical record, the following can be expected on average in Rolette County and on the TMBCI:

- Three tornados every 2 years.
- In an average year, 3-4 severe hail events.
- In an average year, 1-2 severe thunderstorm wind events.
- In an average year, no damaging lightning event.
- In an average year, no strong non-thunderstorm wind event.
- In an average year, 1 heavy rain/flash flood event.

Reported summer storm events over the past seventeen years provide an acceptable framework for determining the magnitude of such storms that can be expected and should be planned for. For tornadoes, the maximum intensity that has been reported in Rolette County is an EF3 and even an EF5 is possible. The Federal Emergency Management Agency places this region in Zone II (160 mph) for structural wind design. (Federal Emergency Management Agency, 2004) Hail sizes over 3 inches, or larger than baseballs, can be expected based on historical reports in the region. This size hail and even smaller sizes can damage structures, break windows, dent vehicles, ruin crops, and kill or injure people and livestock. Non-tornadic, thunderstorm and non-thunderstorm winds over 100 mph should also be planned for. These types of winds can remove roofs, move mobile homes, topple trees, take down utility lines, and destroy poorly-built or weak structures.

4.8.5 Risk Assessment

Vulnerability Overview

With the entire county at risk from summer storms, estimates of damages are hard to determine. Realistically, since all types of summer storms occur and cause damages in Rolette County and on the TMBCI Reservation, the greatest determining factor is if the storm hits a populated area or not. Using the Northwood tornado from Grand Forks County as the benchmark, over 400 structures can be damaged causing $50 million in damages during only one event. Vehicles damaged by hail or falling debris could be additional losses to individuals, businesses, and government.

Extreme heat is not a common occurrence in Rolette County and on the TMBCI Reservation because of its location in north central North Dakota and because of the Turtle Mountains altitude. However, when extreme heat does occur, the impact on the TMBCI communities may be greater because many of the people do not have air conditioners or central air units in their homes. The Turtle Mountain Housing Authority (TMHA) does not provide air conditioners for TMHA homes so the people have to provide their own air conditioners which are not always affordable.

The Storm Prediction Center has developed damage indicators to be used with the Enhanced Fujita Scale for different types of buildings. Some of the indicators for different building types are shown in Tables 4.8.5A, 4.8.5B, and 4.8.5C.

Table 4.8.5A One- and Two-Family Residences

Damage Description	**Wind Speed Range** (expected in parentheses)
Threshold of visible damage	53-80 mph (65 mph)
Loss of roof covering material (<20%), gutters, and/or awning; loss of vinyl or metal siding	63-97 mph (79 mph)
Broken glass in doors and windows	79-114 mph (96 mph)
Uplift of roof deck and loss of significant roof covering material (>20%); collapse of chimney; garage doors collapse inward; failure of porch or carport	81-116 mph (97 mph)
Entire house shifts off foundation	103-141 mph (121 mph)
Large sections of roof structure removed, most walls remain standing	104-142 mph (122 mph)
Exterior walls collapsed	113-153 mph (132 mph)
Most walls collapsed, except small interior rooms	127-178 mph (152 mph)
All walls	142-198 mph (170 mph)
Destruction of engineered and/or well-constructed residence; slab swept clean	165-220 mph (200 mph)

Source: Storm Prediction Center, 2013a.

Table 4.8.5B Single Wide Manufactured Homes

Damage Description	Wind Speed Range (expected in parentheses)
Threshold of visible damage	51-76 mph (61 mph)
Loss of shingles or partial uplift of one-piece metal roof covering	61-92 mph (74 mph)
Unit slides off block piers but remains upright	72-103 mph (87 mph)
Complete uplift of roof, most walls remain standing	73-112 mph (89 mph)
Unit rolls on its side or upside down, remains essentially intact	84-114 mph (98 mph)
Destruction of roof and walls leaving floor and undercarriage in place	87-123 mph (105 mph)
Unit rolls or vaults, roof and walls separate from floor and undercarriage	96-128 mph (109 mph)
Undercarriage separates from unit, rolls, tumbles, and is badly bent	101-136 mph (118 mph)
Complete destruction of unit, debris blown away	110-148 mph (127 mph)

Source: Storm Prediction Center, 2013a.

Table 4.8.5C Small Barns and Farm Outbuildings

Damage Description	Wind Speed Range (expected in parentheses)
Threshold of visible damage	53-78 mph (62 mph)
Loss of wood or metal roof panels	61-91 mph (74 mph)
Collapse of doors	68-102 mph (83 mph)
Major loss of roof panels	78-110 mph (90 mph)
Uplift or collapse of roof structure	77-114 mph (93 mph)
Collapse of walls	81-119 mph (97 mph)
Overturning or sliding of entire structure	83-118 mph (99 mph)
Total destruction of building	94-131 mph (112 mph)

Source: Storm Prediction Center, 2013a.

Table 4.8.5D Small Retail Buildings

Damage Description	**Wind Speed Range** (expected in parentheses)
Threshold of visible damage	54-81 mph (65 mph)
Loss of roof covering (<20%)	65-98 mph (78 mph)
Broken glass in windows and doors	72-103 mph (86 mph)
Uplift of roof decking; significant loss of roof covering (>20%)	81-119 mph (98 mph)
Canopies or covered walkways destroyed	83-114 mph (98 mph)
Uplift or collapse of entire roof structure	101-140 mph (19 mph)
Collapse of exterior walls; closely spaced interior walls remain standing	120-159 mph (138 mph)
Total destruction of entire building	143-193 mph (167 mph)

Source: Storm Prediction Center, 2013a.

Since structures are vulnerable to tornadoes and strong winds, those inside them are also at risk. The National Weather Service office in Bismarck warns for tornadoes, severe thunderstorms, and high winds events for Rolette County and the TMBCI Reservation. Meteorologists use a variety of tools such as Doppler radar and weather spotters to predict these hazardous events and issue warnings that are broadcast over NOAA Weather Radio and other media. Therefore, the population may have some lead time to take precautions, if they receive the warning. Generally, these warnings recommend that people move to a pre-designated shelter or a basement. If not available, interior rooms or hallways on the lowest floor away from windows or under a sturdy piece of furniture is recommended. Mobile homes, even if tied down and automobiles are not safe places. Rolette County has a low ratio of mobile homes but on the TMBCI Reservation, about 50% of the homes are mobile homes. According to the United States Census Bureau, there are 5,582 housing units in the county with 96 of these being mobile homes. With 2.09 people living in each housing unit this puts over 200 people living at enhanced risk from tornadoes and strong winds. The rural mobile homes are scattered throughout the cities, the tribe, and the county. Besides structure failure, wind-driven projectiles and shattered glass can injure or kill occupants. Lightning strikes can occur with little to no warning, causing injury or death to those in the area.

Table 4.8.5E Distribution of Rolette County and TMBCI Occupied Mobile Homes

Community/Area	Number of Mobile Homes
Finnegan Township	1
Gilbert Township	3
Hillside Township	3
Holmes Township	3
Hutchinson Township	9
Leonard Township	10
Oxford Township	1
Shell Valley Township	6
Willow Lake Township	1
Dunseith	25
Mylo	2
Rolette	25
Rolla	23
St. John	37
Belcourt (est.)	

Source: Rolette County Emergency Manager, TMBCI

Table 4.8.5F Structural Build of Rolette County/TMBCI Residents' Home

	Wood Frame	Wood/Partial Brick	Steel	Other
Urban Residential Structures	99%	<1%	<1%	<1%
Rural Residential Structures	99%	<1%	<1%	<1%
Rural Tax Exempt Structures	99%	<1%	<1%	<1%
TMBCI	99% (includes mobile homes)	<1%	<1%	<1%

Source: Estimates based on conversation with the Rolette County Tax Equalization Director and TMBCI

Since 99% of the home structures in Rolette County and on the TMBCI Reservation are wood framed, the vulnerability to severe storm damage is greatly increased over other types of structures.

Figure 4.8.5G Vulnerable Populations

Schools	
Facility Name	**Population**
Turtle Mountain Elementary School	865
Turtle Mountain Middle School	350
Turtle Mountain High School	495
Ojibwa Indian School, Belcourt	283
Dunseith Elementary School (charter)	243
Dunseith High School (charter)	221
Mt. Pleasant Elementary School, Rolla	150
Mt. Pleasant High School, Rolla	96
Rolette Elementary School	110
Rolette High School	56
St. John Elementary School	291
St. John High School	122

Licensed Rolette County and TMBCI Child Care Providers	
Child Care Provider	**Number of Children**
Michelle Guilbert, Rolla	15
Jill Parisien, St. John	19
Rolla Community Day Care, Rolla	70
Nicole Mears, Rolla	10
Mary Medrud, Dunseith	7 + 2 school aged children
Lynn Regan, Rolla	18
Self-Declared Rolette County and TMBCI Child Care Providers	
Child Care Provider	**Number of Children**
Rosa Hawley, Dunseith	**5**

Source: Rolette County Human Service Program Administrator III and Emergency Manager

Rolette County Nursing Homes	
Name	**Number of Beds**
Rolette Community Care Center	42
Dunseith Community Nursing Home	25

Source: Nursing Home Managers

Special consideration for identifying vulnerable populations is the International Music Camp at the International Peace Gardens. Each June and July, between 300 to 500 students participate in the music camp. The students live in dormitories while the staff is housed in cabins. The number of students and staff deserves special vulnerability consideration.

The TMBCI Reservation community of Belcourt and the Rolette County communities of Dunseith, Mylo, Rolette, Rolla, and St. John have adequate shelters identified to shelter their populations should the need arise. The townships' population is mainly farmers who are deemed to be self-sufficient should a severe summer storm electrical power outage occur. Most farmers have standby generators to provide electricity to their homes and farming operation during a summer storm power outage.

Large hail is always a threat to the agricultural community. Hail can damage crops and injure or kill livestock. A severe hail event that substantially damages an agricultural area could have significant economic impacts. Similarly, structures can be damaged by hail, so losses can easily total in the millions of dollars in urban areas. Strong winds and tornadoes could have similar impacts. Extreme heat events can wither crops and kill livestock.

To refine and access the relative vulnerability of each North Dakota county and tribe to severe summer storm events, ratings were assigned to pertinent factors that were examined at the county level. These factors include: social vulnerability index, prior events, prior annualized property damage, building exposure valuation, population density, livestock exposure, crop exposure, and annualized crop loss. Tornado also included mobile home density, and lightning but did not include annualized crop loss. A rating value of 1-10 was assigned to the data obtained for each factor and then weighted equally and factored together to obtain overall vulnerability scores for each comparison and to determine the most vulnerable counties. The Social Vulnerability Index normally ranges from 1-5. To give the Social Vulnerability Index the same weight as the other factors, the numbers were multiplied by two. Overall vulnerability scores were sorted into rankings from low, low-moderate, moderate, moderate-high, and high. Table 4.8.5E summarizes the calculated ranges applied to determine the overall vulnerability ranking based on the scores which varied among individual hazards.