

2. INTRODUCTION

2.1 Purpose

The State of North Dakota Multi-Hazard Mitigation Plan has been developed to serve the people of North Dakota by providing the impetus for making our homes, businesses, and communities as safe as possible against the impacts of natural and human caused hazards. This plan contains a wealth of geographic and demographic information, along with a thorough assessment of the hazards faced throughout the state. This plan addresses the overall capability of state and local governments to reduce or eliminate the vulnerability of our communities to these hazards. Most importantly, the plan outlines a coordinated mitigation strategy, adopted by the State of North Dakota, which includes long-term goals, objectives, and a wide variety of mitigation options.

This plan was developed through partnerships and participation across all levels of government and the private sector to represent the perspectives of North Dakota as a whole, rather than that of one state agency. The lead agency in the development of this plan was the North Dakota Department of Emergency Services (DES), Division of Homeland Security. North Dakota DES coordinates mitigation planning through its multi-agency State Hazard Mitigation Team (SHMT).

The mission of the North Dakota State Hazard Mitigation Team is to assist North Dakota citizens, communities, state agencies, local and tribal governments, and businesses in becoming less vulnerable to the impacts of natural hazards through the effective administration of hazard mitigation grant programs, hazard risk assessments, wise floodplain management, and a coordinated approach to mitigation policy through state, regional, and local planning activities.

The North Dakota State Hazard Mitigation Team envisions instituting a statewide hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable North Dakota. The team continues to aggressively implement a widely recognized, comprehensive program of mitigation that goes beyond that of solely reducing hazard vulnerability, but also incorporates complementary goals that can address multiple community needs and lead to safer, more sustainable communities. In so doing, the team is helping the Division of Homeland Security in carrying forward a revitalized approach to traditional emergency management. Rather than focusing on short-term solutions to inevitably long-term problems, the team's work emphasizes the need to ensure communities become better able to withstand the forces of nature while at the same time improving their residents' overall quality of life. By avoiding unnecessary exposure to known hazards, communities will save lives and property and minimize the social, economic, and environmental disruptions that commonly follow hazard events. The team has been addressing the needs of current residents and also the needs of future generations. It is hoped that this focus on an integrated, future-oriented approach will result in communities that are less vulnerable and more sustainable. The North Dakota State Hazard Mitigation Team therefore carefully and deliberately embodied the principles and spirit of community sustainability into many sections of this plan.

Shortsighted development patterns have contributed to making some North Dakota communities extremely vulnerable to flooding, winter and summer storms, wildland fire, and other hazards. The State Hazard Mitigation Team can work with communities to reduce their vulnerability by discontinuing inappropriate land uses and by encouraging the acquisition, relocation, or retrofitting of existing vulnerable structures, along with the protection of valuable natural resources. If a disaster should strike any one of these communities, the State Hazard Mitigation Team can assist the community in building back better and stronger than before.

Through experience, the team has learned that communities will face significant challenges during post-disaster redevelopment on balancing the driving need for rapid recovery with implementing long-term hazard mitigation. The necessity of meeting basic needs and resettling displaced populations immediately following a disaster often overshadows the more abstract, longer-term sustainability considerations. Once full-scale reconstruction is initiated, it is difficult to modify projects in progress to meet sustainability objectives. This phenomenon highlights the need for pre-disaster mitigation planning that incorporates principles of sustainable development within the context of reconstruction so that communities can more easily rebuild in a manner that will make them less vulnerable to future hazard events and improve their residents' quality of life.

The State Hazard Mitigation Team strongly believes that much of the work in hazard mitigation and sustainable development must be carried out at the local level. It is at the local level where land use decisions are made, growth and development take place, and where the impacts of natural hazards are most direct. The team has always supported local self-sufficiency and reliance, providing assistance to communities where it is needed, but allowing local initiatives to take the lead. As noted within this plan, a major goal of the team is to build and support such local capacity and commitment.

The State Hazard Mitigation Team realizes that establishing a true statewide mitigation ethic will take hard work, and quite possibly will require major paradigm shifts among many different entities. State agencies, units of local and tribal government, non-profit organizations, business and industry, and private citizens will have to become more involved. This plan is meant to be the first step in that direction.

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

- Serve as a consolidated, comprehensive source of statewide hazard information
- Educate government leaders and the public on their vulnerabilities
- Prioritize and promote cost-effective mitigation solutions
- Provide guidance to organizations and agencies statewide regarding hazard mitigation
- Support requests for grant funding
- Encourage long-term community sustainability
- Improve coordination of mitigation efforts across the state

Through routine monitoring and updating, this plan will remain the guide for the North Dakota State Hazard Mitigation Team to follow in accomplishing its vision of a safe and sustainable North Dakota.

2.2 Scope

The State of North Dakota Multi-Hazard Mitigation Plan was prepared to address all hazards that pose significant risk to North Dakota. Each hazard has been assessed using consistent methodology, while also providing historical background and assessing vulnerability and potential loss. In addressing North Dakota's capability to mitigate the effects of these hazards, this plan analyzes each of the relevant federal, state, local, and tribal government agencies and their applicable programs and/or policies. The mitigation strategy adopted within this plan establishes the long-term goals and objectives for the State of North Dakota and lists possible initiatives to achieve them. The strategy was developed through a tremendous amount of input from statewide mitigation stakeholders and will continue to be monitored and updated on a regular basis.

The mitigation priorities adopted within this plan address long-term permanent solutions to problems caused by hazards throughout the State of North Dakota. While these priorities may shift following a particular disaster event, they are designed to provide the mitigation team with long-term mitigation objectives and solutions. The implementation of this plan is intended to help break the continuing cycle of disaster, damage, and reconstruction, from which our citizens have been suffering, by focusing sharply on the mitigation element of the comprehensive emergency management system. This mitigation element includes policy, planning, and initiatives that will reduce the vulnerability of North Dakota communities to all identified hazards. The mitigation element also includes a strong outreach strategy that will be implemented throughout all phases of emergency management. Disaster preparedness, response, and recovery operations are not focused on within this plan but are instead covered in state and county emergency operations plans (EOPs).

2.3 Authority

The State of North Dakota Multi-Hazard Mitigation Plan has been prepared by the North Dakota Department of Emergency Services, pursuant to Section 322 of the Disaster Mitigation Act of 2000 (P.L. 106-390), which requires the state to develop mitigation plans that:

- Identify the hazards, risks, and vulnerabilities of areas in the state
- Support development of local mitigation plans
- Provide for technical assistance to local and tribal governments for mitigation planning
- Identify and prioritize mitigation actions that the state will support, as resources become available

The Disaster Mitigation Act of 2000 became law on October 30, 2000, and amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the "Stafford Act") (P.L. 93-288, as amended). Regulations for this activity can be found in 44 CFR, Part 201.

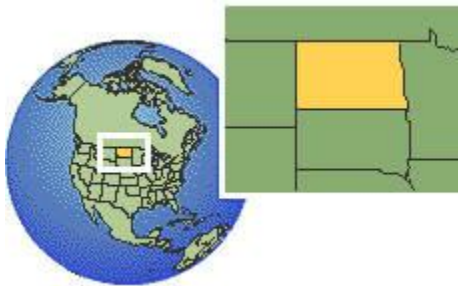
The North Dakota Century Code 37-17.1, as amended, requires the Department of Emergency Services (DES) to coordinate the development of a hazard mitigation plan. The Governor has the leadership role in the issuance of guidance to all state agencies to minimize the effects of hazards on the citizens of North Dakota. In state and federal recovery agreements following a Presidentially Declared Disaster, the

Governor initiates the update of the state and local mitigation plans based on federal requirements and state and local needs. The Department of Emergency Services administers mitigation guidance and funding to state and local applicants following a Presidentially Declared Disaster.

The Disaster Mitigation Act of 2000 also requires local governments to develop and submit mitigation plans as a condition of receiving Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) project grants. These plans are an integral part of this state plan and are considered appendices of this plan.

2.4 North Dakota Overview

North Dakota is located at the center of the North American continent, bounded on the north by the Canadian provinces of Manitoba and Saskatchewan, on the east by Minnesota, on the south by South



Dakota, and on the west by Montana. The state is a land of prairies and cropland. Its area is 70,665 square miles, approximately 210 miles from north to south and 370 miles from east to west. North Dakota is made up of glacial deposits (drift) and former lake (lacustrine) plains formed by continental ice sheets. The state is drained through the Missouri River and the Hudson Bay drainage areas. The divide separating these two major drainage systems runs from the northwest through the central and southeastern portions of the state.

North Dakota's geographic location results in a sub-humid continental climate characterized by marked fluctuations in temperatures and light to moderate precipitation. Average annual precipitation ranges from fewer than 15 inches in the west to more than 21 inches in the southeast. The precipitation tends to be irregular in occurrence, amount, and area of coverage. The inconsistency of the state's weather arises from the interaction of three major air masses that originate in distinct global regions: cold, dry air from the polar region, warm, moist air from the Gulf of Mexico, and cool, moist air from the northern Pacific. The polar air mass tends to dominate the other two, but its influence is considerably lessened during the summer.

Warm summers and cold winters typify the state's continental climate. July temperatures are the warmest with average temperatures ranging from 65°F in the north to 73°F in the south. January is the coldest month with average temperatures ranging from 2°F in the northeast to 17°F in the southwest. Record temperature extremes exist from -60°F at Parshall on February 15, 1936 to 121°F at Steele on July 6, 1936.

Average monthly snowfall amounts for any location in the state during the winter period of December through March are five to eight inches. Annual average snowfall in North Dakota ranges from fewer than 26 inches in the west central part of the state to about 38 inches in a belt extending diagonally across the state from the northeast corner to the southwest corner.

Weather records and tree ring studies indicate the state experiences cyclical periods of below and above average precipitation. Climatic, geomorphic, and pedologic factors may combine to reinforce periods of drought or flooding, either of which creates a potential economic catastrophe.

North Dakota has a 2009 estimated population of 646,844. The largest cities in the state include Fargo (90,056 people, 2006 estimate), Bismarck (58,333 people, 2006 estimate), Grand Forks (50,372 people, 2006 estimate), and Minot (34,745 people, 2006 estimate). The state's population ratio is about 9.3 people per square mile. (US Census Bureau, 2010a) North Dakota has three Native American reservations within its borders and shares two with South Dakota. The state is comprised of 53 counties and many incorporated cities and townships.

Agriculture is the primary land use and industry in North Dakota. Agricultural production comprises about 90 percent of the 70,655 square miles of land area. Other sectors of the economy include mining, construction, manufacturing, transportation, communications, utilities, wholesale, retail, services, finance, insurance, and real estate.

All of the factors above are important when examining the state's vulnerability to hazards. Thirteen hazards are identified in this plan as having a significant potential threat to the people, environment, and economy of North Dakota. These hazards are:

- Communicable Disease
- Dam Failure
- Drought
- Flood
- Geologic Hazards
- Hazardous Material Release
- Homeland Security Incident
- Shortage or Outage of Critical Materials or Infrastructure
- Summer Storm
- Transportation Accident
- Urban Fire or Structure Collapse
- Wildland Fire
- Winter Storm

This plan, particularly the Risk Assessment (Section 5), outlines each hazard in detail and how it may affect the State of North Dakota. A Statewide Inventory (Section 3) identifies assets and exposures throughout the state that are at risk from the hazards. The Mitigation Strategy (Section 6) outlines solutions to possibly prevent or minimize future damages. The Mitigation Implementation System (Section 7) describes the capabilities and methods used to implement mitigation projects. Each section was developed through a Planning Process (Section 3) designed to involve as many mitigation stakeholders as possible and to incorporate information from a wide variety of other plans and programs related to hazard mitigation. This plan will be monitored, evaluated, and updated as outlined in Plan Maintenance (Section 8).

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 North Dakotans understand the hazards better and become more disaster resistant.