

4.2 Hazard Identification

Many hazards have the potential to affect the State of North Dakota from global events to isolated, localized incidents. The only limit to the number of hazards that can be identified is one’s imagination. To provide a framework for the risk assessment, hazards were identified for inclusion in this plan based on their history of resulting in disaster declarations, their inclusion in previous versions of mitigation and response plans, their inclusion in local mitigation plans, and through input and discussion by stakeholders. Closely related-hazards were grouped together for simplicity.

The 2007 plan features updates of the hazards identified in the 2005 plan. New hazards identified include Communicable Disease and Transportation Accident. The Terrorism/National Security Incident hazard was renamed to Homeland Security Incident. The Shortage of Critical Materials hazard was renamed to Shortage or Outage of Critical Materials or Infrastructure to broaden the scope of the profile. Structure Collapse was added to the Urban Fire hazard. Rural Fire was renamed to Wildland Fire for clarification purposes. The Mass Casualty/Fatality hazard was eliminated and integrated into the hazard profiles of the hazards that could cause mass casualties or fatalities.

The 2007 hazard identification process produced a list of twelve probable hazard groups to be profiled. Table 4.2A shows the hazards 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 4.2B lists the hazards that were excluded from this plan and the reasons why.

Table 4.2A North Dakota Major Hazards

| Hazard Profile | How Identified | Why Identified |
|--|---|---|
| Communicable Disease (including human, animal, and plant diseases) | <ul style="list-style-type: none"> ▪ Centers for Disease Control ▪ Pandemic studies ▪ US and ND Departments of Agriculture ▪ US Census Bureau ▪ World Health Organization | <ul style="list-style-type: none"> ▪ Global disease threat ▪ History of pandemics ▪ Dependence on agricultural economy |
| Dam Failure | <ul style="list-style-type: none"> ▪ ND State Water Commission ▪ US Army Corps of Engineers | <ul style="list-style-type: none"> ▪ Numerous dams throughout the state, including 30 high hazard dams ▪ Dam maintenance problems and extreme weather events could cause failures |
| Drought | <ul style="list-style-type: none"> ▪ Farm Service Agency ▪ High Plains Regional Climate Center ▪ National Drought Mitigation Center ▪ National Weather Service ▪ ND Department of Health ▪ ND State Climate Office ▪ ND State Water Commission ▪ US Department of Agriculture | <ul style="list-style-type: none"> ▪ History of droughts ▪ Importance of agriculture to the state’s economy ▪ Numerous USDA disaster declarations and state declared disasters and emergencies |

Table 4.2A North Dakota Major Hazards (continued)

| Hazard Profile | How Identified | Why Identified |
|---|--|--|
| Flood (including riverine, ice jam, and flash floods) | <ul style="list-style-type: none"> ▪ Federal Emergency Management Agency ▪ National Climatic Data Center ▪ National Weather Service ▪ ND Department of Emergency Services ▪ ND State Fire and Tornado Fund ▪ ND State Water Commission ▪ US Army Corps of Engineers ▪ US Geological Survey | <ul style="list-style-type: none"> ▪ Extensive history of severe riverine floods and high losses ▪ History of damaging ice jam and flash floods ▪ Numerous Presidential disaster declarations for flooding |
| Hazardous Material Release | <ul style="list-style-type: none"> ▪ Environmental Protection Agency ▪ National Response Center ▪ National Transportation Safety Board ▪ ND State Fire and Tornado Fund ▪ US Department of Transportation Emergency Response Guidebook | <ul style="list-style-type: none"> ▪ History of major hazardous material releases ▪ Highways, railroads, airports, and fixed facilities exist throughout the state ▪ Regular truck and rail traffic transport hazardous materials through the state ▪ Numerous fixed facilities, including pipelines, house chemicals, gases, and explosives |
| Homeland Security Incident | <ul style="list-style-type: none"> ▪ Federal Bureau of Investigations ▪ National Memorial for the Prevention of Terrorism ▪ ND Department of Emergency Services ▪ ND State Fire and Tornado Fund ▪ Southern Poverty Law Center | <ul style="list-style-type: none"> ▪ National indications and foreign threats of future terrorist attacks ▪ Critical national infrastructure, including intercontinental ballistic missiles, exists within the state ▪ Potential for school violence and other domestic attacks |
| Shortage or Outage of Critical Materials or Infrastructure | <ul style="list-style-type: none"> ▪ ND Department of Emergency Services ▪ ND Public Service Commission ▪ Stakeholder input | <ul style="list-style-type: none"> ▪ Daily and operational dependence on utilities, fuel, and communications ▪ History of power, communication, and water outages ▪ History of critical material shortages |
| Summer Storm (including tornadoes, hail, downbursts, lightning, and strong winds) | <ul style="list-style-type: none"> ▪ National Climatic Data Center ▪ National Severe Storms Laboratory ▪ National Weather Service ▪ ND Atmospheric Resources Board ▪ ND Department of Emergency Services ▪ ND State Fire and Tornado Fund ▪ Storm Prediction Center | <ul style="list-style-type: none"> ▪ Extensive history of damaging tornadoes, hail, downbursts, lightning, and strong winds throughout the state ▪ Numerous Presidential disaster declarations for severe storms |
| Transportation Accident (including vehicular, railway, and aircraft accidents) | <ul style="list-style-type: none"> ▪ Federal Railroad Administration ▪ National Transportation Safety Board ▪ ND Department of Transportation | <ul style="list-style-type: none"> ▪ Potential for a serious accident involving multiple patients ▪ History of highway closures ▪ History of railroad accidents ▪ History of small plane crashes |

Table 4.2A North Dakota Major Hazards (continued)

| Hazard Profile | How Identified | Why Identified |
|--|---|---|
| Urban Fire or Structure Collapse | <ul style="list-style-type: none"> ▪ National Fire Protection Association ▪ ND Fire Marshal ▪ ND State Fire and Tornado Fund ▪ US Fire Administration | <ul style="list-style-type: none"> ▪ History of major downtown urban fires ▪ History of structure collapses under heavy snow loads ▪ Potential for structure collapses for a variety of reasons |
| Wildland Fire | <ul style="list-style-type: none"> ▪ Farm Service Agency ▪ National Weather Service ▪ ND Department of Emergency Services ▪ ND Fire Marshal ▪ ND Forest Service ▪ US Forest Service | <ul style="list-style-type: none"> ▪ Extensive history of large wildland fires ▪ Scattered government lands and natural fuels throughout the state |
| Winter Weather (including blizzards, heavy snow, ice storms, and extreme cold) | <ul style="list-style-type: none"> ▪ National Climatic Data Center ▪ National Weather Service ▪ ND Department of Emergency Services | <ul style="list-style-type: none"> ▪ History of blizzards, severe winter storms, heavy snow, ice storms, and extreme wind chills ▪ High probability of blizzards and other potentially damaging storms ▪ Presidential disaster declarations for severe winter storms |

Table 4.2B Hazards Excluded from or Minimally Addressed in this Plan

| Hazard | Why Excluded/Where Addressed |
|-----------------|---|
| Avalanche | <ul style="list-style-type: none"> ▪ Avalanches generally require long stretches of slopes of 25-55 degrees; North Dakota has few areas that meet this criteria. ▪ North Dakota does not have a National Avalanche Center. ▪ North Dakota does not have a history of any declared state or federal avalanche disasters. |
| Coastal Erosion | <ul style="list-style-type: none"> ▪ North Dakota does not have an ocean coastline. |
| Coastal Storm | <ul style="list-style-type: none"> ▪ North Dakota does not have an ocean coastline. |
| Earthquake | <ul style="list-style-type: none"> ▪ Earthquake tremors have been felt in North Dakota, but none have exceeded intensity IV on the Modified Mercalli Scale. ▪ North Dakota does not have a history of any significant earthquake damages. ▪ HAZUS runs indicate little, if any, damages from earthquakes in the state. ▪ North Dakota does not have a history of any declared state or federal earthquake disasters. ▪ Discussion at a statewide stakeholder meeting regarding the earthquake hazard, including North Dakota Geological Survey representation, led to consensus for excluding the hazard from the plan at this time. |
| Expansive Soils | <ul style="list-style-type: none"> ▪ North Dakota does have expansive soils, including clay with swelling potential, but the impacts of such are generally limited to a small scale, not applicable in a statewide plan. ▪ Good building practices generally mitigate damages from expansive soils. ▪ North Dakota does not have a history of any declared state or federal expansive soil disasters. |
| Extreme Heat | <ul style="list-style-type: none"> ▪ North Dakota does experience high summertime temperatures, but the impacts generally do not exceed local capabilities. ▪ North Dakota does not have a history of any declared state or federal extreme heat disasters. ▪ Some elements of the extreme heat hazard are included in the drought hazard profile and mitigation strategy. |

Table 4.2B Hazards Excluded from or Minimally Addressed in this Plan (continued)

| Hazard | Why Excluded/Where Addressed |
|-----------------|---|
| Hurricane | <ul style="list-style-type: none"> ▪ North Dakota does not have an ocean coastline, nor is it located in a potential hurricane impact area. |
| Land Subsidence | <ul style="list-style-type: none"> ▪ North Dakota has a minimal land subsidence hazard, usually only related to mining activities and is typically recognized and mitigated. ▪ North Dakota does not have a history of any declared state or federal land subsidence disasters. |
| Landslide | <ul style="list-style-type: none"> ▪ North Dakota does have localized landslide hazards, but the impacts generally do not exceed local capabilities. ▪ Only one county has listed landslide as a hazard in its mitigation plan. ▪ In the past, mitigation activities have addressed erosion problems, typically along riverbeds, in parts of the state through flood hazard programs; these high erosion areas may also be categorized as landslide areas but are typically on a rather small scale. ▪ North Dakota does not have a history of any declared state or federal landslide disasters. ▪ Some elements of the landslide hazard are included in the flood hazard profile, and the mitigation strategy adequately addresses any landslide hazards through the flood strategies. ▪ Discussion at a statewide stakeholder meeting regarding the landslide hazard, including North Dakota Geological Survey representation, led to consensus for excluding the hazard from the plan at this time. ▪ If future research or conditions warrant, a separate landslide hazard profile and strategy may be added. |
| Levee Failure | <ul style="list-style-type: none"> ▪ North Dakota does have a levee failure hazard, but the hazard areas, history, impacts, and mitigation strategies are addressed through the flood and dam failure hazards. |
| Tsunami | <ul style="list-style-type: none"> ▪ North Dakota does not have an ocean coastline. |
| Volcano | <ul style="list-style-type: none"> ▪ Volcanic ashfall can occur over North Dakota, but the frequency is relatively rare and the potential impacts are not expected to exceed local capabilities. ▪ North Dakota does not have a history of any declared state or federal volcano disasters. |