

Sokaogon Chippewa Community All Hazards Mitigation Plan



Prepared by:

**North Central Wisconsin
Regional Planning Commission**



SOKAOGON CHIPPEWA COMMUNITY ALL HAZARDS MITIGATION PLAN

prepared for:

Sokaogon Chippewa Community

by:

North Central Wisconsin Regional Planning Commission

adopted by Tribal Council on:

April 18, 2016

This Plan was prepared at the request and under the supervision of the Sokaogon Chippewa Community and its Environmental Director by the North Central Wisconsin Regional Planning Commission (NCWRPC). For more information, contact:

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INTRODUCTION

Part I of the Sokaogon Chippewa Community All Hazards Mitigation Plan (AHMP) describes and documents the process used to develop the Plan. This includes how it was prepared and who (committee, organizations, departments, staff, consultants, etc.) was involved in the process. It also describes the Tribal government's involvement, the time period in which the Plan was prepared, and who to contact to answer questions and make recommendations for future amendments to the Plan.

DISASTER MITIGATION ACT OF 2000

The development of the Sokaogon Chippewa Community All Hazards Mitigation Plan is a response to the passage of the Disaster Mitigation Act of 2000 (DMA2K). On October 30, 2000, DMA2K was signed into law by the U.S. Congress in an attempt to stem the losses from disasters, reduce future public and private expenditures, and to speed up response and recovery from disasters. This Act (Public Law 106-390) amended the Robert T. Stafford Relief and Emergency Assistance Act. The following is a summary of the parts of DMA2K that pertain to local government and tribal organizations:

- The Act establishes a requirement for local governments and tribal organizations to prepare an All Hazards Mitigation Plan in order to be eligible for funding from FEMA through the Pre-Disaster Mitigation Assistance Program and the Hazard Mitigation Grant Program.
- The Act establishes a requirement that natural hazards such as tornados, floods, and wildfires need to be addressed in the risk assessment and vulnerability analysis parts of the All Hazards Mitigation Plan. Manmade hazards such as hazardous waste spills are encouraged, but not required, to be addressed.
- The Act authorizes up to seven percent of Hazard Mitigation Grant Program funds available to a state after a federal disaster to be used for development of state, local, and tribal organization All Hazards Mitigation Plans.
- The Act establishes November 1, 2004 as the date by which local governments and tribal organizations are to prepare and adopt their respective plans in order to be eligible for the FEMA Hazard Mitigation Grant Program and Pre-Disaster Mitigation Program.

- If a plan is not prepared by November 1, 2004, and a major disaster is declared, in order for a local government or tribal organization to be eligible to receive funding through the Hazard Mitigation Grant Program, they must agree to prepare an All Hazards Mitigation Plan within one year.
- In addition, by not having an All Hazard Mitigation Plan, local governments and tribal organizations cannot utilize funding through the Pre-Disaster Mitigation Grant Program.
- All Hazard Mitigation Plans must be updated every five years.

THE FIVE PARTS OF THE ALL HAZARDS MITIGATION PLAN

The Sokaogon Chippewa Community All Hazards Mitigation Plan was categorized into five parts in order to address FEMA’s tribal mitigation plan requirements. The five parts are as followed:

- Part I: Planning Process
- Part II: Planning Area
- Part III: Risk Assessment
- Part IV: Mitigation Strategy
- Part V: Plan Maintenance Process and Adoption

DEVELOPMENT OF THE ALL HAZARDS MITIGATION PLAN

The Sokaogon Chippewa Community received a Planning Grant in May of 2014 to develop an All Hazards Mitigation Plan through the Pre-Disaster Mitigation (PDM) Grant Program. As Environmental Director for the Tribe, Tina VanZile was charged with overseeing the Plan development by Tribal Chairman, Chris McGeshick.

In the summer of 2014, the North Central Wisconsin Regional Planning Commission (NCWRPC) finalized a work agreement with Sokaogon Chippewa and began preparation of the All Hazards Mitigation Plan at the request of Tribal Administration. Having done extensive work on various mitigation plans across the Region, including Forest County, City of Crandon and the HoChunk Nation, Darryl L. Landeau, AICP was assigned to the project by the NCWRPC.

The planning process included regular committee meetings as well as extensive involvement from the neighboring communities surrounding the Sokaogon Chippewa lands. A variety of tribal and regional agencies were involved in the development of the Plan at various stages, and

extensive opportunity for public participation was provided including public informational meetings and hearings.

The remainder of this chapter expands on and provides more detail on key aspects of the Plan development process.

All Hazards Mitigation Plan Taskforce

The Sokaogon Chippewa Community All Hazard Mitigation Plan was prepared under the guidance of an advisory taskforce that consisted of the heads of key Tribal departments and agencies. Periodic meetings were held with the NCWRPC staff and the Committee Task Force to provide input on the types of hazards to be considered, appropriate mitigation strategies, and to review draft reports. Committee members are as follows:

- Jeff Ackley Jr. Housing Director
- Vickie Ackley Tribal Council
- Kami Dalton Mole Lake Lodge
- Gloria Decorah Enrollment Director
- Ken McGeshick Water Department
- James Polar Sr. Food Distribution Program
- Johnny Phillips Mole Lake Casino
- Jason Quade Forestry
- Stephanie Quade Elderly
- Paulette Smith Health Director
- Amanda VanZile Family Services
- Charlie VanZile Roads
- Tina VanZile Environmental Director
- Donna Vodar Director Mole Lake Gaming Enterprises

Neighboring Community Involvement

One of the requirements of the planning process is to include neighboring communities. The following were identified as neighboring communities to the Sokaogon Chippewa Tribe at Mole Lake:

- Forest County - county level of government in which the Tribal area resides
- Town of Nashville: surrounding local unit
- Forest County Potawatomi: closest sister tribe

Each of these entities participated in the planning process for the Sokaogon Chippewa Community All Hazards Mitigation Plan by having representatives attend the Agency and Organization Interest Group

meeting for the Plan, see "Local and Regional Agency Involvement", below for further details on this meeting.

In addition, the Forest County All Hazards Mitigation Plan Update proceeded simultaneously with the development of this Tribal All Hazards Mitigation Plan. Both efforts were facilitated by the North Central Wisconsin Regional Planning Commission, allowing for a high level of coordination and integration between the two Plans. The Tribe was specifically discussed as part of the Forest County process at its November 13, 2014 Agency and Interest Group Meetings with the following attendees:

- Teresa Erler - Forest County Emergency Management
- Mark Gaffko - Wabeno Fire Department
- Amy Gatton - Forest County Health Department
- Pam LaBine - Forest County Zoning Department
- Scott Linn - United States Forest Service
- Steve Nelson - University of Wisconsin Extension
- Dan Packard - Crandon Police Department
- Darrell Wilson - Crandon Fire Department
- Liz Wood - Wisconsin Dept of Natural Resources

During the meeting a number of issues germane to the Tribe were discussed, including: dispatching coordination; communications problems; the propane shortage; and a variety of others. There was detailed discussion of Tribal inclusion in equipment sharing and joint training for wildfires and of Tribal participation in County-wide communication and early warning.

Local and Regional Agency Involvement

Another requirement of the planning process was to involve local and regional agencies that have a role in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-private interests. To meet this objective, the NCWRPC invited a diverse group of stakeholders to discuss potential hazard mitigation strategies. The invite group also included the Tribe's neighboring communities.

The meeting was held on October 31, 2014 at the Administration Building in Mole Lake. Agencies and organizations represented include the following:

- Tina VanVile - Sokaogon Chippewa Community
- Bobbie Trucky - Forest County Potawatomi

- Linda Thomaschefskey Forest County Potawatomi
- Jamie Anderson Town of Nashville
- Carlos Scheider - Crandon Area Fire Department
- Jim Asher - School District of Crandon
- Ray Smith - School District of Crandon
- Sheriff John Dennee- Forest County
- Eric Oliphant Bureau of Indian Affairs

A number of other agencies were invited but chose not to attend.

During the meeting, the Plan and its components were introduced to the attendees. Participants were then asked to respond to a number of questions designed to identify mitigation concerns and needs they see facing the Tribe. Potential solutions for the concerns/needs were discussed to identify mitigation strategies for possible inclusion in Part IV of the Plan.

During the meeting a number of issues were discussed, including: dispatching and mutual aid, availability and access to heavy equipment and water supplies, wildfire suppression and fuel reduction, access to residences on Ackley Circle, first responders and emergency response team, and communications problems, among others.

Public Review Process and Plan Adoption

For purposes of this Plan, "public" is defined as all tribal members living on Tribal trust and fee lands making up the Mole Lake reservation area. Chapter II of this Plan provides some basic demographic details about this population.

Opportunities for public comment were provided to review the Plan during the drafting stage and prior to Plan approval. See APPENDIX A for copies of public meeting notices. A copy of the draft was made available on the Internet. Comments and questions about the Plan were directed to the Tribal Environmental Department.

A public informational meeting on the draft plan was held at the Tribal Administration Building on March 31, 2014. Plan staff: Tina VanZile, Tribal Environmental Director and Darryl Landeau of the NCWRPC, attended the meeting. However, only one other individual also attended, and that was Tribal Chairman Chris McGeshick. Although technically a member of the "public", the Chairman's purpose for attending the meeting was to observe what "his public" might be saying about natural hazards facing the Tribe, and thus no public comments were received. The three in attendance did discuss preparing an article for the Tribal newsletter to

help inform the public about the Plan, in light of the low turnout for the public meeting. In addition, no written comments were submitted.

A public meeting was held by the Tribal Council on March 28, 2016. No one from the public offered comment on the plan at this meeting. In addition, no written comments were submitted. Following the public comment period, the Tribal Council approved the Plan, see the resolution in APPENDIX B for details on this meeting. A brief overview of the planning process and resulting plan was provided by Staff, and there was some general discussion by the Council.

Incorporated Plans, Studies, Reports And Technical Data

Many plans, reports, and technical data sources were referenced and incorporated into the Sokaogon Chippewa Community Tribal All Hazards Mitigation Plan. These sources include but are not necessarily limited to the following:

Wisconsin Department of Natural Resources, North Central Wisconsin Regional Planning Commission and Forest County geographic information system databases provided much of the base data for the mapping and analysis within the Plan. Statistical reports and data from the US Census and Wisconsin Departments of Administration, Revenue and Workforce Development were used for the demographic background in Part 2 of this Plan. Land use data in Part 2 was obtained from the Sokaogon Chippewa Community Comprehensive Plan.

Wisconsin Department of Natural Resources Wetlands Inventory and Dams Database were used to identify and map wetlands and dams within the County for Maps 3 and 4 in Part 2. NFIP flood zone maps for Forest County provided the mapping of 100-year floodplain areas, Map 4 in Part 2, for flooding risk assessment, Map 12 in Part 3.

NOAA National Climatic Data Center severe weather event data was used extensively for the risk assessment in Part 3. The wildfire section of the risk assessment was based on the Wisconsin Department of Natural Resources' fire occurrence database and statewide Communities At Risk (CAR) assessment.

Other plans, reports, and documents were reviewed by staff during the update process including but not limited to the State of Wisconsin Hazard Mitigation Plan; the Hazard Analysis for the State of Wisconsin, the Wisconsin Repetitive Loss Report, the Forest County All Hazards Mitigation Plan Update, the Forest County Zoning Ordinance, the Forest County Land

and Water Resource Management Plan, the Forest County Emergency Operations Plan, and the City of Crandon All Hazards Mitigation Plan Update. Although these may not have been directly incorporated, the review provided valuable insight and direction to the update process.

CONTACT INFORMATION

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INTRODUCTION

Part II of the Sokaogon Chippewa Community All Hazards Mitigation Plan provides general geographical information, including demographic and economic characteristics. The general development patterns of the tribal area are described in terms of current land use and future development trends.

In addition to developing an understanding of the planning area, this chapter represents the beginning stages of assessing vulnerability by inventorying the numbers, types, and values of existing buildings, infrastructure, and critical facilities within the planning area. This overall summary of the area's vulnerability to hazards describes the potential impact on the community.

Land use and development trends are analyzed to project the number and type of potential future buildings, infrastructure and critical facilities within the area so that mitigation options can be considered in future land use decisions.

The resulting information is an important element of the planning process, since sound alternative mitigation strategies cannot be formulated and evaluated without an in-depth knowledge of the relevant conditions in the study area.

GENERAL GEOGRAPHY

Location and Land Status

The Sokaogon Chippewa Community tribal lands are located in the Town of Nashville in Forest County, Wisconsin. The Town of Nashville is a double township offset from each other. The Mole Lake reservation is located in the northern section of Nashville, which occupies the southwest corner of Forest County. The City of Crandon lies kitty-corner, north and east, of the Town. Nashville borders Oneida County to the west and Langlade County to the south. See Map 1.

The Mole Lake reservation lies approximately 100 miles northwest of Green Bay; 211 miles northwest of Milwaukee; and 208 miles north of Madison. Major metropolitan areas outside of Wisconsin are Chicago, 305 miles southeast; Minneapolis-St. Paul, 250 miles west; and Duluth, 220 miles northwest.

The Sokaogon Chippewa Community has about 4,900 acres in the Mole Lake Reservation. Of these lands, 1,930 are categorized as reservation land, another 1,320 acres are considered trust lands, and the balance are fee lands, mainly obtained through purchase. There are about 1,300 tribal members, but fewer than 500 reside on reservation land.

The reservation and trust lands are located in the Town of Nashville and the fee lands are in the Towns of Nashville and Lincoln, and in the Town of Ainsworth in Langlade County. The Town of Lincoln is also home to reservation land belonging to the Forest County Potawatomi Community.

Government

The Sokaogon Chippewa Community is a sovereign nation chartered by the Bureau of Indian Affairs, federally recognized as a Native American Tribe/Nation, and operates under a ratified constitution. The Community is governed by a six member council.

History

Under the provisions of the 1934 Reorganization Act, 1,745 acres of land were purchased for the Mole Lake Reservation. This area lies in southwestern Forest County, near Crandon. In 1930, a roll had been taken in the Mole Lake area and 199 Indians were determined to be in this band.

According to tribal history, these Indians had been promised this land by a treaty signed with Franklin Pierce. This agent, who was to confirm the treaty and secure the land for them, drowned on his return trip to Washington. The Tribe, to this day, actively pursues any knowledge or document to support their claim to the original treaty lands.

Before the reservation was incorporated, the Mole Lake Chippewa lived in extreme poverty. These Chippewa welcomed the Reorganization Act and accepted a constitution on October 8, 1938.

At that time, the principle means of gaining a livelihood for this group were boat building, harvesting wild rice and wreath greens, and selling souvenir bows and arrows and other novelties. The soil, a sandy loam with gravel outcroppings, yields fair crops of potatoes, short season vegetables, oats, clover, and timothy hay. The game on the reservation included deer, bear, muskrats, and water fowl.

With the advent of gambling casinos and bingo, the tribe has continued with an age-old Chippewa tradition of playing games of chance. The introduction of bingo and casinos drastically altered unemployment on

the reservation. Rates fell from 80 percent to 10 percent within a couple of years. The surrounding communities have also benefitted financially and reduced their dependency on federal aid.

Today, the Sokaogon Chippewa community continues to harvest wild rice and spear fish in traditional ways. And now, utilizing state of the art technology, they continue to protect the resources of their environment for future generations. The tribe continues to use its money wisely by investing in cultural preservation and restoration projects, environmental planning of their resources, education of their community members, and social programs that enhance the general health and welfare of the Community.

Environment

Forests play a key role in the protection of environmentally sensitive areas like steep slopes, shoreland, wetlands, and flood plains. The Mole Lake reservation is mainly forested, with a mix of conifer and deciduous tree species.

The Mole Lake reservation is located within the Upper Wolf River and Post Lake watershed, which drains into Lake Michigan. Wetlands play a role in the function of the hydrologic cycle and local ecosystems, and they also assist in hazard mitigation by acting as water storage devices in times of high water. A significant amount of reservation land is wetland. The majority of the reservation lies within a glacial drift aquifer, which is the major source of ground water in most of the county.

Climate

Winters in the Mole Lake area are very cold, and the short summers are fairly warm. The short frost-free period during the summer limits cropping mainly to forage crops, small grains, and adapted vegetables. Precipitation is fairly well distributed throughout the year but reaches a peak in the summer. Snow covers the ground much of the time from late fall through early spring.

In winter, the average temperature is 14 degrees F and the average daily minimum temperature is 4 degrees. The lowest temperature on record for the area, which occurred on January 17, 1982, is -39 degrees. In summer, the average temperature is 63 degrees and the average daily maximum temperature is 76 degrees. The highest recorded temperature in the area, which occurred on July 26, 1955, is 100 degrees.

The total annual precipitation in the area is about 30 inches. Of this total, more than 21 inches, or about 70 percent, usually falls between April and

September. The growing season for crops falls within this period. In two years out of ten, the rainfall in April through September is less than 18 inches. Thunderstorms occur on about 34 days each year.

The average seasonal snowfall is about 67 inches. The greatest snow depth in the area at any one time during the period of record was 56 inches. On average, 93 days of the year have at least one inch of snow on the ground. The number of such days varies greatly from year to year.

The sun shines 65 percent of the time possible in summer and 45 percent in winter. The prevailing wind is from the southwest. Average wind speed of 12 miles per hour occurs in spring.

DEMOGRAPHIC AND ECONOMIC PROFILE

Population and Households

Tribal population of the Sokaogon Chippewa (Mole Lake) grew by 5.6 percent between 2000 and 2010, roughly on par with statewide population growth. Forest County and the Towns of Nashville and Lincoln all lost population in the past decade. See Table 1.

Table 1: Population Growth

Municipality	Population		
	2000	2010	% Change
Mole Lake*	392	414	5.6%
T. of Nashville	1,157	1,064	-8.0%
T. of Lincoln	1,005	955	-5.0%
Forest C.	10,024	9,304	-7.2%
Langlade C.	20,740	19,977	-3.7%
Wisconsin	5,363,690	5,686,986	6.0%

Source: U.S. Census

* Tribal population is also included in the Town of Nashville total.

Between 2000 and 2010 Mole Lake experienced a 5.6 percent increase in households, on track with population growth (see Table 2). The Towns of Nashville and Lincoln, as well as Forest County, experienced a decrease in the number of households, but for each municipality, the decrease in households was slower than the decrease in population. Langlade County and the State both had an increase in households and at a faster

rate than Mole Lake. The trend toward more households with fewer people in them may account for why households decreased more slowly than population, and why Langlade County experienced an increase in households while losing population.

Table 2: Household Growth

Municipality	Households		
	2000	2010	% Change
Mole Lake*	144	152	5.6%
T. of Nashville	485	448	-7.6%
T. of Lincoln	404	399	-1.2%
Forest C.	4,043	3,836	-5.1%
Langlade C.	11,187	12,360	10.5%
Wisconsin	2,084,544	2,279,768	9.4%

Source: U.S. Census

* Tribal population is also included in the Town of Nashville total.

Employment

The Sokaogon Chippewa Community is one of the largest employers in Forest County, employing more than 235 people of diverse skills. The Mole Lake Casino and Lodge and the Tribal government are both in the top ten employers in the County at third and tenth, respectively.

The Community has a limited economic base that is highly dependent on tourism dollars. The economic enterprises include the Mole Lake Casino and Bingo and adjoined Café Manomin Restaurant and hotel, the Mole Lake New Business Incubator, the Sokaogon Chippewa Community C-Store, wild rice and forestry.

LAND USE/COVER AND DEVELOPMENT PATTERNS

Land use is an important determinant in the potential impact a particular hazard may have, and in actions which may be taken to mitigate the impacts. An understanding of the amount, type, and spatial distribution of land uses is an important consideration in the development of a sound hazard mitigation plan.

The North Central Wisconsin Regional Planning Commission (NCWRPC) has categorized land use in Forest County into general classifications using

2010 aerial photography to digitize a land use Geographic Information System (GIS) coverage. Map 2 shows the land use and development patterns in Forest County. Table 3 shows the acreage and percent of each classification.

Table 3: Existing Land Use

Description	Acres	Percent
Agricultural	20	0.6%
Commercial	16	0.5%
Government	15	0.4%
Open Land	20	0.6%
Residential	102	3.0%
Transportation	35	1.0%
Water	237	7.0%
Woodlands	2,933	86.8%
Total	3,378	100.0%

Source: NCWRPC, SCC Comp. Plan

Agriculture and Forestry

The dominant land-use on Mole Lake Tribal land is woodlands. Land area of the Tribe is approximately 86 percent forested, comprised of approximately 2,933 acres of woodland. Agricultural land covers another 20 acres or 0.6 percent of the Tribal land area.

Commercial and Governmental Development

Commercial and governmental development makes up only about 0.5 percent of the total area of the Tribe. Land use for commercial development is mostly located along STH 55. Tribal government and other institutional facilities are also concentrated along that major roadway. Some of the businesses in the corridor include: the C-Store Gas Station, Health Clinic, Auto Repair Shop, Mole Lake Casino and Lodge.

Residential Development

Land in residential development makes up about three percent of the total county area. There are various residences scattered throughout the Tribal land area along roadways. However, much of the housing stock is concentrated in three general areas including: (1) Ackley Circle / Indian Route 10, (2) Daisy Lane/John K Road/Sokaogon Drive, and (3) Indian Settlement Road. Multifamily apartment buildings include: Randall

Apartments on Indian Settlement Road, another apartment building on Sokaogon Drive and the elder apartments on Highway 55.

Surface Water

The Town of Nashville is part of two watersheds. The northwestern half of the town, where the Mole Lake reservation is located, lies within the Upper Wolf River and Post Lake watershed, and the southeastern half of the town is in the Lily River watershed. Both of these watersheds drain into Lake Michigan. Surface waters comprise about 237 acres or 7.0 percent of the Tribal land. See Map 3.

The rivers and lakes within the reservation and surrounding area provide fisheries and wild rice habitat, both significant tribal resources. Rice Lake and Swamp Creek are identified as important wild rice areas.

Floodplains and wetlands are important subsidiary components of the surface water system, as described below.

Floodplains

The primary value of floodplains is their role in natural flood control. Flood plains represent areas where excess water can be accommodated whether through drainage to streams or through storage in wetlands and other natural detention/retention areas. Specific areas that will be inundated will depend upon the amount of water, the distance and speed that water travels, and the topography of the area. If uninterrupted by development, the areas shown on a map as floodplains should be able to handle the severest (regional) flood, i.e. those that have a probability of occurring once every one hundred years.

The value of floodplains is in preserving and protecting these natural flood control areas from encroachment. First, by preventing development in the floodplain, the cost of building dikes, levees, or other man-made flood control devices will be saved. Second, for each structure that is constructed in a flood-prone area, that flood-prone area expands, potentially subjecting other structures originally built outside the delineated flood hazard area to the risk of flooding. Each new structure (or modification to existing) placed in the flood plain puts more life and property in danger.

In Wisconsin, counties are required to adopt floodplain zoning ordinances. The requirement is found in section 87.30 of the Wisconsin Statutes and Chapter NR 116 of the Wisconsin Administrative Code. Floodplain zoning is designed to protect individuals, private property, and public investments from flood damage. According to the Sokaogon Chippewa

Community Comprehensive Plan, these regulations do not apply to tribal trust and other lands incorporated into the reservation boundary, because of tribal sovereignty. Privately held tribal or Indian property may be subject to these types of regulations.

Floodplain zoning maps identify areas where significant flooding can occur. These regulations prohibit development in the floodway, the most dangerous flood area. In other flood areas, the flood fringe, development that is built above flood levels and otherwise flood-protected is allowed in accordance with the regulations. For regulatory purposes, a floodplain is generally defined as land where there is a one percent chance of flooding in any year (also known as the 100-year floodplain). A tribe can enact its own regulations. The Sokaogon could incorporate floodplain regulations similar to those required of Wisconsin counties through a Tribal Land Use Ordinance, as recommended in the Sokaogon Chippewa Community Comprehensive Plan

A tribe may also participate in the National Flood Insurance program or NFIP. However, many tribes do not, for various reasons such as limited flood plain mapping or inability of low income tribal members to afford NFIP premiums. Digital Flood Insurance Rate Maps, or DFIRMs, have been prepared for Forest County including the tribal area. These DFIRMs delineate the "A" Zones including the floodway and flood fringe, those areas inundated by the 100-year flood.

The NCWRPC downloaded the DFIRMs for use in this Plan. The digital files indicate approximately 920 acres of floodplain within the Tribal boundaries. Map 4 shows these approximate flood hazard boundary areas. While it appears that there is a significant area of floodplain within tribal boundaries, much of this land may not be developable for other reasons, i.e.: wetlands, see below. Further detailed investigation is needed to evaluate Sokaogon Chippewa Community participation in the NFIP.

Currently, there are no repetitive loss structures, those with multiple flood insurance claims in the Mole Lake area. The NCWRPC did identify three structures within the floodplain in the area, but they were outside the Tribal boundary.

Wetlands

Wetlands perform many roles in the proper functioning of the hydrologic cycle and local ecological systems. In terms of hazard mitigation, they act as water storage mechanisms in times of high water. Like sponges, wetlands are able to absorb excess water and release it back into the

watershed slowly, preventing flooding and minimizing flood damage. As more impermeable surfaces are developed, this capacity for water storage becomes increasingly important.

The DNR has identified the location of wetlands on their WISCLAND database. According to this information, there are approximately 1,400 acres of wetlands with the Tribal boundaries. Map 3 shows these wetland areas to be scattered throughout the Mole Lake area.

Destruction of wetlands can occur through the use of fill material. This can compromise the hydrological function of the site and open the area to improper development. The US Environmental Protection Agency (EPA) has promulgated minimum standards and works with the Tribe to manage and protect wetlands.

Other Land Cover/Uses

Open lands represent undeveloped land not wooded or part of a farm such as grassland. The transportation category is primarily the roadway travel corridors for federal, state, county and local highways and roads. Sometimes overlooked, transportation land use can be significant. In Mole Lake, surface transportation facilities consume about 35 acres of land or about 1.0 percent of total land area.

PUBLIC FACILITIES AND SERVICES

Transportation

The transportation system of the Sokaogon Chippewa Community provides the basis for movement of goods and people into, out of, through, and within the reservation area. An efficient transportation system is essential to the sound social and economic development of the Community and the surrounding region. The analysis of transportation routes should be considered in the possible event of a disaster. See Map 5. Proposed future roads and trails are also shown.

State Highway 55, County Highway M, and to a lesser degree CTH B, serve the Mole Lake community. County highways serve rural land uses and distribute local traffic to the regional arterial system. STH 55 is the principal truck route as designated by WisDOT.

The Forest County Commission on Aging coordinates a driver-escort service to provide transportation to the elderly and disabled residents of Forest County including Mole Lake residents.

The Crandon Municipal Airport lies just to the northeast of Mole Lake. This airport provides general aviation service for small private airplanes and limited airfreight. The nearest commercial passenger service is at the Rhinelander/Oneida County Airport in Rhinelander.

There is no local access to rail service in Mole Lake. The nearest freight rail would be out of Rhinelander.

Utilities

Utility systems are important in hazard mitigation planning because of the community's reliance on water, wastewater treatment, gas service, electricity, and communications. Because of this reliance and vulnerability to hazards, utility systems must be identified for this Plan, see Map 6.

The protection of the public water supply facilities from potential contamination from flooding and other threats is a consideration for hazard mitigation planning. The Mole Lake reservation has a public water supply system and sanitary sewer service. The wastewater treatment plant has a capacity of 87,125 gallons per day. Two water towers, with a capacity of 105,000 and 50,000 gallons, are part of the drinking water system. Storm sewers exist along STH 55 from the casino to Swamp Creek.

The infrastructure of electric and telephone lines should be considered in the event of high wind, ice storms, tornados, flooding, or fire. Electrical service is provided by the Wisconsin Public Service Corporation. The closest high-voltage (115kv) electric transmission line to Mole Lake is located along USH 8 to the north. Liquid petroleum (LP gas) is available for home and business delivery from several vendors. Natural gas service does not current extend to the reservation, but is available in some adjacent towns.

Telephone service is provided by Frontier, which also provides DSL Broadband internet to most of the area. The Tribe owns a wireless telephone antenna mounted on its water tower, which it leases to Cellcom to provide cell phone service throughout the reservation.

Emergency Services and Facilities

The type and location of public emergency services are an important consideration in hazard mitigation planning, because of the crucial role of such facilities in certain hazard situations.

Fire service for the Sokaogon Chippewa is provided by the City of Crandon Fire Department through the Crandon Fire District and

EMS/rescue - ambulance service is provided by Crandon Area Rescue Squad, a separate entity. See Maps 7 and 8. The Tribal water system includes hydrants for fire fighting.

Police protection and 911 dispatch in Mole Lake is provided by the Forest County Sheriff’s Department. See Map 9

The nearest medical facilities are Saint Mary’s Hospital in Rhinelander and Langlade Memorial Hospital in Antigo, which provide 24-hour emergency service and critical care. The Ministry medical clinic in Crandon is affiliated with Saint Mary’s Hospital.

The Tribal Health Center serves reservation residents and non-resident tribe members. The facility also offers mental health and substance abuse services.



Sokaogon Chippewa Community Health Clinic

INVENTORY OF TRIBAL COMMUNITY FACILITIES

In addition to emergency service facilities, other community facilities are also important in hazard mitigation planning. Government administration buildings serve as the headquarters that link to resources in helping solve potential problems. Elder housing sites are vulnerable, because of the high level of assistance required by the residents that live there. Since children are often congregated there, day care and youth center sites are important. Mole Lake children attend school in Crandon. Map 10 shows the location of selected types of Tribal community facilities in Mole Lake.

The valuation of property reflects the potential for property damages across the community. The Tribe holds many community and economic

facilities in common on behalf of the entire community. Refer to Table 4 for a full inventory of these tribal facilities. The Tribe also holds a significant part of the housing stock within the reservation, see Table 5

Property	Location	Value
Casino/Restaurant	3084 Hwy 55	11,639,716
Hotel Conference Ctr	3084 Hwy 55	11,171,580
Casino/Hotel Storage	3084 Hwy 55	559,080
Casino/Hotel Storage	E. Community Dr	146,990
Youth Center	Casino Way	1,283,849
Medical Clinic	3167 Hwy 55	2,113,449
Water Tank	3167 Hwy 55	308,224
C-Store Gas Station	3156 Hwy 55	482,759
Historical Home	Hwy 55	237,194
SFI Office	3163 Hwy 55	358,000
Old Motel	3015 Hwy 55	723,132
Storage Bldg	3015 Hwy 55	131,140
Gazebo	3015 Hwy 55	11,208
Elder Apartments	3154 Hwy 55	1,733,100
Day Care Center	3098 Sand Lake Rd	142,052
EPA Storage Garage	3098 Sand Lake Rd	85,671
Admin./Environmental	3098 Sand Lake Rd	3,334,163
Maintenance Bldg	3051 Sand Lake Rd	381,200
Commodities Dist.	3051 Sand Lake Rd	162,464
Fish Hatchery	3051 Sand Lake Rd	187,547
Pump House	Sokaogon Dr	307,168
Recycling Bldg	10808 Sokaogon Dr	204,142
Family Services Bldg	10808 Sokaogon Dr	263,469
Multifamily Apartments	10804 Sokaogon Dr	960,500
Water Tank	Ackley Circle	448,328
Housing Office	3265 Indian Settlement Rd	473,179
Housing Maint. Bldg	3265 Indian Settlement Rd	874,700
Randall Apartments	3207 Indian Settlement Rd	432,000
Infrastructure	underground	721,162
Total		\$39,877,166

Source: Sokaogon Chippewa Community and NCRWPC, 2015.



Mole Lake Casino and Lodge

Street Location	Number of Units	Total Value
Indian Settlement Rd	16	1,635,900
Krystal Ln	1	109,400
Community Dr	2	219,200
Sokaogon Dr	8	969,400
Ackley Circle	8	878,700
Daniel Dr	3	333,200
County Rd M	11	1,631,000
Hwy 55	8	969,600
Sand Lake Rd	7	903,500
Indian Route 10	12	1,878,900
John K Rd	11	1,349,000
Daisy Ln	11	1,532,900
Frontage Rd	5	795,800
Totals	103	\$13,206,500

Source: Sokaogon Chippewa Community and NCWRPC, 2015.

Inventory of Significant Cultural and Sacred Sites

The Dinesen House log cabin was built during the 19th century deep in Indian territory wilderness adjacent to a US military trail and remains in its original spot now along Hwy 55 within the Mole Lake reservation. The 150+



The Dinesen House

year old structure has gained prominence since 2005 when it became listed on the National Register of Historic Places and fully restored in the years following. The cabin served as a mail and trading station where furs were traded with the local Chippewa.

There are a number of other assets that have been identified as having cultural importance to the Sokaogon Chippewa Community:

- Mushgigamongsebe District: An an area of historic cultural importance to the Sokaogon. It includes the river, wetlands and surrounding area from the Hemlock Creek Valley west to the outlet of Rice Lake, including Spirit Hill. The District has been a gathering place and center for religious and cultural events.

- Rice Lake, itself.
- Pow Wow Grounds.
- Big Drum House.
- Tribal Cemetery.
- Battle of Mole Lake Historical Marker and associated battlefield and burial grounds.



Note that some of these facilities are shown on Map 10, however, in order to protect some sites from excess traffic and potential vandalism, the Tribe prefers not to advertise their locations.

FUTURE GROWTH AND DEVELOPMENT IN THE SOKAOGON CHIPPEWA COMMUNITY

Population forecasts in the Tribal Comprehensive Plan show the reservation population growing by 18% through 2025. This equates to just over 100 new households that would need to be accommodated on tribal lands in the Mole Lake area.

The projected residential land demand is based on this expected growth in households. An average increase of 12 acres of residential land is anticipated on the reservation every 5 years to accommodate population growth. Much of this new residential development will continue to concentrate in the tribes existing residential areas of Ackley Circle / Indian Route 10, Daisy Lane/John K Road/Sokaogon Drive, and Indian Settlement Road.

Along with this population growth the Tribe continues to work on economic development and diversification. As with any economic activity, market demand will be a primary factor driving development. Assuming that an increase in commercial land use will parallel the increase in population on the reservation, demand for commercial land will increase by about 2.5 acres every 5 years. Much of this new commercial growth will continue to concentrate in the tribe's main commercial area along Hwy 55.

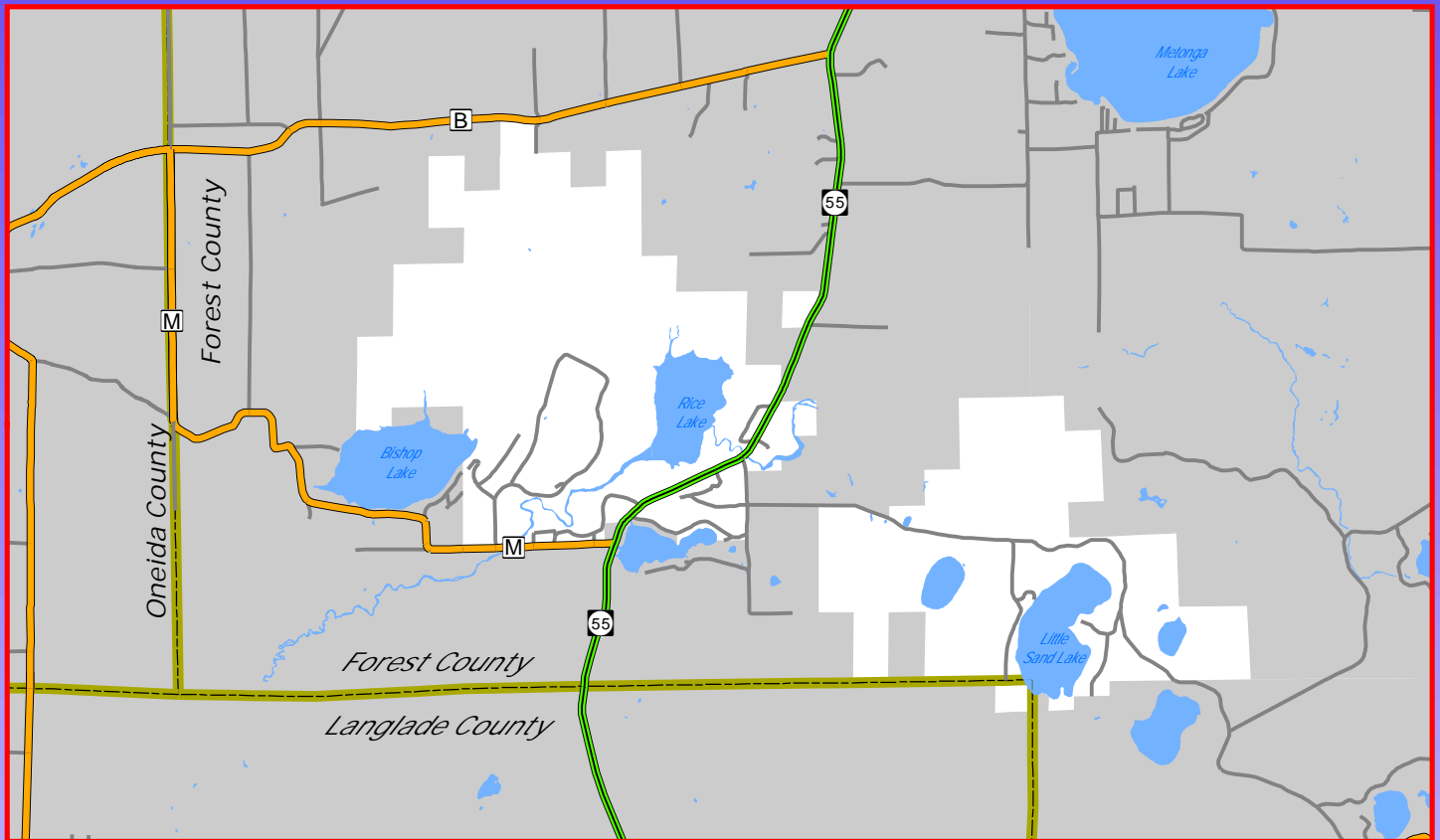
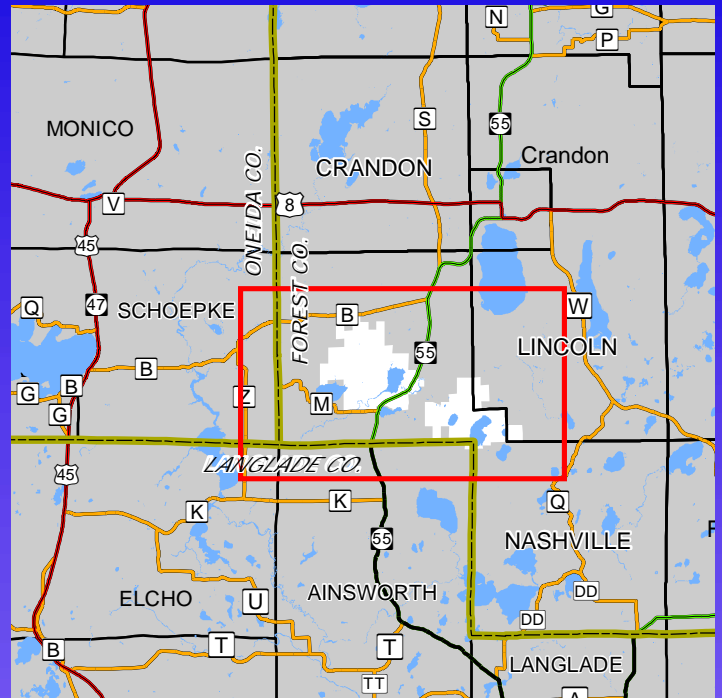
In addition to the growth of the community's population and commercial base, the Tribe continues to plan and develop new tribal facilities as well

as renovation and expansion of existing facilities. The following new facilities are being planned at this time:

- Elder Housing with supportive services for elderly and disabled (renovation of old motel on Hwy 55)
- Cultural Center (locations to be determined)
- Food Distribution Facility (possibly on former casino site, Hwy 55)

Longer term plans include:

- 24 New Housing Starts.
- Elderly and Assisted Living Facility for 25 to 30 tribal residents.



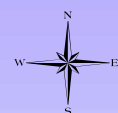
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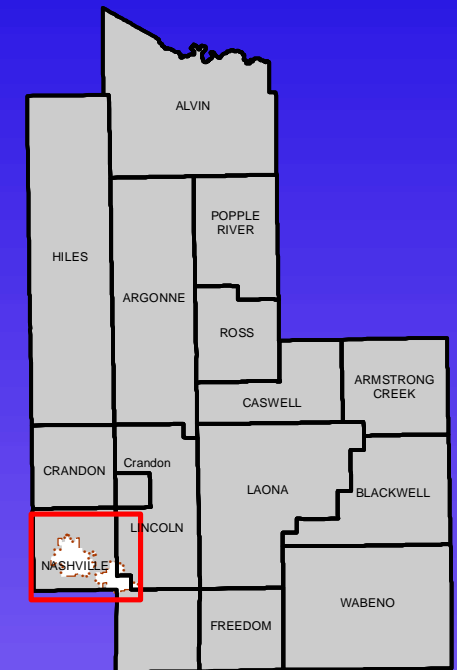
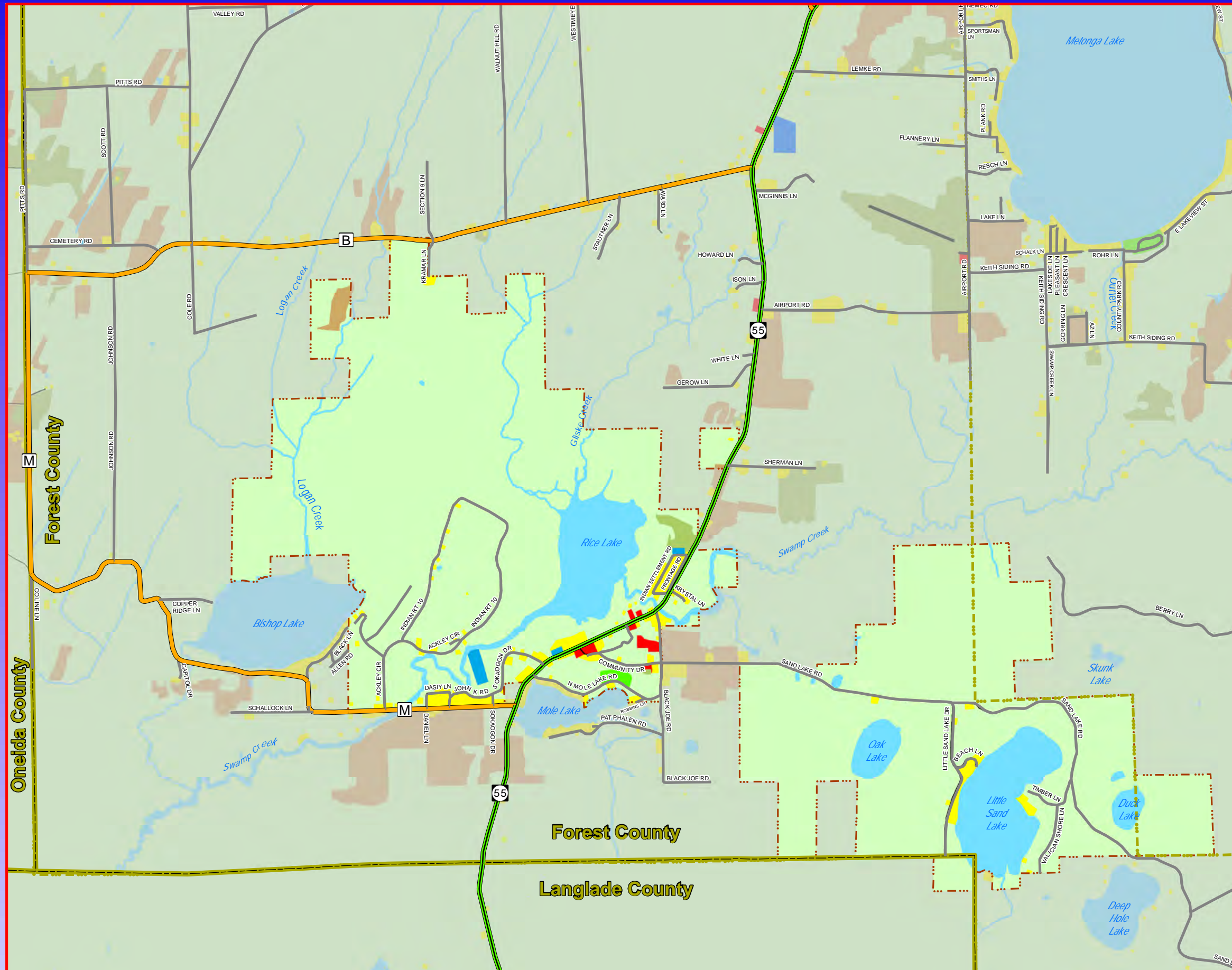
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Tribal Land

Source: WI DNR, NCWRPC

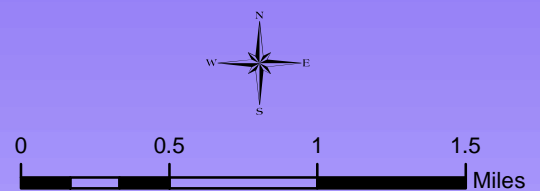
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Legend

- US Highway
- State Highways
- County Highways
- Local Roads
- Minor Civil Divisions
- Tribal Land
- Agriculture
- Commercial
- Governmental / Institutional
- Industrial
- Residential
- Multi-Family
- Open Lands
- Outdoor Recreation
- Transportation
- Water
- Woodlands



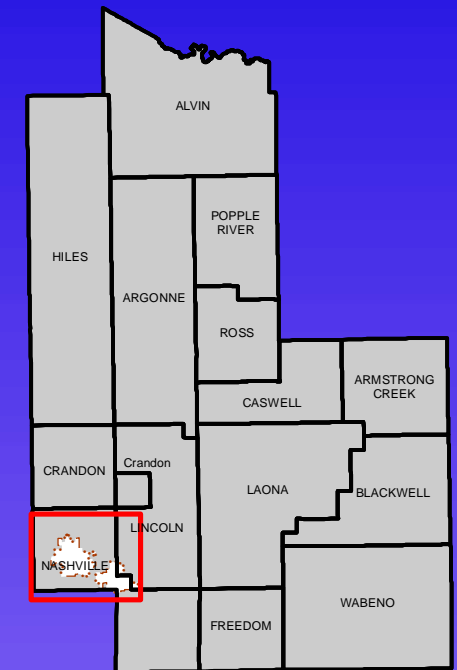
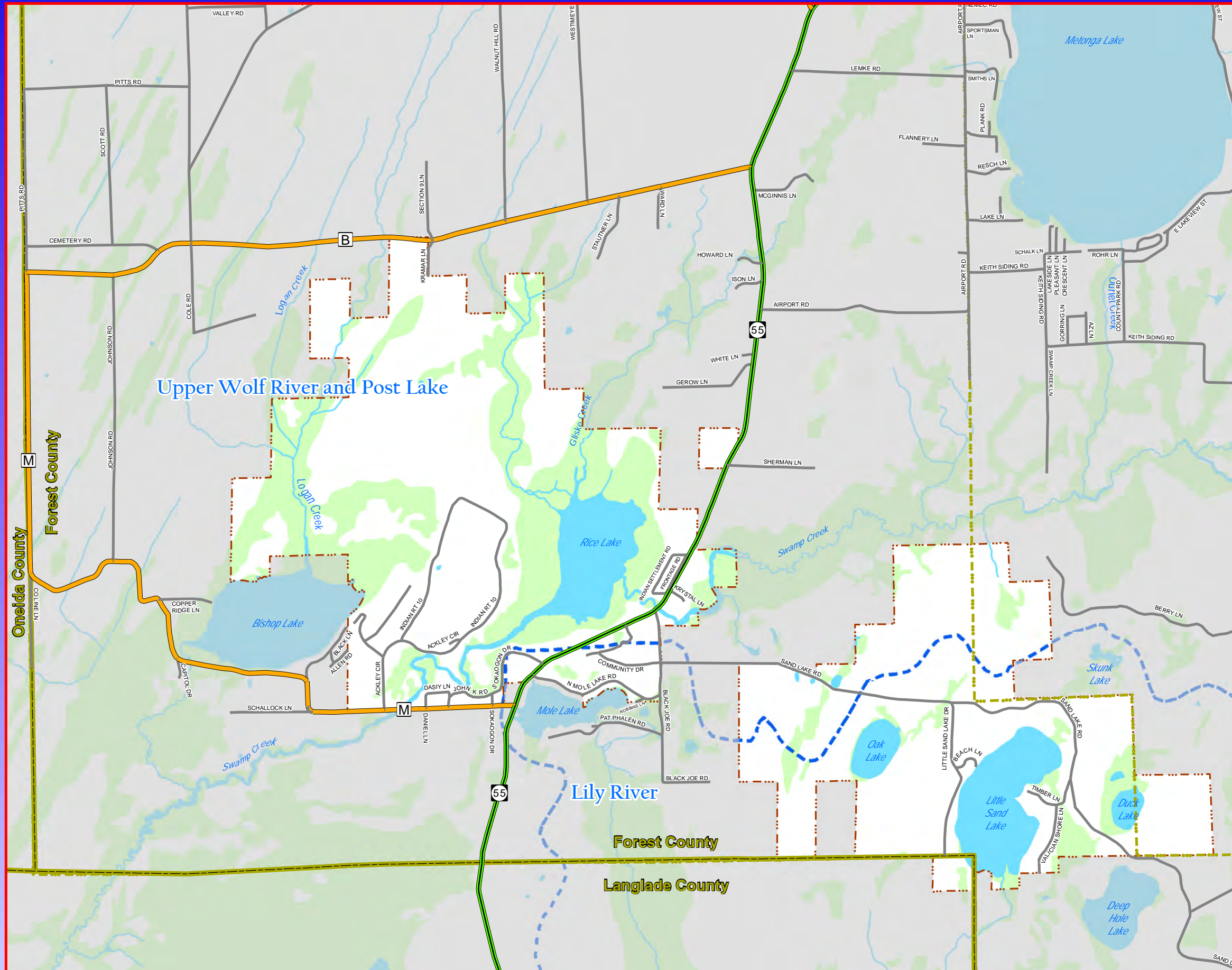
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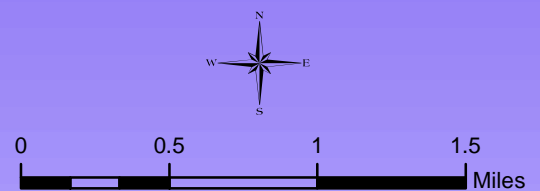
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Legend

- County Boundaries
- Minor Civil Divisions
- Tribal Land
- US Highway
- State Highways
- County Highways
- Local Roads
- Water
- Watersheds
- Wetlands



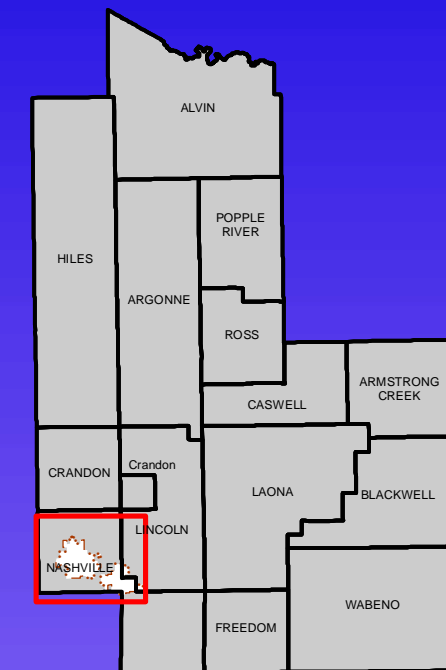
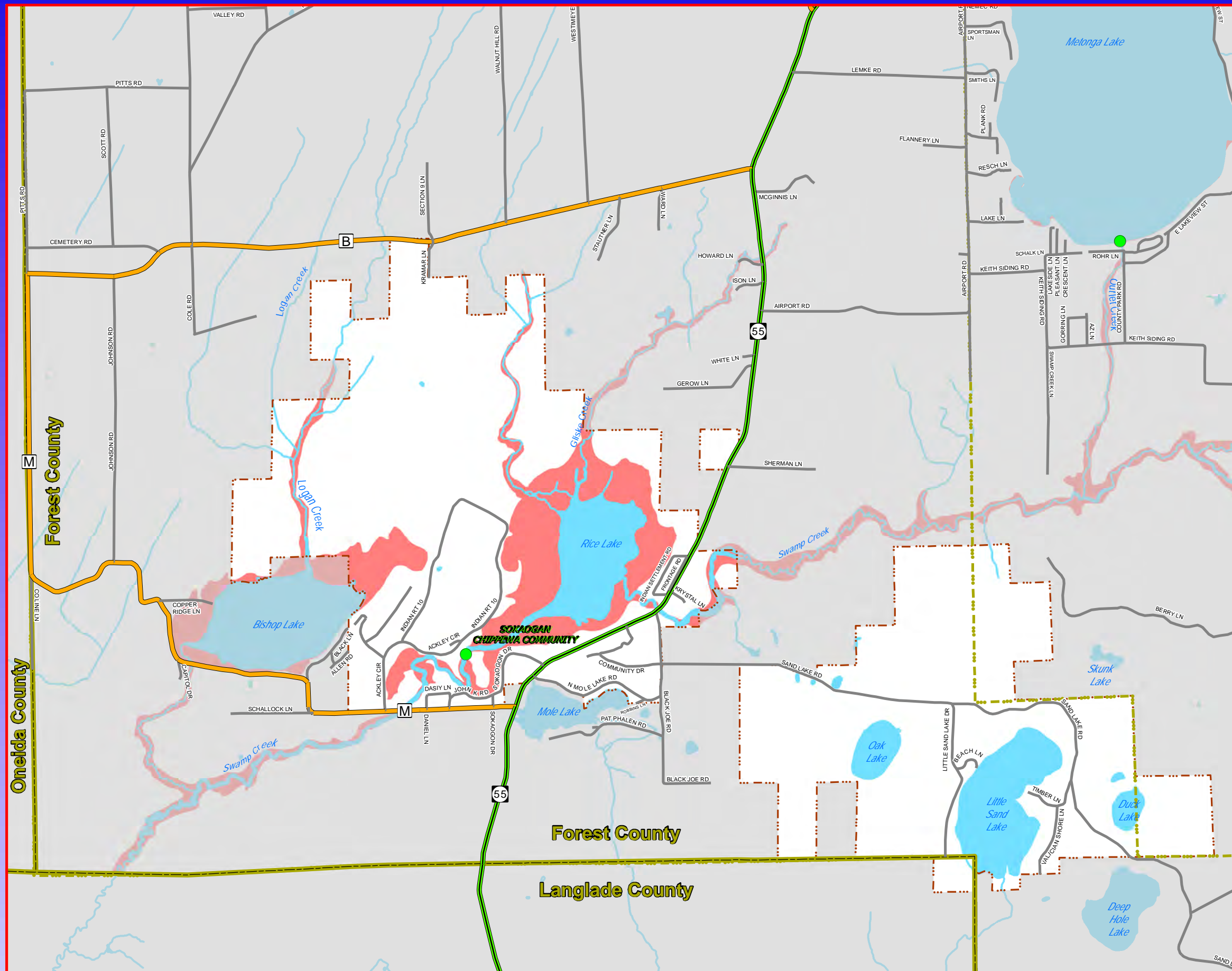
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Legend

- County Boundaries
- DFIRM Floodplain
- Minor Civil Divisions
- Tribal Land
- US Highway
- State Highways
- County Highways
- Local Roads
- Large Dam Size
- Small Dam Size



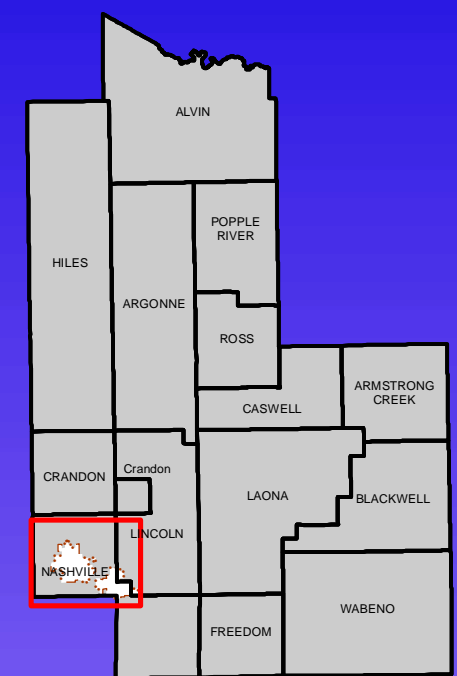
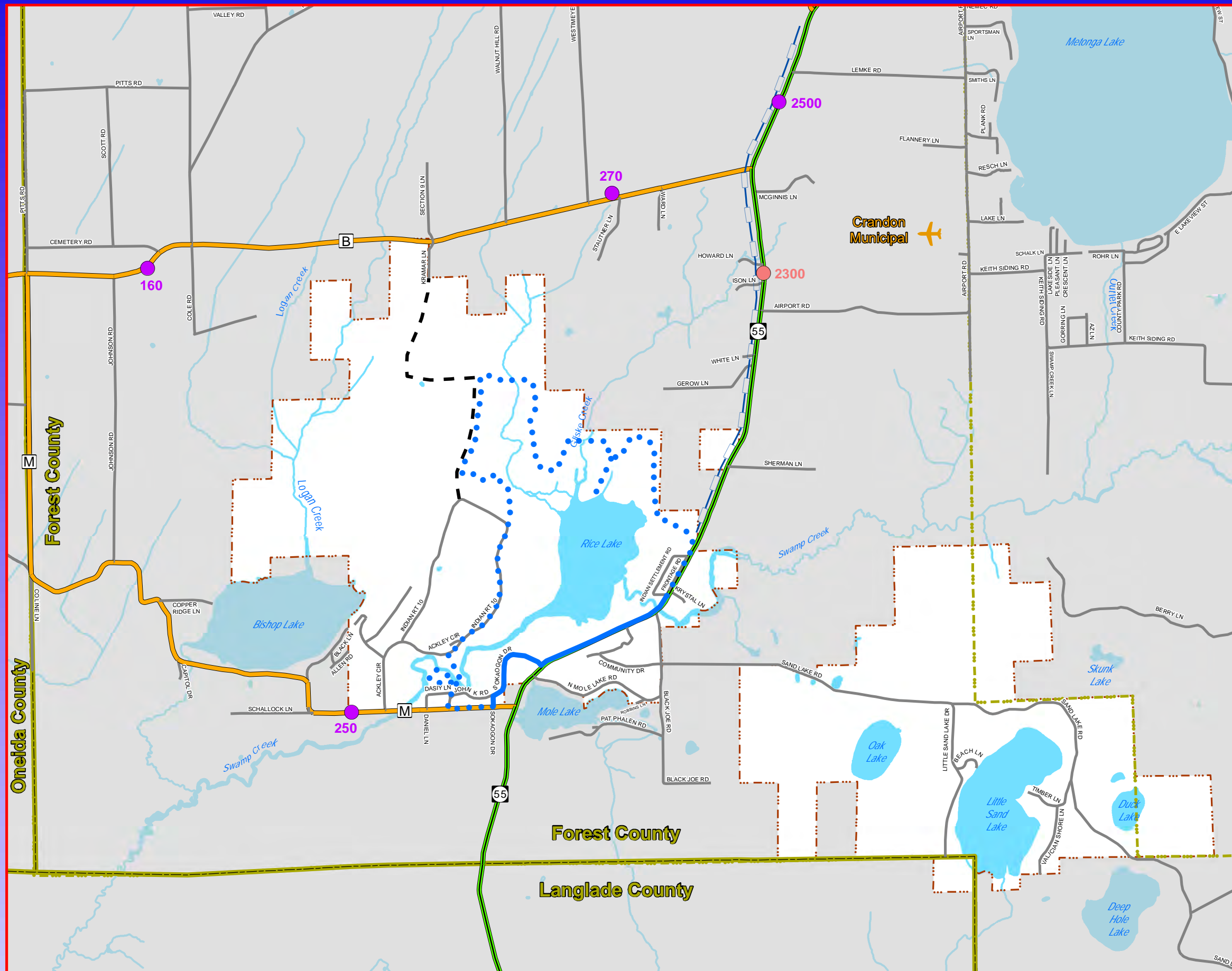
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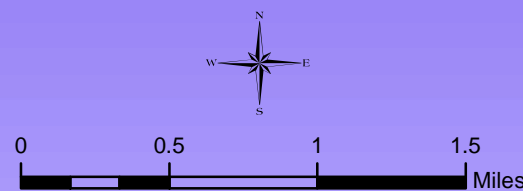


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- Legend**
- County Boundaries
 - Existing Pedestrian Trail
 - Minor Civil Divisions
 - Proposed Rice Lake Trail
 - Tribal Land
 - Proposed Hiking/Biking Trail
 - US Highway
 - Proposed Road
 - State Highways
 - County Highways
 - Local Roads
 - Airport Classification**
Small General Aviation
 - Traffic Counts**
2003
 - 2006

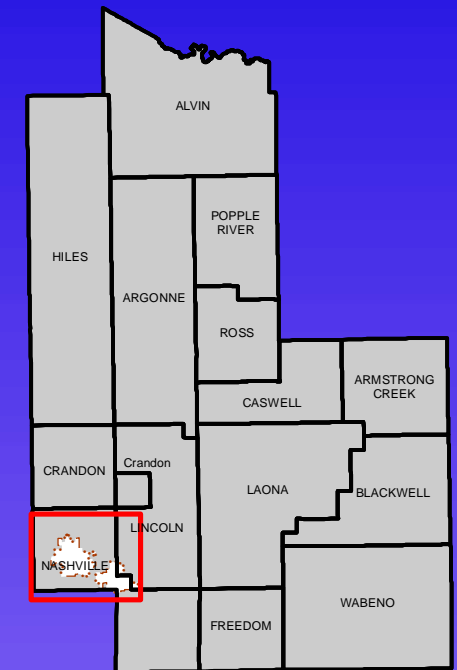
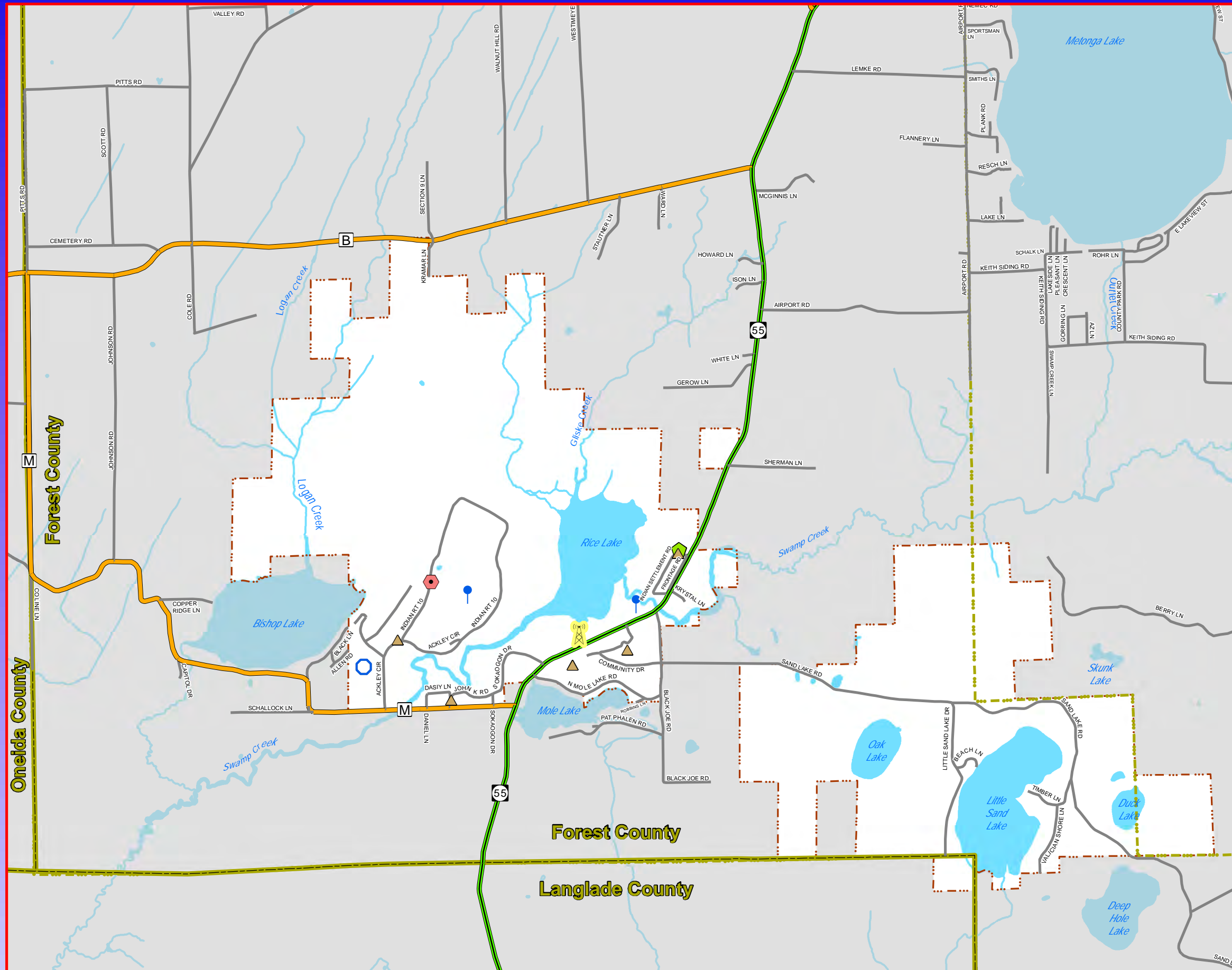


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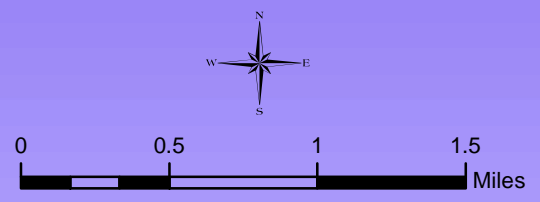
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Legend

- County Boundaries
- Minor Civil Divisions
- Tribal Land
- US Highway
- State Highways
- County Highways
- Local Roads
- Celltowers
- Lift Stations
- Booster Station
- Pump House
- Waste Water Treatment Plant
- Water Tower



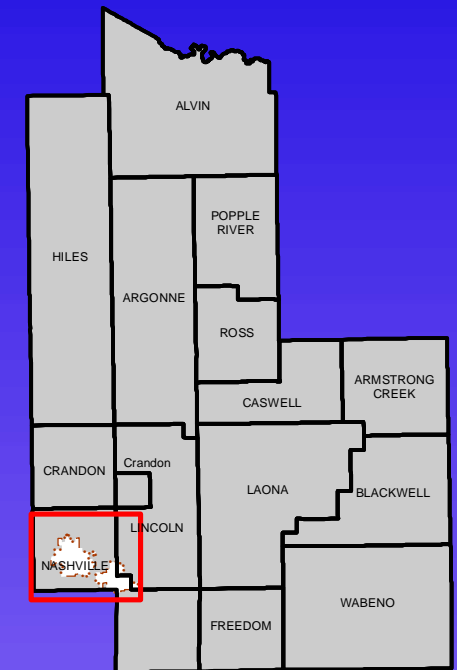
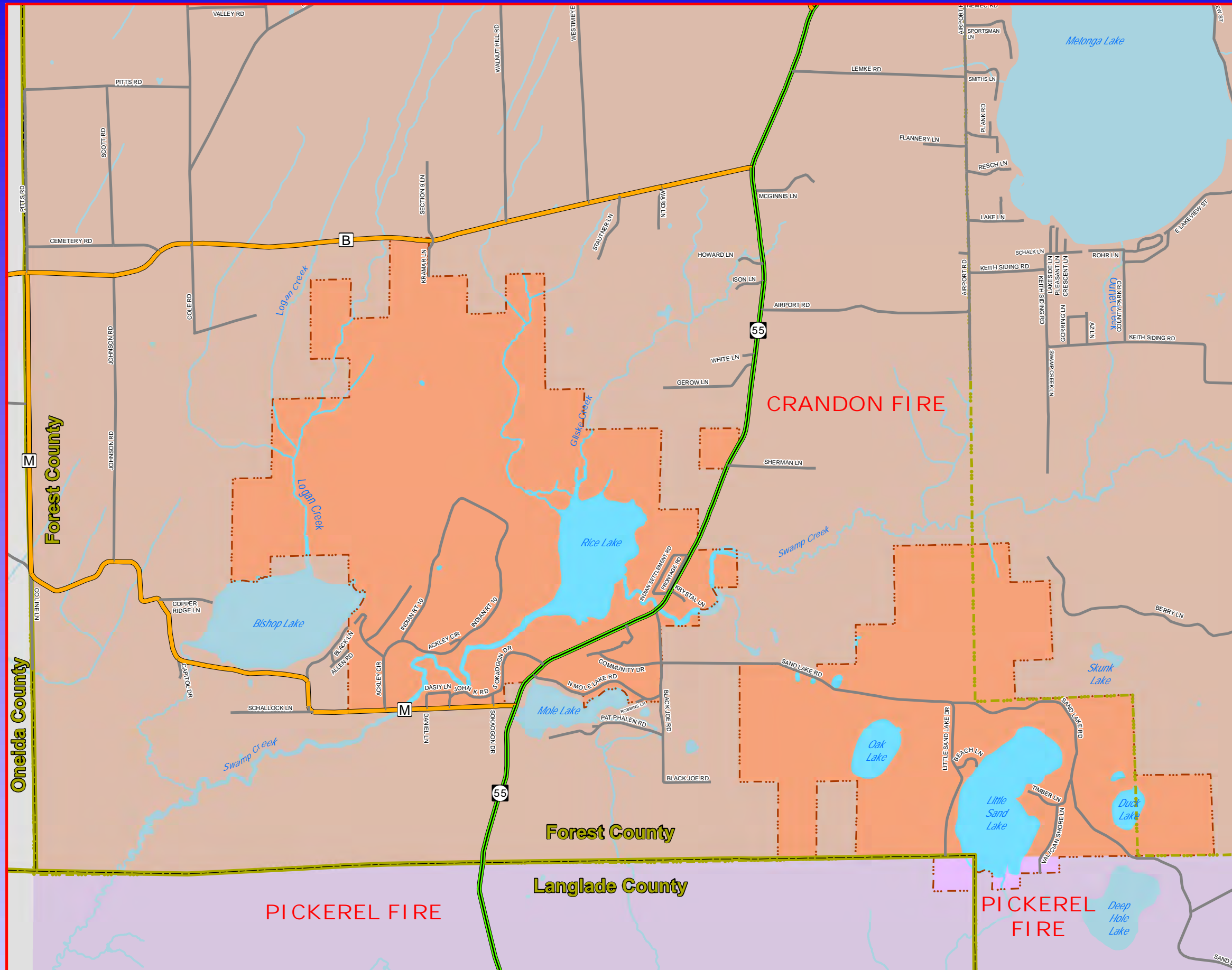
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Legend

- County Boundaries
 - Minor Civil Divisions
 - Tribal Land
 - US Highway
 - State Highways
 - County Highways
 - Local Roads
 - Water
- Fire Service**
 - Crandon Fire
 - Pickerel Fire



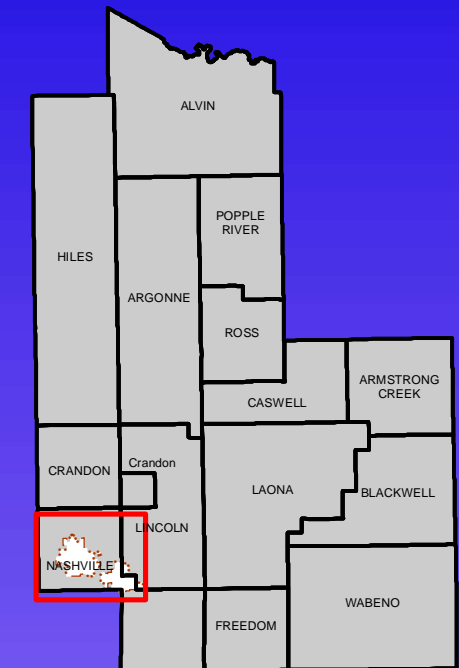
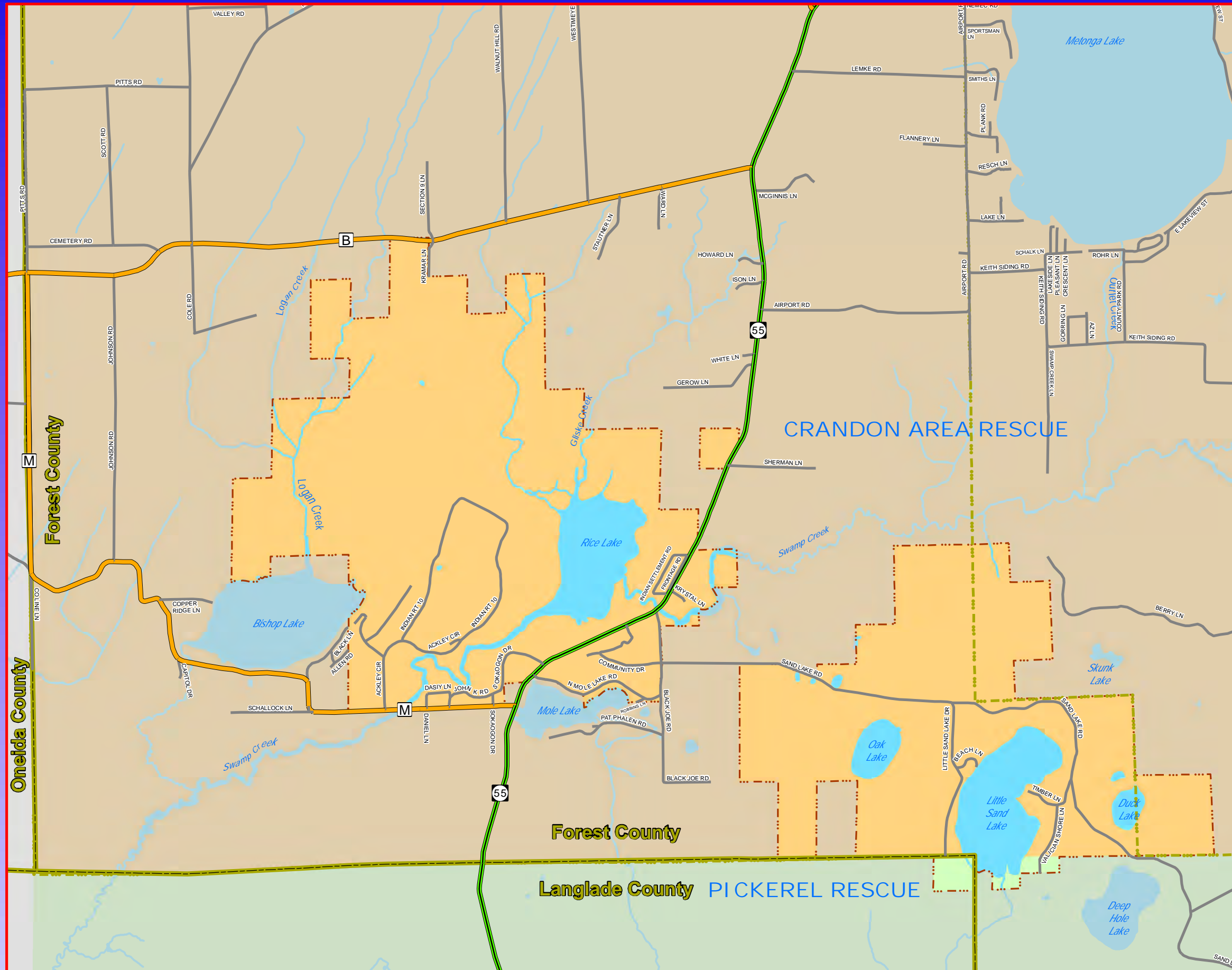
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Legend

- County Boundaries
 - Minor Civil Divisions
 - Tribal Land
 - US Highway
 - State Highways
 - County Highways
 - Local Roads
 - Water
- EMS Service**
- CRANDON AREA RESCUE
 - PICKEREL RESCUE



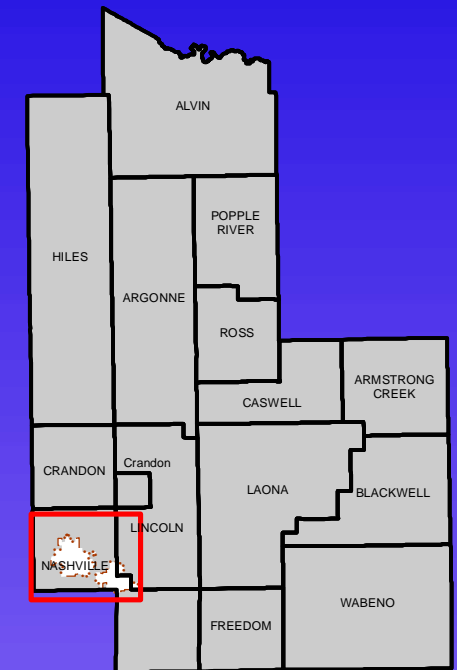
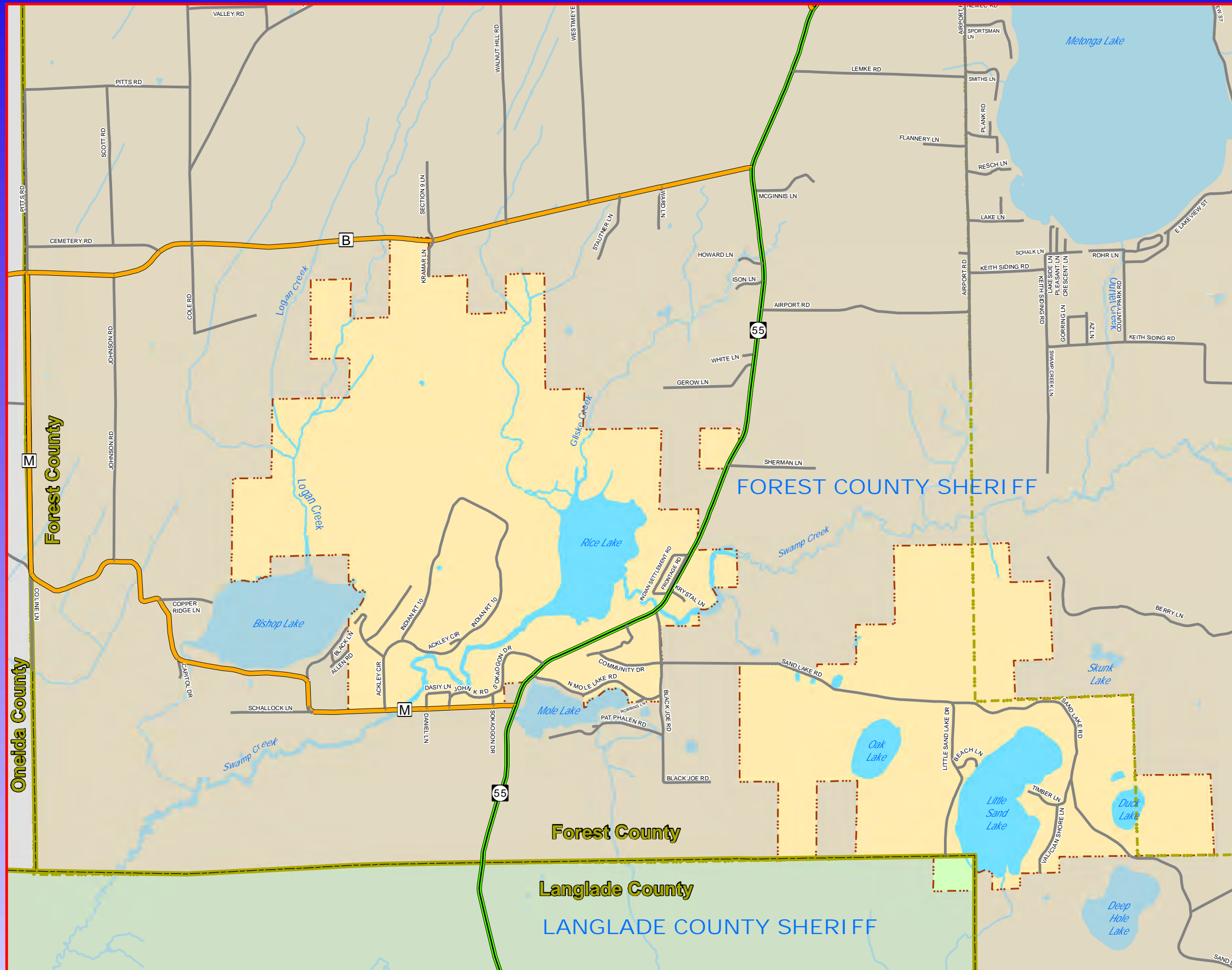
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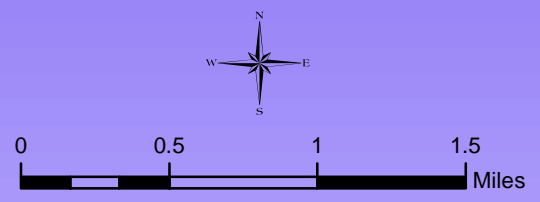
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Legend

- County Boundaries
 - Minor Civil Divisions
 - Tribal Land
 - US Highway
 - State Highways
 - County Highways
 - Local Roads
 - Water
- Police Service**
- Forest County Sheriff
 - Langlade County Sheriff



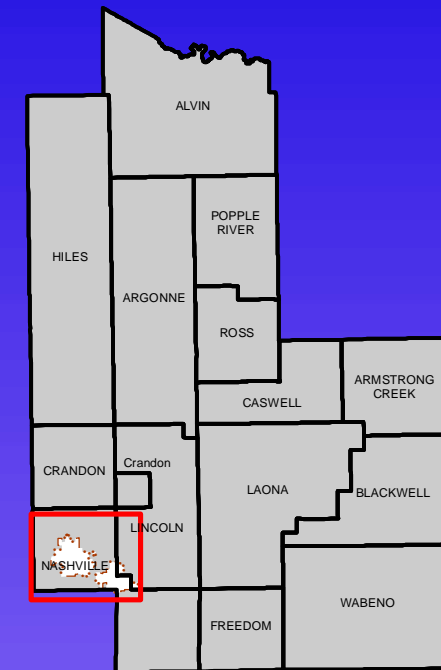
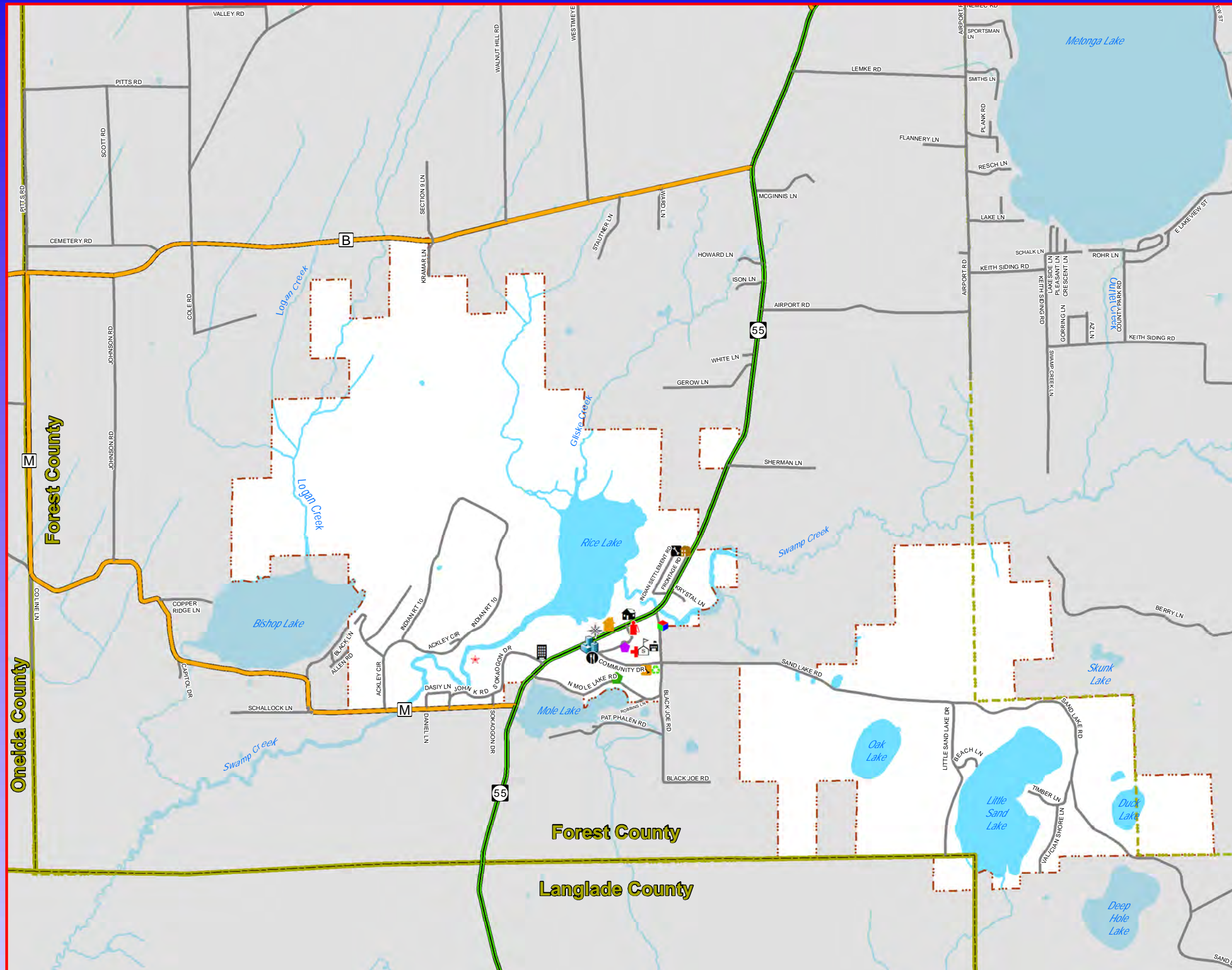
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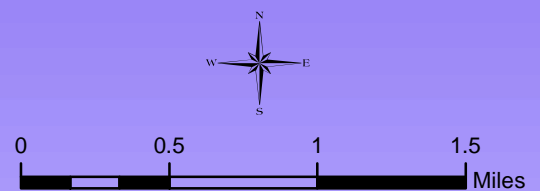
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Legend

- County Boundaries
- Minor Civil Divisions
- Tribal Land
- US Highway
- State Highways
- County Highways
- Local Roads
- Water
- Convenience Store
- Administration Building
- Apartments
- Historical Marker
- Roads Shop
- Youth Center
- Recycling Center
- Proposed Elder Housing
- Pow Wow Grounds
- Senior Housing
- Health Clinic
- Casino
- Dinisen House
- Community Baseball Fields
- Day Care Center
- Life Enhancement Center / Food Services Bldg
- Tribal Housing Office
- Tribal Housing Equipment Garage



Source: WI DNR, NCWRPC, FOREST CO.

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INTRODUCTION

Analyzing the hazards facing a community is an important and vital step in the mitigation planning process. Before mitigation strategies can be determined, a risk assessment must be made. Part III of the Mole Lake All Hazards Mitigation Plan will focus on the following:

- Identification of all types of natural hazards that can affect Mole Lake
- An analysis of each hazard identified as pertinent to Mole Lake

The hazard analysis will consist of:

- Background information
- History of previous occurrences of hazard events
- An analysis of the Mole Lake's vulnerability to future events
- An estimate of future probability and potential losses from the hazard

HAZARD IDENTIFICATION

The process of identifying those hazards that should be specifically addressed in the Mole Lake All Hazards Mitigation Plan was based on consideration of a number of factors. The process included a review of past hazard events to determine the probability of future occurrences and the threat to human safety and property damage.

Worksheets from the Wisconsin Guide to All-Hazard Mitigation Planning were used by the Planning Taskforce to evaluate and rank a list of possible hazards to help identify which hazards should be included in the Plan based on threat to human safety and possible damage to property.

The resulting priority ranking of hazards accepted by the Mitigation Planning Committee is as follows:

1. Winter Storm / Extreme Cold
2. Thunderstorm /High Wind /Lightning / Hail
3. Tornado
4. Forest Fire / Wild Fire
5. Drought / Extreme Heat
6. Flooding

This plan focuses on natural hazards that can be mitigated on a local level, and have or could cause disasters. Technological or manmade hazards are things like transportation incidents, civil disturbances, hazardous material incidents, mass casualty events, war, and terrorism. Mole Lake already works closely with the Forest County Sheriff's Department which plans for these types of events, so

they are not included in this planning process. Low magnitude earthquakes occur in Wisconsin every few years, but none so far have exceeded a magnitude of 3.9, which would have vibrations similar to the passing of a semi-truck, therefore, earthquakes are not covered in this plan. Mole Lake does not have coastal hazard issues and conditions for landslide or subsidence problems are not significant in the area.

Although a significant concern, human communicable diseases are not addressed in the plan. The Mole Lake Health Clinic, Forest County Health Department, and area hospitals work with the Wisconsin Department of Health and Family Services – Division of Public Health and the Center for Disease Control to monitor and plan for these situations.

HAZARD ANALYSIS

The hazard analysis for each hazard included in this plan is broken down into four components, as follows:

1. Background on Hazard - The next step after identifying a hazard is to define the hazard and give some general background behind it. This can include occurrence of hazard within the area, County or State. This section may also give some indication of the risk to public health and safety and to personal and public property.

2. History of Hazards - Past experiences of disasters is an indication of the potential for future disasters for which Mole Lake would be vulnerable. A review of past occurrences for each identified hazard in Mole Lake was completed. Due to Mole Lake's small size and the breadth of many hazard events, the Town of Nashville and Forest County hazard histories will be examined as representative of hazards affecting Mole Lake by virtue of being located within their boundaries.

Some disasters have had damages that exceeded the capabilities of local communities and state agencies. Federal assistance is then requested, which may be offered through a variety of programs. Assistance may be directed to agricultural producers, individuals and families, businesses, or local governments. There have been five natural disasters in Forest County for which a Presidential Declaration was requested from 1971 to 2012. They include the following:

- 1975 Army Worm Infestation
- 1976 Drought – Presidential Emergency Declaration
- 1977 High Winds / Hail – Presidential Emergency Declaration
- 2000 Severe Storms/Flooding/Tornado – Presidential Disaster Declaration
- 2010 Severe Storms – State Disaster Fund

It should be noted that this significantly underestimates the number of hazard events that have occurred in the area. Almost every year significant weather events or disasters cause thousands of dollars in damage when no Federal disaster assistance is requested. Major indicators of hazard severity are the deaths, injuries, and economic losses resulting from natural hazards and disasters.

The National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) publish the National Weather Service (NWS) data describing recorded weather events and resulting deaths, injuries, and damages. From January 1, 2004 to December 31, 2013, NCDC reported 62 severe weather events for Mole Lake.

Since the earlier NCDC data is somewhat incomplete, this report focuses on the 10-year period from 2004 to 2013 for hazard analysis purposes. Other sources of data are used to supplement the NCDC data. These sources include Wisconsin Emergency Management, Wisconsin Department of Natural Resources, Forest County Emergency Management, and local news reports.

3. Vulnerability Assessment For Hazards - For each hazard identified, a summary of the impact that may be caused to the community is given. When possible, existing buildings, infrastructures, and critical facilities located in the hazard areas are identified. Critical facilities are community buildings that are especially important to the health and welfare of the population following hazard events. Examples of such facilities include hospitals, police & fire stations, government administration buildings, and shelters.

4. Future Probability and Potential Dollar Losses for Hazard - The historic data and vulnerability assessment for each hazard is used to project the potential future probability of such a hazard event occurring in the area, and the potential damages in dollars that might be reasonably expected. This section sets a benchmark amount for mitigation of each hazard.

HAZARD ANALYSIS: WINTER STORMS / EXTREME COLD

Background on Winter Storms/Extreme Cold Hazard:

A variety of weather phenomena and conditions can occur during winter storms. For clarification, the following are National Weather Service approved descriptions of winter storm elements:

Heavy snowfall – the accumulation of six or more inches of snow in a 12-hour period or eight or more inches in a 24-hour period.

Blizzard – the occurrence of sustained wind speeds in excess of 35 miles per hour accompanied by heavy snowfall or large amounts of blowing or drifting snow.

Ice Storm – an occurrence where rain falls from warmer upper layers of the atmosphere to the colder ground, freezing upon contact with the ground and exposed objects near the ground.

Freezing drizzle/freezing rain – the effect of drizzle or rain freezing upon impact on objects that have a temperature of 32 degrees Fahrenheit or below.

Sleet – solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of largely melted snowflakes. This ice does not cling to surfaces.

Wind chill – an apparent temperature that describes the combined effect of wind and low air temperatures on exposed skin.

Winter storms can vary in size and strength and include heavy snowfall, blizzards, ice storms, freezing drizzle/freezing rain, sleet, wind chill, and blowing and drifting snow conditions. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite, and even death.

True blizzards are rare in Wisconsin. They are more likely to occur in the northwestern part of the state than in other areas, even though heavy snowfalls are more frequent in the southeast. However, blizzard-like conditions often exist during heavy snowstorms when gusty winds cause the severe blowing and drifting of snow. Heavy snow and ice storms are a part of nearly every winter in Mole Lake.

Dangerously cold conditions can be the result of the combination of cold temperatures and high winds, which creates a perceived sensation known as “wind chill”. Wind chill is the apparent temperature that describes the combined effect of wind and air temperatures on exposed skin. When wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same, the faster the wind blows the greater the heat loss, which results in a colder feeling. As winds increase, heat is carried away from the body at a faster rate, driving down both the skin temperature and eventually the internal body temperature.

The National Weather Service issues wind chill advisories when wind chill readings of -20 to -34 degrees are expected. Wind chill warnings are issued when wind chill values are expected at or below -35 degrees. Extreme cold events are most likely during the months of December, January and February.

History of Winter Storms/Extreme Cold in Mole Lake Area:

The NCDC has reported 29 major winter storm events and 4 cold temperature events for Mole Lake between 2004 and 2013. These storms typically contain some form of heavy snow, blowing snow, ice, freezing rain or drizzle, or glaze.

The most recent heavy snow in Mole Lake took place on March 10, 2013. A narrow swath of heavy snow fell across mainly north central Wisconsin as low pressure moved from the Central Plains into southern Wisconsin. Generally, 5 to 8 inches of snow fell in about 12 hours. Between 2004 and 2013, Mole Lake was affected by 28 other winter storms and heavy snow events.

The most recent extreme cold or wind chill event took place on February 10, 2008, when strong northwest winds behind a departing low-pressure system brought cold air into Wisconsin. Temperatures fell into the 10 below zero to 20 below zero range at most locations overnight and combined with 10 to 30 mph winds, with gusts up to 40 mph, to produce bitter cold wind chills. Wind chills were around 40 degrees below zero. Three other cold temperature events have affected Mole Lake from 2004 to 2013.

A historic event of significance took place in February 1996, when an arctic air mass stalled over Wisconsin bringing extreme cold for an extended period of 5 days. Wind chills reached 70 degrees below zero in some areas. Significant damages and disruption occurred, including cancellation of all outdoor events at the Badger State Games. At least one person died from hypothermia, but this was not in Forest County.

Winter Storms/Extreme Cold Vulnerability Assessment:

Winter storms present a serious threat to the health and safety of affected citizens and can result in significant damage to property. Heavy snow or accumulated ice can cause the structural collapse of buildings, down power lines, cause motor vehicle accidents, or isolate people from assistance and services. Extreme cold includes the risk of frostbite and hypothermia.

The following is a list of things that may be adversely affected by a winter storm. Many of these community assets can be referenced in Part II.

- Infrastructure – operation of emergency services, operation of public facilities and schools
- Utilities – down power and telephone lines
- LP Gas at residences freezing at temperatures below 40 degrees below zero
- Septic system freezing
- Transportation – automobile accidents, roadway plowing, salting/sanding
- Residential – roofs

- Businesses –commerce
- Agricultural – livestock, (forest crop if ice storm)

There are no specific areas in Mole Lake that have an unusually high risk. Winter storms cover a broad area and are a region-wide concern. The extreme cold weather can affect the entire county. The risk to public health includes the chance of getting frostbite and hypothermia, and motor vehicle accidents. Everyone is at risk for becoming injured in extreme cold weather, either because of frail health or because of travel in a motor vehicle.

Future Probability and Potential Dollar Losses – Winter Storms/Extreme Cold:

Based on historical frequency, Mole Lake can expect 2.9 major winter storms per year on average. In other words the probability is 1.0 or a 100% chance of winter storms in a given year.

Mole Lake can expect an extreme cold temperature event about once every four years, or a 25% chance in a given year, based on historical frequency. Although, because extreme cold temperatures often accompany winter storms, a probability of 100% chance in a given year cannot be ruled out.

Estimating potential future losses from winter storms is difficult. Damages and losses are typically widespread. Auto accidents and additional snow removal expense are typical impacts of winter storms, and such claims are not aggregated or tracked for monetary damage. Winter storms do have the potential to be extremely destructive, particularly in the case of ice storms. Potential future losses per incident might range from \$5,000 to \$2 million based on experiences from other areas in northern Wisconsin.

HAZARD ANALYSIS: SEVERE THUNDERSTORMS/HIGH WINDS/LIGHTNING/HAIL**Background on Severe Thunderstorm Hazard:**

The National Weather Service definition of a *severe thunderstorm* is a thunderstorm event that produces any of the following: downbursts with winds of 58 miles per hour or greater (often with gusts of 74 miles per hour or greater), hail one inch (recently increased from $\frac{3}{4}$ of an inch) in diameter or greater, or a tornado. Strong winds, hail, and lightning will be addressed in this section, and tornadoes are discussed as a separate hazard.

Lightning results from discharge of energy between positive and negative areas within a thunderstorm separated by rising and falling air. This discharge heats the surrounding air to 50,000 degrees. Hail results as the warm rising air cools, forming ice crystals which are held by the updrafts until accumulating enough

weight to fall. The hail size depends on strength of the updrafts keeping it suspended.

Thunderstorm frequency is measured in terms of incidence of thunderstorm days or days on which thunderstorms are observed. Wisconsin averages between 30 and 50 incidence days per year depending on location. A given county may experience ten or more thunderstorm days per year. The southwestern area of the state normally has more thunderstorms than the rest of the state.

Measured wind speeds are typically in the range of an EF0 tornado and may even approach EF1 speeds. Strong winds can be associated with tornado episodes, thunderstorms, or even winter storms. The effects are often widespread, impacting areas hundreds of miles from the actual areas of thunderstorms or snow. Trees, signs, and power poles are the most commonly impacted by high wind events, but significant damage, bodily injury, or death can occur.

History of Severe Thunderstorms in Mole Lake Area:

The NCDC database reported four severe thunderstorm events for the Mole Lake area since 2004. These storms typically contain some form of heavy rain, strong winds, lightning, or hail. Mole Lake can expect a high wind event approximately every other year, as the probability is 0.4 or a 40 percent chance in a given year. Forest County reported 61 severe thunderstorm/high wind events between 2004 and 2013, and due to the scope of these events, Mole Lake likely experienced some of the effects, though perhaps not as severely. Generally these events included an area larger than a single county.

Most recently, on July 8, 2013, storms brought thunderstorm winds and hail into the Town of Nashville, the town Mole Lake is within. The storms produced wind damage from a wet microburst, penny to nickel size hail, and heavy rainfall. The microburst, with winds estimated at 75 mph, downed about 30 trees. Numerous locations received more than two inches of rain in a three to four hour period.

The historical frequency for the occurrence of hail is less. Based on reported events of the past 10 years the Mole Lake area averages one hail event per decade. Historical size of hail in Forest County ranges from 0.75 to 2.75 inches in diameter.

The Mole Lake area has been fortunate to not experience any major lightning events between 2004 and 2013. The last major lightning event in Forest County took place in 2000 in the Town of Alvin.

Severe Thunderstorm Vulnerability Assessment:

The National Weather Service can forecast and track a line of thunderstorms that may be likely to produce severe high winds, hail, and lightning, but where these related hazards form or touch down and how powerful they might be remains unpredictable. The distribution of thunderstorms and related hazard events have been widely scattered throughout the county.



Forest County Hail

Many thunderstorm events (without tornadoes) have caused substantial property and infrastructure damage, and have the potential to cause future damage. In order to assess the vulnerability of the Mole Lake area to thunderstorms and related storm hazards, a review of the past events indicates significant impacts to:

- Infrastructure – hospitals, schools, street signs, police and fire departments
- Utilities – electric lines/poles/transformers, telephone lines, radio communication
- Transportation – debris clean-up
- Residential – mobile homes, garages, trees and limbs, siding, & windows
- Businesses – signs, windows, siding, & billboards
- Agricultural – buildings, crops (including wildrice and forest crop) & livestock
- Vehicles – campers, boats, windshields, body, & paint

Based on review of the historic patterns of thunderstorms associated with high wind, hail, or lightning, there are no specific locations that have unusual risks. The events are spread uniformly across the landscape and are an areawide concern.

Future Probability and Potential Dollar Losses – Severe Thunderstorms:

Based on historical frequency, Mole Lake can expect a severe thunderstorm event every other year, on average. In other words the probability is 0.4, or a 40% chance of storms in a given year. The probability of a thunderstorm with damaging hail (0.75 inch diameter or greater) is higher in Forest County at 0.1 or 10% chance in a given year. There is not enough data available regarding lightning events to indicate probability.

According to the NCDRC, historic thunderstorm events with associated high wind reported from \$2,000 to \$20,000 in property damage per incident. Historic thunderstorm events with associated hail that reported property damage averaged \$4,200. Historic thunderstorm events with associated lightning that reported property damage averaged \$5,000. Due to limited data for storms in Mole Lake, these average damage figures were taken from storms across all of

Forest County. Losses in Mole Lake associated with severe thunderstorms could approach \$100,000 over the next ten-year period.

HAZARD ANALYSIS: TORNADOS

Background on Tornado Hazard:

A tornado is a relatively short-lived storm composed of an intense rotating column of air, extending from a thunderstorm cloud system. It is nearly always visible as a funnel, although its lower end does not necessarily touch the ground. Average winds in a tornado, although difficult to measure precisely, are between 100 and 200 miles per hour, but some tornados may have winds in excess of 300 miles per hour.

Table 6 Tornado Wind and Damage Scale		
Tornado Scale	Wind Speeds	Damage
EF0	65 to 85 MPH	Some damage to chimneys, TV antennas, roof shingles, trees, and windows.
EF1	86 to 110 MPH	Automobiles overturned, carports destroyed, trees uprooted
EF2	111 to 135 MPH	Roofs blown off homes, sheds and outbuildings demolished, mobile homes overturned.
EF3	136 to 165 MPH	Exterior walls and roofs blown off homes. Metal buildings collapsed or are severely damaged. Forests and farmland flattened.
EF4	166 to 200 MPH	Few walls, if any, standing in well-built homes. Large steel and concrete missiles thrown far distances.
EF5	OVER 200 MPH	Homes leveled with all debris removed. Schools, motels, and other larger structures have considerable damage with exterior walls and roofs gone. Top stories demolished

Source: National Weather Service

A tornado path averages four miles, but may reach up to 300 miles in length. Widths average 300 to 400 yards, but severe tornados have cut swaths a mile or

more in width, or have formed groups of two or three funnels traveling together. On average, tornados move between 25 and 45 miles per hour, but speeds over land of up to 70 miles per hour have been recorded. Tornados rarely last more than a couple of minutes in a single location or more than 15 to 20 minutes in a ten-mile area.

Tornados are classified into six intensity categories, EF0-EF5. This scale is an updated or "enhanced" version of the Fujita Tornado Scale (or "F Scale"). The scale estimates wind speeds within tornados based upon the damage done to buildings and structures. It is used by the National Weather Service in investigating tornados and by engineers in correlating building design and construction standards against anticipated damage caused by different wind speeds.

Wisconsin lies along the northern edge of the nation's maximum frequency belt for tornados, known as "Tornado Alley". Tornado Alley extends northeast from Oklahoma into Iowa and then across to Michigan and Ohio. Winter, spring, and fall tornados are more likely to occur in southern Wisconsin than in northern counties. Wisconsin has seen a tornado event occur in every month of the year except for February.

History of Tornados in Mole Lake Area:

Mole Lake has been fortunate to only have one tornadic event on record, a funnel cloud in 2012. On September 19, 2012, funnel clouds were produced, along with large hail and damaging winds, by a thunderstorm system in the town of Wabeno. Funnel clouds were also produced in the towns of Argonne and Nashville by a thunderstorm system on July 6, 2012.



Tornado Damage, Forest County

Due to its small size, Mole Lake has been fortunate enough not to have experienced any tornado events during the 2004 to 2013 time frame this plan is examining. Forest County has had eight recorded tornados since 1963, with four occurring prior to 1995. The most recent tornado in Forest County occurred on April 10, 2011. On that day fifteen tornado were seen in the state, ten in northeast Wisconsin, a one-day record. Two twisters were spotted in Forest County that day. Both were spawned by major thunderstorms that developed along and ahead of a cold front as it encountered moist and unstable air across Wisconsin. These storms also produced straight line wind up to 100 miles per hour.

The first tornado developed at 7:30 pm southeast of Argonne and moved over nine miles to the northeast into Florence County. This was an EF2 storm. It downed hundreds of trees, many of which fell on vacation cabins, and blew the roof off a house east of Argonne. This storm did \$200,000 in damage. A second funnel formed just after 8 pm at Armstrong Creek and travelled for about three miles to the north and west. It damaged two houses, one seriously, and did \$50,000 damage.

In June of 2010, a funnel cloud was observed near County Highway C in the town of Wabeno. This event took place in conjunction with severe thunderstorms and winds up to 90 mph, which damaged trees and power lines across north central Wisconsin, knocking out power for more than 15,000 Wisconsin Public Service customers.

In June of 2005, two supercell storms moved through the southern part of the county causing significant wind damage and producing a funnel cloud three-miles east of Crandon. Three square miles of trees in the Nicolet National Forest were heavily damaged as winds estimated at 90 mph hit the south part of Birch Lake. The roof was torn from a metal building in Laona. Large hail was also associated with this event.

Table 7 Reported Tornadoes/Funnel Clouds in Forest County

DATE	TIME	LOCATION	LENGTH (miles)	WIDTH (yards)	DEATHS	INJURIES	EF-SCALE
9/19/2012	6:20 PM	T. Wabeno	n/a	n/a	0	0	n/a
7/6/2012	7:30 PM	T. Argonne T. Nashville	n/a	n/a	0	0	n/a
4/10/2011	7:30 PM	T. Argonne	9	250	0	0	EF2
4/10/2011	8:03 PM	T. Armstrong Cr.	3	150	0	0	EF1
6/23/2010	5:15 PM	T. Wabeno	n/a	n/a	0	0	n/a
6/7/2005	6:04 PM	T. Lincoln	n/a	n/a	0	0	n/a
6/28/1994	5:20 PM	C. Crandon	n/a	n/a	0	0	n/a
5/30/1994	8:50 PM	C. Crandon T. Lincoln T. Laona	12	800	0	3	EF2
9/16/1972	4:05 PM	T. Freedom T. Wabeno	53	200	0	0	EF2
6/30/1968	4:00 AM	T. Caswell	1	200	0	0	EF2
9/19/1963	6:00 PM	T. Laona	1	33	0	0	EF1

Source: National Climatic Data Center

In June of 1994, a waterspout was observed over Lake Metonga, two miles south of Crandon. About a month prior to this sighting, Forest County experienced a

major EF2 tornado that cut a 12-mile path between Crandon and Laona causing \$5 million in property damages and \$50,000 in crop damage. Three mobile homes were destroyed, injuring three people. Another 25 houses were damaged or destroyed and 600 acres of timber were leveled.

Forest County also experienced tornados in 1972, 1968, and 1963. The September 1972 EF2 tornado cut a 53-mile long swath with \$250,000 in property damage. The June 1968 EF2 tornado had a one-mile path with \$25,000 in damages. In September of 1963, an EF1 tornado with a one-mile path caused about \$25,000 in property damages.

Tornado Vulnerability Assessment:

Though Forest County is primarily rural, with concentrations of population scattered throughout the county. Mole Lake can be regarded as more vulnerable because tornados pose a greater threat to human safety and property damage in more concentrated areas, see Map 11.

Campgrounds and mobile homes are of significant concern in assessing the hazard risks from tornados. In general, it is much easier for a tornado to damage and destroy a mobile home than a site-built home. In addition to mobile homes, campground patrons are vulnerable to tornados because minimal shelter is provided. In Mole Lake, there are only a few mobile homes scattered throughout the residential areas. Most of the Tribal housing is stick-build, however, a significant portion lack full basements. There is one campground within Mole Lake: the Tribal campground associated with the Strawberry Moon Pow Wow grounds.

The following is a list of things that may be affected by a tornado. Much of this list can be referenced in Part II.

- Community facilities – hospitals, schools
- Public Service – police and fire departments
- Utilities – power lines, & telephone lines
- Transportation – debris clean-up
- Residential – nursing homes, garages, trees and limbs, siding, & windows
- Businesses – signs, windows, siding, & billboards
- Agricultural – buildings, crops (including wildrice and forest crop) & livestock

Based on review of the historic events of tornados, no specific areas in Mole Lake have unusual risks. Tornado events are an area-wide concern.

Future Probability and Potential Dollar Losses – Tornados:

The likelihood of a tornado event affecting Mole Lake in the future is similar to that of Forest County because of the nature of tornado events. Based on

historic data, between 2004 and 2013, Forest County experienced a tornado event about every 5 years. This equates to a probability of 0.2 or about a 20 percent chance in a given year. While tornadoes are not especially common, funnel cloud sightings occur more often and serve as reminders of the potential threat of a tornado in Forest County. Not enough data exists to indicate the probability of tornados of a specific magnitude.

Historic data is again used to estimate potential future dollar losses due to a tornado. Estimated damages resulting from tornados in Forest County range from zero to \$5 million. On average, Mole Lake might expect damages of \$925,000 per tornado, however, only one of the six historic tornados resulted in damages exceeding \$250,000, the most recent tornado did \$200,000 in damage, one other did \$250,000, and the rest were \$50,000 or less.

HAZARD ANALYSIS: FOREST FIRES/WILDFIRES

Background on Forest Fires/ Wildfires Hazard:

A forest fire is an uncontrolled fire occurring in a forest or in woodlands outside the limits of an incorporated village or city. A wildfire is any instance of uncontrolled burning in brush, marshes, grasslands or field lands. For the purpose of this analysis, both of these kinds of fires are being considered together.

Forest fires and wildfires can occur at any time whenever the ground is not completely snow covered. The season length and peak months may vary appreciably from year to year. Land use, vegetation, amount of combustible materials present and weather conditions such as wind, low humidity and lack of precipitation are the chief factors for fire season length.

History of Forest Fires/Wildfires in Mole Lake Area:

The Wisconsin DNR maintains a database of wildfire data. Due to limitation of data specificity, fires which took place in the Town of Nashville are counted as being in the Mole Lake area. From 2000 to 2009, the Mole Lake area experienced 32 fires or about 3.2 fires annually. However, there is significant annual variability ranging from zero fires in to eight fires in a given year.

The principal reason these fires are small is the rapid response of municipal fire departments. This history of small fires is not indicative of the actual risk. For example, there have been some larger fires in the area. In 2002, a single fire burned more than 30 acres.

April is the leading month for wildfire in the Mole Lake area, with 31 percent of the total number of fires between 2000 and 2009 taking place in April. Wildfires

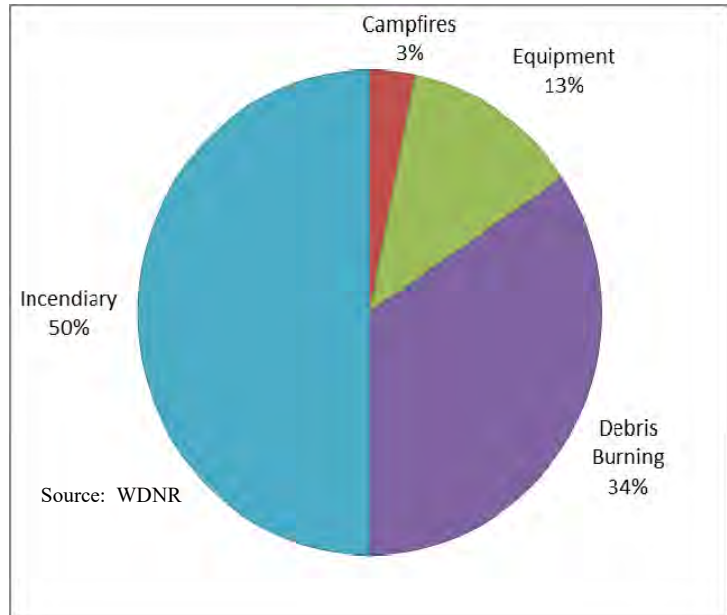
have occurred in each month of the year except February, August, November, and December in the Mole Lake area.

In 2003, the highest total for acres burned in a year (between 2000 and 2009) was reached at 38 acres in seven fires. The highest number of individual fires in a year (during the same period), was reached in 2006 with eight fires, however, all of the fires were very small.

Forest Fires/Wildfires Vulnerability Assessment:

Mole Lake has 2,933 acres of woodlands, or 86.8 percent of the total area of Mole Lake. The potential for property damage from fire increases each year as more of the wooded lands are developed.

Fire Causes in Mole Lake Area 2000-2009



Rural buildings may be more vulnerable because of lack of access. Building driveways off main roads are sometimes long and narrow with minimal vertical clearance and no turn around areas large enough for emergency vehicles making it hard to save individual dwellings. These buildings also may not have adequate forest clearance between the structure and the forest.

The trend toward introducing more human development into fire prone areas has brought about the term wildland human interface or WUI. The WUI identifies areas where structures and human development meet or intermingle with undeveloped wildlands. It is within these areas where wildfire poses the greatest risk to human lives and property.

The WDNR has completed a statewide evaluation of fire risk, referred to as the CAR or Communities at Risk assessment. This assessment uses extensive DNR geo-databases to analyze and map hazardous woodland fuel types and the degree of the intermixing of development with wildlands. The maps identify the level of risk for each community on a scale of very high, high, moderate, or low, and also have a community of concern designation. The Mole Lake Area is classified as a Community of Concern.

Future Probability and Potential Dollar Losses – Forest Fires/Wildfires:

Forest and wild fires are relatively common occurrences in the area. In recent years, Mole Lake has had an average of about 3.2 fires per year. In other words, the probability is 1.0 or a 100 % chance of wildfire each year. However, these fires are typically contained rapidly and remain small, so that each has a minimal impact.

Historic data is used to estimate potential future acres burned due to a wildfire. Estimated losses resulting from wildfires in the Mole Lake area range from zero to 36.6 acres. On average, Mole Lake might expect losses of 1.5 acres per fire; however, only one of the 32 fires burned an area exceeding 5.5 acres. Only five fires have burned more than one acre of land. If you remove the 36 acre fire from the equation, the average fire destroyed 0.4 acres.

Because of the relatively small impact of typical individual fires in the County, loss data is not tracked. This makes it difficult to develop an estimate of potential future dollar losses. However, with over three fires per year, Mole Lake should expect some fires to "get out of hand". Annual losses would be maximized if a house was destroyed with each acre ("typical" residential parcel size) burned.



Forest Fire Watch Tower, Forest County, WI

HAZARD ANALYSIS: DROUGHT/EXTREME HEAT**Background on Drought/Extreme Heat Hazard:**

A drought is an extended period of unusually dry weather, which may be accompanied by extreme heat (temperatures which are ten or more degrees above the normal high temperature for the period). There are basically two types of drought in Wisconsin: agricultural and hydrologic. Agricultural drought is a dry period of sufficient length and intensity that markedly reduces crop yields. Hydrologic drought is a dry period of sufficient length and intensity to affect lake and stream levels and the height of the groundwater table. These two types of drought may, but do not necessarily, occur at the same time.

Droughts, both agricultural and hydrologic, are relatively common in the state. Small droughts of shortened duration have occurred at an interval of about every ten years since the 1930's.

Extended periods of warm, humid weather can create significant risk for people, particularly the elderly who may lack air conditioning, proper insulation, or ventilation in their homes. Animals are also at risk during extended periods of heat and humidity. The National Weather Service issues a Heat Advisory when the heat index, during a 24-hour period, ranges from 105 to 114 degrees daytime and remains at or above 80 degrees at night. The heat index combines the effects of heat and humidity, better reflecting the risk of hot weather on people and animals. When heat and humidity combine to reduce the amount of evaporation of sweat from the body, outdoor activity becomes dangerous even for those in good shape. The index measures the apparent temperature in the shade. People in the sun would experience an even higher apparent temperature. A heat index of 105 is considered dangerous and prolonged exposure can result in heat stroke, exhaustion and cramps. People should be reminded to use extreme caution when the heat index is between 95 and 105. A heat index of 95 occurs when the temperature is 90 degrees and the relative humidity is fifty percent.

History of Drought/Extreme Heat in Mole Lake Area:

The NCDC data has several drought periods recorded for Forest County, which affected Mole Lake in the past decade: between 2008 and 2010, in 2007, and in 2005.

An extended period of drought hit Forest County from 2008 to 2010. Starting in September of 2008, sixteen of twenty-four months were described as drought. In 2010, Forest County experienced drought conditions, at severe and extreme levels, from April to August. A lack of rainfall, combined with above normal temperatures, led to near-record and record low stream flow levels. While Forest County was not included as a primary county in the Drought Declaration

made due to these years of drought, it was declared an adjacent county, based on the drought declaration of the entire Upper Peninsula of Michigan.

This may indicate a trend toward lower levels of precipitation in the future. At the national level, a drought, which in some states is in its third year, continues. According to NOAA at the end of 2012, 61 percent of the contiguous United States was in a drought condition and at the peak of summer nearly a quarter (a record) was in extreme or exceptional drought. By one measure (the Palmer Drought Indicator) the area of drought is slightly higher than the 1950s and the highest rating since 1939. The persistence of drought in large sections of the country indicates a strong likelihood that the current dry period will extend into the future.

The drought of 1976-1977, affected an area stretching from north to south across the state. Stream flow measuring stations recorded recurrence intervals from 10 to 30 years. Numerous private and municipal wells went dry due to the lowered groundwater tables and agricultural losses during this drought were set at \$624 million. Forest County was one of 64 counties that were declared federal drought areas and deemed eligible for assistance under the Disaster Relief Act.

Mole Lake and Forest County were fortunate to experience no extreme heat waves from 2004 to 2013. The most recent extreme heat wave was in July of 1999 when, for over a week, extreme temperatures and humid weather swept across the state. In some places it was so hot that concrete roads began to buckle. Heat related illness was widespread and three deaths resulted outside Forest County.

Drought/Extreme Heat Vulnerability Assessment:

Droughts can have a dramatic effect on the limited agriculture and wild rice operations located in Mole Lake. Even small droughts of limited duration can reduce crop growth and yields, adversely affecting farm income. More substantial events can decimate croplands and result in total loss, hurting the local economy.

Irrigation and other groundwater withdrawal can negatively impact the environment by drawing water that naturally goes to aquifers and surface water. Drought can exacerbate the problem when high withdrawal rates and minimal precipitation deplete water bodies and aquifer supplies, thereby decreasing drinking water supplies, drying streams, and hindering aquatic and terrestrial wildlife. During severe droughts, some wells—mainly private wells—will go dry.

Another significant area of impact from drought includes the tourism sector of the economy. As lake levels go down, tourism in Forest County declines,

affecting Mole Lake. Recent drought conditions have left lake levels down significantly, and many boat launches cannot be used.

Droughts can trigger other natural and man-made hazards as well. They greatly increase the risk of forest fires and wildfires because of extreme dryness. In addition, the loss of vegetation in the absence of sufficient water can result in flooding, even from average rainfall, following drought conditions.

The following is a list of things that may be adversely affected by a drought. Much of these community assets can be referenced in Part II.

- Infrastructure – municipal water supplies
- Surface water –groundwater reserves, recreation, and wildlife
- Forests- forest production industry
- Agricultural - crops (inc. wildrice), livestock

Essentially, the entire Mole Lake Area is at risk from the impacts of drought on forestry and tourism.

According to Wisconsin Emergency Management, excessive heat has become the most deadly hazard in Wisconsin in recent times. Extreme heat can happen anywhere within Mole Lake affecting everyone, however the elderly and young are the ones with the highest risk of getting heat related injuries, which can lead to death. Ways to prevent injuries include wearing light-colored clothing, drinking plenty of water, slowing down, and not staying in the sun for too long.

Future Probability and Potential Dollar Losses – Drought/Extreme Heat:

Based on the historic data presented here (frequency of past events), Mole Lake can expect a drought every 2 years, on average, which is a probability of 0.50 or a 50 percent chance in a given year. Significant severe drought is somewhat less common, affecting Wisconsin once about every 15 years.

Drought is another hazard lacking good loss figures at the county level. However, a look at aggregate data for the last two major droughts can give some idea of potential impact. The last two major droughts in Wisconsin resulted in losses of \$9.6 million (1976-77) to \$18 million (1987-88) per county on average. Damage estimates for the current drought are not available at this time

Normally, northern Wisconsin is known for their cold winters, however, extreme heat waves will affect Mole Lake in the future. Mole Lake can expect a heat wave once every 11 years, with a 9 percent chance in a given year, based on the historic data.

HAZARD ANALYSIS: FLOODING

Background on Flood Hazard:

A variety of classifications are used to describe flood events including flash, riverine, urban/small stream, lake, stormwater, dam failure, and coastal. Mole Lake has the potential for all these types of flooding, except coastal. The following descriptions of the types of flooding are compiled from various FEMA and other notable hazard planning sources:

Coastal – Different from other types of flooding which relate to movement of water through a watershed, coastal flooding is due to the effect of severe storm systems on tides resulting in a storm surge. Primarily known as an ocean-based event, the Great Lakes coastal areas can also be affected.

Dam Failure – More of a technology related hazard than a natural hazard, various factors can result in the failure of the structural components of a dam, thus causing flooding of areas downstream of the dam, often similar in effect to flash flooding.

Flash – Involves a rapid rise in water level moving at high velocity with large amounts of debris, which can lead to damage including tearing out of trees, undermining buildings and bridges, and scouring new channels. Dam failure, ice jams, and obstruction of the waterway can also lead to flash flooding. Urban or built-up areas are increasingly subject to flash flooding due to removal of vegetation, covering of ground with impermeable surfaces, and construction of drainage systems.

Riverine – Also known as overbank flooding, this is the most common type of flooding event. The amount of flooding is a function of the size and topography of the watershed, the regional climate, soil type and land use characteristics. In steep valleys, flooding is usually rapid and deep, but of short duration, while flooding in flat areas is typically slow, relatively shallow, and may last for long periods.

Lake – Prolonged wet weather patterns can induce water-level rises that threaten lakeshore areas.

The cause of flooding in rivers is typically prolonged periods of rainfall from weather systems covering large areas. These systems may saturate the ground and overload the streams and reservoirs in the smaller sub-basins that drain into larger rivers. Annual spring floods are typically due to the melting of snowpack.

Stormwater – Water from a storm event which exceeds the capacity of local drainage systems, either man-made or natural, can result in flooding.

Inadequate storm sewers and drainage systems are often the primary factor resulting in this type of flooding.

Urban and Small Stream – Heavy rainfall can lead to flooding in smaller rivers and streams. Streams through urban or built-up areas are more susceptible due to increased surface runoff and constricted stream channels.

Flooding problems in Mole Lake tend to occur in the spring, when melting snow adds to normal runoff, and in summer or early fall, after intense rainfalls. Flooding occurs in the spring due to snowmelt and frozen soil. This build up continues until the river or stream overflows its banks, for as long as a week or two and then slowly recedes inch by inch. The timing and location of this type of flooding is fairly predictable and allows ample time for evacuation of people and protection of property.

Flooding is a potentially significant hazard in Mole Lake, particularly because of the extensive water features found throughout the area. As described in Part II, there are seven lakes and three creeks in the Mole Lake area within two watersheds. Surface waters are found on Map 3.

Floodplains are described in Part II and shown on Map 4. These floodplains are narrow along tributaries and lakes but extensive throughout the area. The North Central Wisconsin Regional Planning Commission digitized these floodplains from FEMA Flood Insurance Rate Maps (FIRMs) for planning purposes.

There is one dam in Mole Lake (see Map 4). Swamp Creek Dam, on Swamp Creek below Rice Lake, is a small dam. The Wisconsin DNR regulates all dams on waterways to some degree, however the small dams are not stringently regulated for safety purposes.

A dam can fail for a number of reasons such as excessive rainfall or melting snow. It can also be the result of poor construction or maintenance, flood damage, weakening caused by burrowing animals or vegetation, surface erosion, vandalism, or a combination of these factors. Dam failures can happen with little warning, resulting in the loss of life and significant property damage in an extensive area downstream of the dam.

The WDNR assigns hazard ratings to large dams within the state. When assigning hazard ratings, two factors are considered: existing land use and land use controls (zoning) downstream of the dam. Dams are classified into three categories that identify the potential hazard to life and property downstream should the dam fail. A high hazard indicates that a failure would most probably result in the loss of life. A significant hazard indicates a failure that could result in extensive property damage. A low hazard exists where failure would result in

only minimal property damage and loss of life is unlikely. Swamp Creek dam has a low hazard rating, and does not pose a significant hazard if it fails.

History of Flooding in Mole Lake Area:

Flooding was a principal cause of damage in only one of four Presidential Disaster Declaration requests in Forest County from 1971 to 2013. This event occurred in 2000, when a nearly stationary front across Wisconsin combined with upper air and abundant moisture to produce a prolonged period of thunderstorms. Flooding from heavy rain caused the majority of problems, including flooded roads and basements. Rainfall totals ranged from 2 to 4 inches in a 24 hour period. Small streams and creeks overflowed their banks and rural areas suffered some crop damage. Mole Lake also received significant hail during this storm event.



Hwy Flood Damage, Forest Co.

The most recent flood event was in April 2002. Significant rainfall and snow melt resulted in flooding of roads and low-lying areas throughout Forest County, as well as in Oneida and Florence Counties.

There are no records of significant dam failure within Mole Lake or Forest County. Some of the dams have developed holes or other damage, but have not caused flooding problems.

Flood Vulnerability Assessment:

Flood events in the county have caused substantial property and infrastructure damage in the past and have the potential to cause future damage, since a significant number of structures still exist in the floodplain. Looking at past events, the following have been significantly impacted by flooding:

- Infrastructure – flooded public facilities, and schools
- Utilities - down electric lines/poles/transformers, telephone lines, and radio communication
- Roadways – washouts, inundated roadways, debris clean-up
- Residential structures – flooded basements, damaged septic systems
- Businesses – loss of commerce
- Agriculture - inundated cropland (including forest), may effect wildrice

To assess the vulnerability of Mole Lake to flooding hazards, basic inventory data in Part II must be analyzed. For this purpose, consideration should be given to

structures (specifically critical facilities), infrastructure, and cropland within the flood plain.

One of the first reports to reference in assessing vulnerability to structures during flooding is the State of Wisconsin Repetitive Loss Report. This Report provides the status of repetitive loss structures by community. FEMA, through the Federal Insurance Administration, classifies a repetitive loss structure “when more than one flood insurance claim of at least \$1,000 is made within a ten-year period.” The information is used as a floodplain management tool and to supplement information provided by communities for flood mitigation grants administered WEM. According to the report, there are no repetitive loss structures in the Mole Lake area.

Since no structures are listed in the Repetitive Loss Report, structures within floodplains were analyzed. The floodplain boundaries within the Mole Lake area are shown on Map 4. Structures are identified as “vulnerable to flooding” according to proximity to floodplains. However, there were no structures inside reservation boundaries were identified within the floodplain.

In addition to structural damage from flooding, there could be significant damage to public roadways, particularly to roadway surfaces, culverts, and bridges. Flooding could inundate or close roadways from a period of a few days up to as much as several months. Such interruptions in the Mole Lake transportation network would cause travel delays through detours or even cut off access to certain areas.

The primary impact from damages to roadways is to businesses including tribal enterprises. The monetary impact is unknown but past floods in some parts of the County have restricted public access and even closed businesses. Tourism is an important industry in Mole Lake and several facilities, such as the casino and hotel could be significantly affected by widespread flooding.

The Sokaogon Chippewa also have forest resources which can be at risk from flooding. Forestlands can become too wet for logging operations and many water-logged tree plantations suffer high mortality rates. Studies show that flooding conditions can have detrimental effects on wildrice crops as well.

The areas considered to have a higher risk for impact from flooding include structures in floodplains as shown in Map 12.

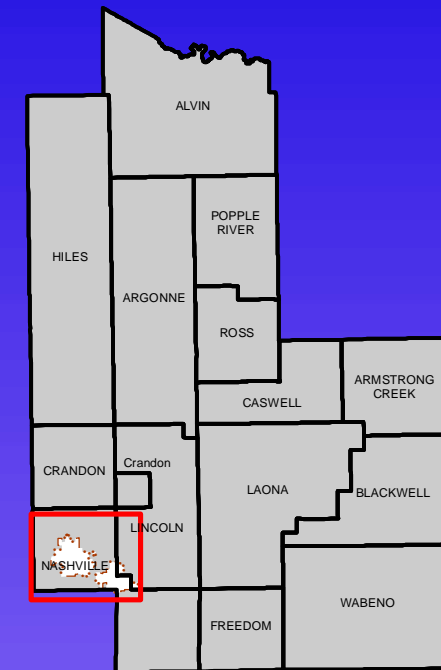
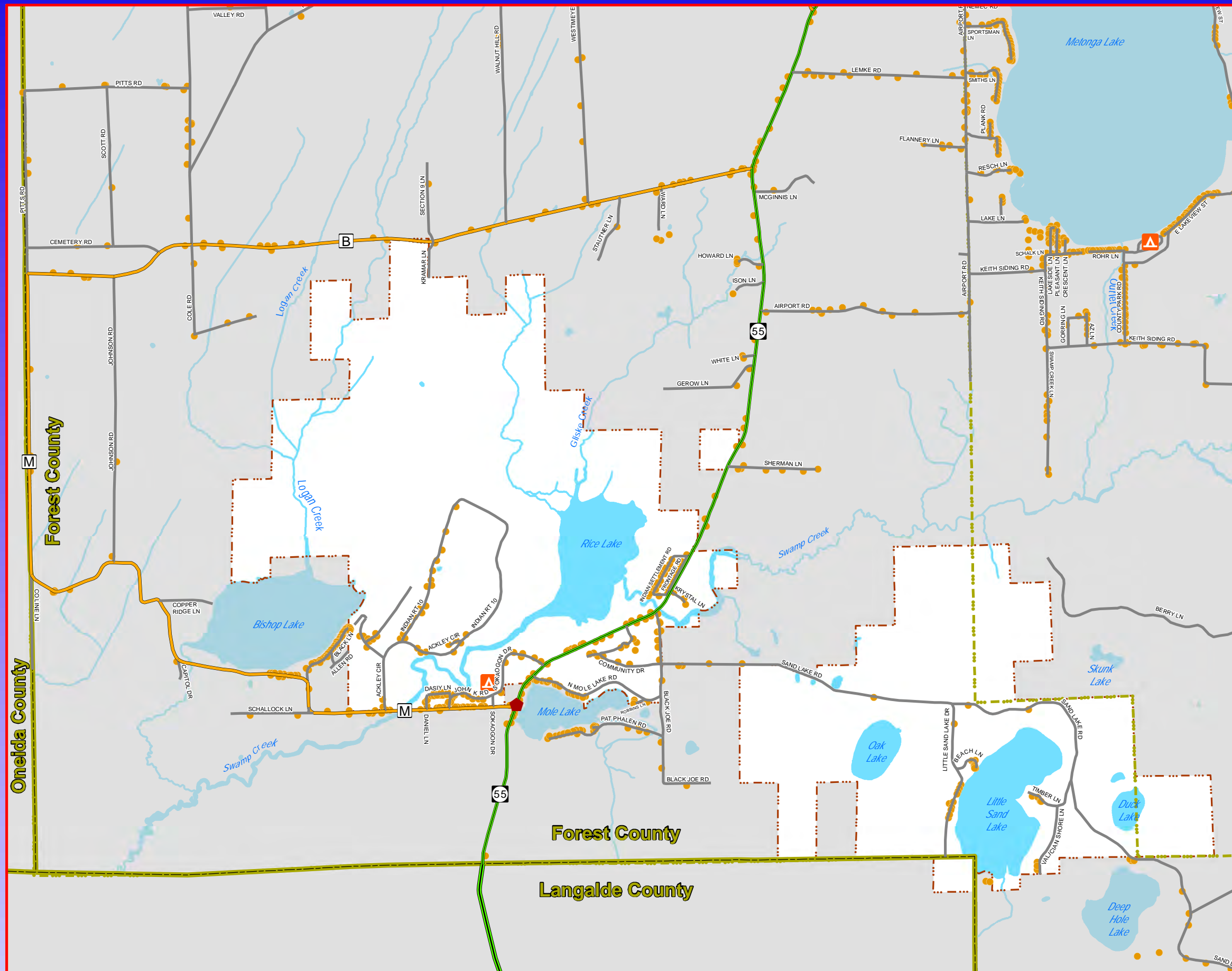
Future Probability and Potential Dollar Losses – Flood:

Mole Lake has been fortunate to have experienced no floods between 2004 and 2013. To determine future probability, floods taking place in the whole of Forest County will be evaluated. The NCDC data reported that Forest County

had four floods from 1994-2013 (due to the limited number of flood events, a 20 year period is examined). Based on historic data presented here (frequency of past events), Mole Lake can expect a significant flood event about every five years on average. This equates to a probability of 0.20 or about a 20 percent chance in a given year. The percentage chance of a dam failure is estimated to be less than one percent.

Historic data on the dollar losses due to flood in Forest County is spotty. Recorded losses range from zero to \$154,000. Losses are surely higher than the \$154,000 figure from past flood events. This plan recommends improved local data collection for use in future updates. Forest County can anticipate at least \$154,000 in property and crop losses, on average, for each significant flood occurrence between the public and private sector. Over the next ten-year period, flood losses in Forest County will likely exceed \$308,000.

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Legend

- County Boundaries
- Minor Civil Divisions
- US Highway
- State Highways
- County Highways
- Local Roads
- Water
- Tribal Land
- Address Points
- Population Concentration
- Campground



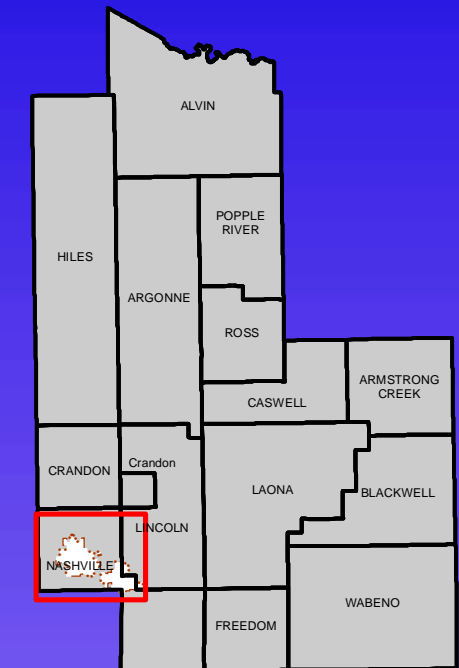
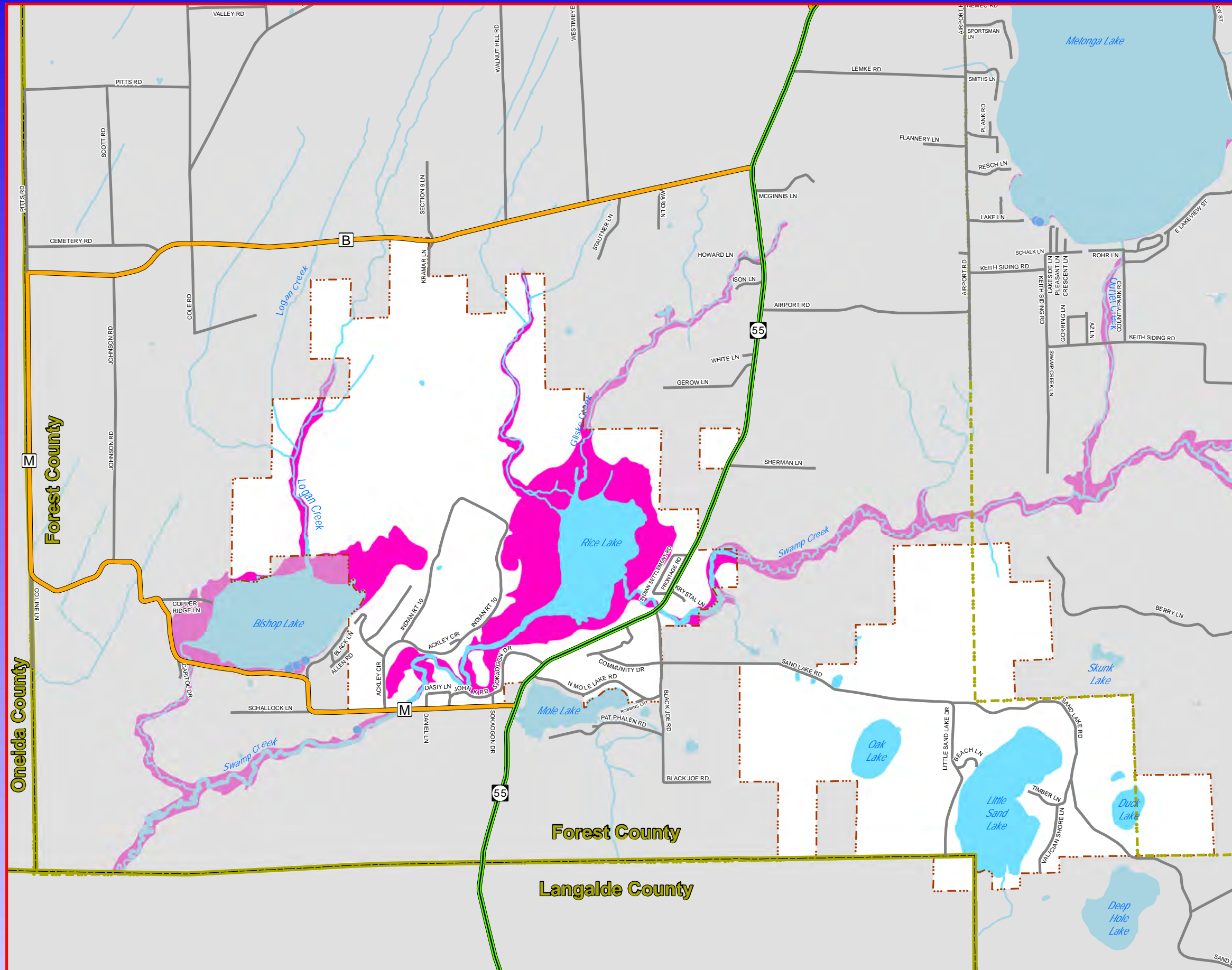
Source: WI DNR, NCWRPC, FOREST CO.

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.



Prepared By:
**North Central
 Wisconsin Regional
 Planning Commission**

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Legend

- County Boundaries
- Dfirm Floodplains
- Structures in Dfirm
- Tribal Land
- US Highway
- State Highways
- County Highways
- Local Roads
- Water



Source: WI DNR, NCWRPC, FOREST CO., DFIRM

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INTRODUCTION

Hazard mitigation is any action taken to reduce or eliminate the long-term risk to human life and property damage from natural hazards. This chapter describes the mitigation goals and actions to be taken by the Sokaogon Chippewa Community for each of the hazards identified in Part III – Risk Assessment. The intention is to reduce or avoid long-term vulnerability to the identified hazards.

Part IV of the Sokaogon Chippewa Community All Hazards Mitigation Plan will discuss the following factors in establishing tribal mitigation strategies:

- Review of Mitigation Goals
- Prioritize Identified Mitigation Strategies
- Establish Mitigation Action Plan

TRIBAL HAZARD MITIGATION GOALS

The mitigation strategy is based on a set of goals to reduce or avoid long-term vulnerabilities to the hazards identified in the Risk Assessment. The goals were established by the Mitigation Planning Taskforce during the development of the plan. These goals represent the desired conditions to strive for through the Tribe.

The mitigation goals for reducing or avoiding the long-term vulnerability of the Sokaogon Chippewa Community of Mole Lake, Wisconsin are as follows:

- Prepare residents and visitors of Mole Lake for natural hazard events and protect from the effects of such events to the extent possible.
- Protect health and safety of tribal residents and visitors during and after winter storm events.
- Minimize the threat to human life and property damages caused by severe storms and associated lightning and high wind.
- Protect health, safety, and welfare of tribal residents and visitors, along with mitigating future loss of property from tornados.
- Protect the safety and property of residents and visitors from forest and wildfires.
- Improve tribal preparedness for dealing with extended drought.
- Create safety awareness in members of the Tribe to help protect themselves during extreme heat events.
- Explore the National Flood Insurance Program and work to reduce flood risk throughout the Mole Lake area.

PRIORITIZATION OF STRATEGIES

The Mitigation Plan Taskforce considered a number of factors in identifying and ranking proposed mitigation strategies. The matrix, below, describes the factors incorporated into the prioritization process. The resulting priority of each strategy is shown in the summary Table 8.

Prioritization Factors for Sokaogon Chippewa Mitigation Strategies

<i>Strategy Prioritization Factor</i>	<i>Description of Factor Considerations</i>
Priority of Hazard Type	The ranking of hazard types, tornado, flooding, etc., accounts for threat to human safety and possible property damage and was carried over to groups of strategies by hazard type. Strategies believed to benefit multiple hazards (listed under "All Hazards") were valued higher.
Ease of Implementation	Strategies where existing staff and resources are adequate were valued higher than those where additional resources are necessary. Consideration was also given to strategies that meet other tribal goals or incorporated as part of another tribal project. Project timing was also a consideration as to when funding such as grant applications might be available and when various activities could be scheduled.
Perceived Cost versus Potential Benefit	Although a detailed cost-benefit analysis was deemed beyond the scope of this study, the Committee weighed the perceived costs of each strategy against the potential benefit anticipated. Proposals that seemed economically unfeasible were rejected.
Multi-jurisdictional Application	Strategies benefiting or involving multiple agencies or jurisdictions were valued more than those pertaining to fewer jurisdictions.

Members of the Taskforce scored each strategy based on these prioritization factors and assigned a high, medium or low rating to reflect their relative level of priority for that strategy. A 3-point weighted scale was used to average the scores into the overall high, medium or low priority as shown in Table 8.

MITIGATION ACTION PLAN

The mitigation strategies are organized by hazard beginning with some overall strategies that apply to a number of different hazards and are listed under the category, “all hazards”. For each hazard, a goal was established as to what the Tribe intends to achieve by implementing the specific action strategies, and is based on the risk assessment findings. Each action strategy is then briefly described and followed by a discussion of the jurisdictions/agencies that will pursue the action, including the proposed lead jurisdiction/agency.

Each section of this part is broken down as follows:

Goal:

Broad, long-term mitigation goals to reduce or avoid vulnerabilities to the identified hazard are stated.

Action:

Each action strategy proposed to aid in achieving the overall goal for the identified hazard is described. A given action strategy may be comprised of a number of related sub-actions.

Participating Jurisdictions:

The proposed lead agency or lead jurisdiction is identified along with a listing of the other agencies or jurisdictions that the recommended action applies to. This does not preclude other agencies or jurisdictions from participating in the action.

The chapter concludes with a summary of the recommended mitigation strategies shown in Table 8. Table 8 also contains project cost estimates where available and potential time frames.

ALL HAZARDS**Goal:**

Prepare residents and visitors of Mole Lake for natural hazard events and protect from the effects of such events to the extent possible.

Action 1:

The Tribe should promote the increased use of National Oceanic and Atmospheric Administration (NOAA) weather radios. NOAA Weather Radio (NWR) is a nationwide network of radio stations broadcasting continuous weather information from the nearest National Weather Service office. NWR broadcasts National Weather Service forecasts, watches, warnings, and other

hazard information 24 hours a day. The NOAA weather radio is the primary trigger for activating the Emergency Alert System (EAS) on commercial radio, television and cable systems.

Participating Jurisdictions for Action 1:

Lead agency will be Tribal Administration. Housing would play a key role in getting the radios out into tribal residences.

Action 2:

The Tribe should add and continue to update information on an Emergency Management web page link off the existing Tribal website. The web page should contain information describing the types of hazards and how to respond to a hazard threat. The site should also contain information on ordinances pertaining to hazards (i.e. floodplain or wetland regulations), locations of shelters, and links to other sites that provide valuable information on weather conditions, burning permits, etc.

Participating Jurisdictions for Action 2:

Lead agency will be Tribal Administration with IT responsible for maintaining the site.

Action 3:

The Sokaogon should work to promote use of the Nixle System by tribal residents, in conjunction with Forest County. Nixle is a free, subscriber based system that can be used to notify particular areas of the County via internet, email and/or cell phone text. Residents register and choose the type of information to receive such as: public safety notifications, weather alerts, school notifications, community news, etc. The service allows the users to determine the level of information they find important.

The Tribe should also explore other potential early warning and communication systems, including Emergency Alert System (EAS) capabilities and expanded use of emerging technologies such as IPAWS. Currently, NOAA weather radio is the primary trigger for activating the EAS on commercial radio, television and cable systems. Local access to these types of warning systems could facilitate more timely notification of a hazard situation as well as the ability to tailor important information or instructions for the specific area.

Participating Jurisdictions for Action 3:

Lead agency will be Tribal Administration.

Action 4:

There should be an effort to itemize and test back-up utilities at all critical facilities. Critical facilities need operational utilities such as power,

communications, water and sewer to function effectively. The need for back-up generators should electricity be cut off, obtaining alternative sources of potable water, and dealing with wastewater are issues that need to be examined. Existing back-up systems need to be maintained to ensure operation in time of need.

Participating Jurisdictions for Action 4:

Lead agencies will be Utilities and Housing.

Action 5:

Develop agreements for access to heavy equipment and trucks, tankers, etc for emergency response.

One of the issues identified early by the Mitigation Planning Taskforce is the lack of heavy / specialized equipment available to the Tribe for use in the event of a disaster situation. The Tribe should seek out partners able to bring such heavy equipment when needed. The Forest County Highway Department is probably the most obvious and well-equipped public entity for the Tribe to work with, but surrounding neighbor, Town of Nashville, will likely have town crews doing tree removal and clearing debris in areas around the tribal boundaries in the event of a disaster affecting the Tribe and should be coordinated with. Agreements can also be made with private construction and trucking operations.

The Potawatomi have mutual aid agreements with County Highways and local construction firms and trucking companies, including arrangements to haul in potable water tankers, which may serve as useful models.

Participating Jurisdictions for Action 5:

Lead agencies will be roads and utilities. Administration would need to be involved with any agreements developed.

Action 6:

Work with Forest County on developing and improving its MABAS program for emergency dispatch.

The County Sheriff's Department is responsible for emergency dispatch in Forest County. With continual updates and improvements, the dispatch system is a work in progress. As part of this on-going effort, Forest County is developing a MABUS or Mutual Aid Box Alarm System. Basically, the MABUS inventories the local agencies and resources available for emergency response and pre-identifies what is needed for a particular situation and location and organizes it into "boxes" So, if the situation calls for everyone in "Box 1", all those agencies are immediately dispatched improving overall response time and coordination.

The system involves creating mutual aid agreements with all the entities involved.

Participating Jurisdictions for Action 6:

Lead agency will be Tribal Administration to enter into the necessary mutual aid agreement(s) and ensure coordination of tribal resources.

Action 7:

Develop an area-wide disaster shelter plan possibly including identification of available shelters, tribal housing shelter needs, notification procedures, etc.

The plan should identify available shelters by function and determine where coverage is deficient. The function of a shelter is to protect people during a disaster event, to accommodate displaced people in the aftermath, or both. Existing facilities (schools, churches, public buildings, etc.) should be evaluated for suitability or locations determined for new structures or safe rooms.

Areas of concern include Tribal housing development areas: (1) Ackley Circle / Indian Route 10, (2) Daisy Lane/John K Road/Sokaogon Drive, and (3) Indian Settlement Road. Factors that must be taken into account are numbers and locations of stick-built versus mobile or modular homes, homes without basements and vulnerable populations (elderly, disabled)

Establish zones to help people to identify which shelter they should go to and procedures for notification. It is also important to evaluate shelters for suitability for various types of hazards. For example, a shelter located within a floodplain may not be the best place to send people during a storm that could result in flooding. Local sponsors should be identified to help maintain shelters and ensure they are open in time of need. The plan should include a comprehensive strategy for publicizing the availability of the shelters.

Shelters are eligible for funding under the Community Development Block Grant (CDBG) program and FEMA's mitigation grants.

Participating Jurisdictions for Action 7:

Lead agency will be Housing. The Red Cross should be consulted to coordinate with operations at the Casino site.

Action 8:

Develop and implement alternate access road for Ackley Circle. Ackley Circle loops through a section of reservation land between Bishop and Rice Lake and is one of the Tribe's principal residential development areas. At this time there is only one access point connecting Ackley Circle to County Highway M, and there is a bridge separating the residential areas from the highway.

A situation in which the bridge is out or there is a blockage of the road, there would be no way out for residents living along this route, and it would be very difficult to get access for emergency services or evacuation. Additional new homes are being planned for this area.

There are a couple of potential pathways for an alternative route in and out of this area. The Tribe should evaluate these routes and seek funding to develop a new road to ensure access to residences along Ackley Circle. The Sheriff's Department has expressed concern about this situation and feels it should be a priority.

Participating Jurisdictions for Action 8:

Lead agency will be Roads.

Action 9:

The Tribe should work on the development of a tribal emergency response team / incident management team. Such a team could help the Tribe determine the roles to be played by each department, how communication channels will be utilized, lines of authority, and strategies or "game plans" for responding to different kinds of hazard situations. Wisconsin Emergency Management has plan templates that a team can use to fill in the blanks and begin formulating emergency response plans or ERPs.

One area of concern identified as needing to be addressed is the provision of aid and evacuation for elderly and other homebound as well as animals in the event of a disaster emergency. The Tribe should consider and plan for this issue when developing ERPs.

ERP's should conform to the State and National Response Plans, which are organized by emergency support functions and incorporate the provisions of the National Incident Management System (NIMS). The NIMS is a comprehensive system that incorporates operations through the use of the Incident Command System (ICS) and application of standardized procedures and preparedness measures. It promotes development of cross-jurisdictional, statewide and interstate regional mechanisms for coordinating response and obtaining assistance during a large-scale or complex emergency incident

Participating Jurisdictions for Action 9:

Lead agency will be Administration.

Action 10:

Look at creation of Tribal Emergency Management position. One alternative to consider is possible expansion of role of currently vacant "Bioterrorism" position.

Such a position could provide a dedicated staff person to ensure that many of the recommendations for hazard mitigation and emergency preparedness within this plan move forward and to work on grants to implement mitigation projects and programs. The position could start as ½-time and expand into full-time.

Regular on-going activities the position could be responsible for could include:

- Manage weather radio distribution
- Distribute emergency information and education to tribal members including via website and social media - and be a resource to answer questions and assist tribal residents in preparing for disaster events
- Work with Forest County on early warning and emergency dispatch issues
- Develop Tribal First Responder Program
- Work on development of agreements for heavy equipment, trucks, buses and other materials and supplies
- Work on Tribal shelter needs
- Coordinate / staff Tribal emergency response team / incident management team
- Take steps to implement and manage other mitigation projects identified in this plan or as tribal needs arise
- Continue projects and activities of the "Bioterrorism" position
- and Coordinate with other departments and agencies such as Health, Roads, Forestry, BIA Fire etc.

Of course the Tribe has limited funding availability. Funding could be pooled from various sources to provide the budget for the position. FEMA has a program that will pay up to 50% of the costs for county and tribal emergency management directors. The Potawatomi and other area tribes utilize this funding for their emergency management directors. The Potawatomi program may be a useful model to aid in establishing the position in Mole Lake.

The Tribe should explore its eligibility to continue the grant funding that supported the "Bioterrorism" position. If sufficient funding still cannot be found from the above sources to provide the necessary match, the Tribe should consider utilizing its Tribal Trust Fund Endowment. The endowment supports projects and activities that have a positive beneficial impact on the Tribe, its people and their environment.

Participating Jurisdictions for Action 10:

Lead agency for creation of an employed position is Administration. Other departments would be involved in planning and coordinating the position.

HAZARD: WINTER STORMS/EXTREME COLD

Goal:

Protect health and safety of tribal residents and visitors during and after winter storm events.

Action 11:

The Tribe should promote winter hazards awareness, including home and travel safety measures, such as avoiding travel during winter storms. If travel cannot be avoided, stocking of vehicles with a shovel, sand, warm clothing, food, water, etc. should be encouraged.

This effort should also include suggestions regarding checking on neighbors or others known to live alone or that may be at a disadvantage in fending for themselves.

Other winter / extreme cold problems common in the northwoods include freezing of septic systems and residential LP Gas (extreme cold) and planning ahead to ensure adequate supplies of LP Gas / Propane.

Participating Jurisdictions for Action 11:

Lead agency will be Environmental.

HAZARD: SEVERE THUNDERSTORM/HIGH WIND/LIGHTNING/HAIL

Goal:

Minimize the threat to human life and property damaged caused by severe storms and associated lightning and high wind.

Action 12:

Public awareness of proven lightning safety guidelines to reduce risk should be promoted. Measures include developing and distributing a lightning safety brochure and posting warning signs at key locations. Areas of concern include, pow-wow grounds, other outdoor attractions, recreation areas and parks, athletic fields, access to tribal fishing grounds and rice beds, other beaches and boat launches. Efforts should be made to get managers and staff that handle such facilities "up to speed" with procedures and training for lightning safety.

Participating Jurisdictions for Action 12:

Lead agency will be Environmental.

Action 13:

Tribal housing officials should review building plans and procedures to ensure new Tribal housing and residential facilities are built to withstand wind and lightning. The Wisconsin Uniform Dwelling Code provisions includes provisions for construction methods that employ cross-bracing, anchoring of walls to foundation, and anchoring roof rafters to walls (also mitigates tornado risk) and measures to provide wind protection and retrofits for vulnerable features (windows, garage doors, patio doors, double-wide entry doors, siding and bracing for walls and rafters. The National Fire Protection Association (NFPA) has standards for the installation of lightning protection systems that can be incorporated into building plans.

Participating Jurisdictions for Action 13:

Lead agency will be Housing.

HAZARD: TORNADO**Goal:**

Protect health, safety, and welfare of Tribal residents and visitors, along with mitigating future loss of property from tornados.

Action 14:

The Tribe should require and promote construction standards and techniques to strengthen public and private structures against severe wind damage. Wind engineering measures and construction techniques may include structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles. Also, architectural design can make roofs less susceptible to uplift. See also Action 13.

Participating Jurisdictions for Action 14:

Lead agencies will be Housing and Administration (for public buildings).

Action 15:

Establish emergency “tornado” shelters in areas where needed. See Action 7 on planning for shelter needs. Areas of concern include Tribal housing development areas: (1) Ackley Circle / Indian Route 10, (2) Daisy Lane/John K Road/Sokaogon Drive, and (3) Indian Settlement Road. Factors that must be taken into account are numbers and locations of stick-built versus mobile or modular homes, homes without basements and vulnerable populations (elderly, disabled)

Shelters are eligible for funding under the Community Development Block Grant (CDBG) program and FEMA's mitigation grants.

Participating Jurisdictions for Action 15:

Lead agency will be Housing.

HAZARD: FOREST FIRE / WILD FIRES**Goal:**

Protect the safety and property of residents and visitors from forest and wildfires.

Action 16:

Work with BIA on wildland fuel reduction. The BIA funds an annual agreement with WisDNR for fire suppression in the reservation area. At the same time, BIA foresters work with tribes to protect tribal resources, facilities and homes and reduce the risk of wildfire. The BIA has a wildland hazardous fuel reduction program to help fund fuels reduction projects.

Participating Jurisdictions for Action 16:

Lead agencies will be Forestry and Environmental.

Action 17:

The Tribe should promote the Firewise program and related educational materials to increase community awareness of wildfire risk within the area. Outreach efforts should include information on how to protect homes and structures from wildfires. Emphasis should be placed on building construction materials and establishing defensible areas around structures. Roofs and exterior siding should be made of ignition-resistant materials. At least 30 feet should be left between homes and surrounding combustible vegetation. Outreach efforts can exist in the form of web sites, local newspaper articles, and pamphlets to homeowners.

The Tribe should also seek to develop a Community Wildfire Protection Plan (CWPP). A CWPP identifies and prioritizes areas for hazardous fuels reduction treatments and recommends types and methods of treatment that will protect at-risk areas and critical infrastructure. WisDNR has grant funding available for community wildfire protection planning.

Participating Jurisdictions for Action 17:

Lead agencies will be Forestry and Environmental.

HAZARD: DROUGHT/EXTREME HEAT

Goal:

Create safety awareness in members of the Tribe to help protect themselves during extreme heat events.

Goal:

Improve tribal preparedness for dealing with extended drought.

Action 18:

To assist the tribal population in reducing heat disorders, the Tribe should promote extreme heat hazards awareness, including safety tips, medical information, and contact information for health officials.

Participating Jurisdictions for Action 18:

Lead agencies will be Health.

HAZARD: FLOODING

Goal:

Explore the National Flood Insurance Program and work to reduce flood risk throughout the Mole Lake area.

Action 19:

Communities within Forest County currently participate in the National Flood Insurance Program (NFIP). Compliance primarily entails adopting and enforcing floodplain management regulations that meet minimum criteria. Forest County and the City of Crandon are in the program. Tribes such as the Sokaogon Chippewa Community can participate in the program, and the flood hazard mapping for tribal areas has already been done as part of the county mapping. The recent FEMA risk Discovery Report for the Wolf River Watershed includes the Mole Lake area and recommends that the Tribe adopt a zoning ordinance to control development in the floodplain.

Participating Jurisdictions for Action 19:

Lead agency will be Environmental. Because of the potential for new regulations and the insurance issues, Administration would also be involved.

Action 20:

The tribe should develop stormwater management plans for tribal facilities. Tribal facilities and housing developments in close proximity to surface waters, wetlands and floodplains should be evaluated for stormwater management issues and need for stormwater management. Without adequate design

consideration, development can lead to stormwater run-off issues. By determining how to handle stormwater, drainage problems are not allowed to build on one another, thereby minimizing future flooding.

Participating Jurisdictions for Action 20:

Lead agency will be Environmental.

Action 21:

Work with Town of Nashville to address drainage / washout problems on Ackley Circle. Culvert sizing and proximity to floodplain area are principal factors. Ackley Circle is a town road under the jurisdiction of the Town of Nashville, so a cooperative effort would be required. This recommendation is particularly important in that a significant number of tribal residences could become isolated and inaccessible during or after a disaster event that may result in a washout or blockage of this road (see also Action 8). Currently the only access in or out of this area, such an impasse would significantly hampering access by law enforcement or rescue personnel.

Participating Jurisdictions for Action 21:

Lead agency will be Roads.

Table 8 - Summary of Sokaogon Chippewa Community Hazard Mitigation Strategies

Mitigation Measures (See Expanded Text in Plan)	Cost Estimate	Existing and Potential Resources to Implement	Responsible Dept.	Project Timeframe*	Priority Level (Ave. Score)
ALL HAZARDS					
1 Promote the distribution and of National Oceanic and Atmospheric Administration (NOAA) weather radios.	\$ 9,000.00	Dept. Budgets; Mitigation Grants	Administration Housing	On-going	Medium (2.2)
2 Develop and maintain Emergency Management content on website.	Staff Time	Dept. Budgets	Administration IT	On-going	Medium (2.2)
3 Work with Forest County Sheriff's Dept. to promote enrollment of Mole Lake residents in the Nixle system for text or email emergency alerts. Investigate other early warning options for tribal areas/residents.	Staff Time	Dept. Budget	Administration	2016	Medium (2.2)
4 Verify that back-up utilities are available at all critical facilities.	Staff Time	Dept. Budgets	Utilities Housing	2017	High (2.6)
5 Develop agreements for access to heavy equipment and trucks, tankers, etc for emergency response.	Staff Time	Dept. Budgets	Utilities Roads	2018	High (2.8)
6 Work with Forest County on developing and improving its MABAS program for emergency dispatch.	Staff Time	Dept. Budgets	Administration	On-going	Medium (2.2)
7 Develop area-wide disaster shelter plan possibly including i.d. available shelters, tribal housing shelter needs, notification procedures, etc.	\$50,000	General Fund; Trust Fund Endowment	Housing	2019	High (2.8)
8 Develop and implement alternate access road for Ackley Circle.	Costs to be determined	General Fund; Trust Fund Endowment; BIA Roads Program Funding	Roads	2020	High (2.6)
9 Work on developing tribal emergency response / incident management team.	Costs to be determined	General Fund/Dept. Budgets; Trust Fund Endowment	Administration	On-going	Medium (2)
10 Look at creation of Tribal Emergency Management position. Possible expansion of role of currently vacant "Bioterrorism" position.	Costs to be determined	Bioterrorism Position Funding; Emergency Management Performance (EMPG) Grant; Trust Fund Endowment	Administration	2016	Medium (2.2)
WINTER STORMS / EXTREME COLD					
11 Promote winter hazards awareness for Tribal members at home and while traveling.	Staff Time	Dept. Budget	Environmental	Annual	Medium (2.2)
SEVERE THUNDERSTORM / HIGH WINDS / LIGHTNING / HAIL					
12 Promote public awareness of lightning safety to reduce risk.	Staff Time	Dept. Budget	Environmental	Annual	Low (1.2)
13 Ensure new Tribal housing and residential facilities are built to withstand wind and lightning.	Staff Time	Dept. Budget	Housing	2017	Medium (2.4)

Mitigation Measures (See Expanded Text in Plan)	Cost Estimate	Existing and Potential Resources to Implement	Responsible Dept.	Project Timeframe*	Priority Level (Ave. Score)
TORNADO					
14 Ensure construction standards and techniques that strengthen tribal structures against severe wind damage.	Staff Time	Dept. Budget	Housing	On-going	Medium (2.4)
15 Establish emergency tornado shelters in Tribal areas where needed.	\$ 500,000.00	CDBG; Mitigation Grants; Trust Fund Endowment	Housing	2019	High (2.6)
FOREST FIRE / WILDFIRE					
16 Work with BIA on wildland fuel reduction.	Costs to be determined	Dept. Budgets; BIA Wildland Hazardous Fuel Reduction Program; Tribal Forestry Program Income	Forestry Environmental	Annual	Medium (1.6)
17 Establish Firewise Program and develop Community Wildfire Protection Plan.	\$ 40,000.00	WisDNR National Fire Plan Program Funding; Trust Fund Endowment	Forestry Environmental	2018	Medium (1.8)
DROUGHT / EXTREME HEAT					
18 Assist population with reducing heat disorders through awareness program.	Staff Time	Dept. Budget	Health	As Needed	Medium (1.8)
FLOODING					
19 Investigate NFIP participation.	Staff Time	Dept. Budget	Environmental	2016	Medium (1.8)
20 Develop stormwater management plans for Tribal facilities and housing developments.	Costs to be determined	General Fund	Environmental	2020	Medium (2)
21 Work with Town of Nashville to Address drainage / washout problems on Ackley Circle.	Costs to be determined	General Fund; BIA Tribal Roads Program Funding	Roads	2016	Medium (2.2)

* Actual project implementation dependant on funding and staff availability.

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INTRODUCTION

Part V of the Sokaogon Chippewa Community All Hazards Mitigation Plan describes the adoption, implementation, including an assessment of the Tribe's capability to mitigate hazards, and evaluation & maintenance processes.

PLAN ADOPTION

The adoption of the Sokaogon Chippewa Community All Hazards Mitigation Plan lends itself to serve as a guiding document for Tribal government officials. It also certifies to program and grant administrators from the FEMA and WEM that the Plan's recommendations have been properly considered and approved by the governing authority and the jurisdiction's citizens. Finally, it helps to ensure the continuity of mitigation programs and policies over time because elected officials, staff, and other community decision-makers can refer to the official document when making decisions about the community's future.

Before adoption of the Plan it must be sent to the state and federal level to verify that all DMA2K requirements are met. Once a draft of the Plan has been completed, it is submitted to the State Hazard Mitigation Officer (SHMO) at the state level at WEM and the FEMA Region V Office. Reviewers will determine if the Plan meets DMA2K program requirements.

Prior to final approval by FEMA, the Plan must be formally adopted by the Tribe by resolution. The Tribal Council of the Sokaogon Chippewa Community has considered and adopted this tribal All Hazards Mitigation Plan. Refer to APPENDIX B for a copy of the resolution documenting adoption of the Plan.

Assurances

With the adoption and through subsequent implementation of this Plan, the Sokaogon Chippewa Community tribal government will continue to comply with all application Federal statutes and regulations during the period(s) for which it receives grant funding, in compliance with 44 CFR 13.11(c), and will amend this Plan whenever necessary to reflect changes in tribal or Federal laws and statutes as required in 44 CFR 13.11(d).

PLAN IMPLEMENTATION**Administrative Responsibilities**

Once the Plan has been approved, stakeholders should be informed. Tribal Administration will distribute notice of availability to stakeholders including Tribal departments and agencies and other organizations the Tribe works closely with at the federal, state, county and local levels. The Tribe will also make the Plan available to the public by linking the report on their web site.

Tribal Administration will monitor implementation of mitigation measures and any project close-outs. Discussion of such progress will be a topic of the annual, or as needed, meeting of the Planning Taskforce. (See "Plan Evaluation and Maintenance" later in this chapter.) If an Emergency Management position is established (Action 10), these responsibilities could be delegated to that staff person.

Along with monitoring the progress of the action projects, the Tribe should also work to secure funding to implement the Plan. State and federal agencies, nonprofit organizations, and foundations continually make grants available. The Tribe should research these grant opportunities to determine eligibility.

When implementing this Plan, the Tribe should consider innovative ways to involve active participation from nonprofit organizations, businesses, and citizens to implement the Plan. The relationship between these groups will result in greater exposure of the Plan and provide greater probability of implementation of the action projects listed.

The role of department administrators and elected officials is to ensure that adopted actions from Part IV are considered in their budgets. It is understood that projects may not be carried out as they are scheduled in Part IV due to budget constraints. However, since many of these action projects are considered an investment in safeguarding the public's health, safety, and property, they should be carefully considered as a priority.

Promote Success of Identified Projects

Upon implementing a project covered by this Plan, it is important to promote the accomplishment to the stakeholders and to the community at large. This will help inform people that the Plan is being implemented and is effective.

Incorporation into Other Local Planning Mechanisms

FEMA requires a process by which the mitigation plan is incorporated into other planning mechanisms where appropriate. The Tribe has undergone a number of planning processes over time and will likely continue to make various plans for its future moving forward. Any good planning process will include a review and incorporation of any related pre-existing plans as a matter of course. However, to help ensure this outcome, the Tribe has established a two-part process to incorporate the All Hazards Mitigation Plan into other Tribal planning efforts as follows:

- Notification of Tribal Department Heads - Upon adoption of the All Hazards Mitigation Plan, the Tribal Administration will distribute a letter that explains how the Plan applies to other planning efforts they might undertake and how to obtain copies of the Mitigation Plan.
- Promotion by Environmental Director - The Environmental Director will promote incorporation of the All Hazards Mitigation Plan as they are made aware of or become a participant in any new planning process. Note that if the Tribe is able to establish an Emergency Management Position (See recommended Action 9 in Part IV), this implementation duty would fall under this new position.

At least one upcoming planning effort has been identified for incorporation of the All Hazards Mitigation Plan; this includes the update to the Tribal Comprehensive Plans.

Sokaogon Chippewa Community Comprehensive Plan

The following concepts should be considered when developing the update to the Comprehensive Plan for the Sokaogon Chippewa Community based on the nine elements of the Wisconsin comprehensive planning law:

- *Issues and Opportunities Element* – summarize major hazards the Tribe is vulnerable to, and what is proposed to be done to mitigate future losses from the hazards.
- *Housing Element* – inventory the properties that are in or near the floodplain boundaries, the location of mobile homes, recommendation on building codes, shelter opportunities, and potential flood proofing or relocation needs.
- *Utilities and Community Facilities Element* – identify critical facilities such as shelters, schools, medical, water infrastructure, etc. and recommendations on how to mitigate specific risks factors.

- *Transportation Element* – identify transportation routes or facilities that are more at risk during flooding, winter storms, or hazardous material spills.
- *Agricultural, Natural Resources, and Cultural Resources Element* – identify flood plains and the agricultural and cultural areas that are at risk to hazardous events with incorporation of recommendations on how to mitigate future losses to these areas.
- *Economic Development Element* – describe the impact past hazards have had on tribal economic enterprises.
- *Intergovernmental Cooperation Element* - identify intergovernmental police, fire, and rescue service sharing agreements that are in effect, or which may merit further investigation, consider cost-sharing and resource pooling on government services and facilities.
- *Land Use Element* - describe how flooding has impacted land uses and what is being done to mitigate negative land use impacts from flooding and other hazards; map and identify hazard areas such as floodplains, hazardous materials areas, and soils with limitations.
- *Implementation Element* – integrate strategies and action recommendations from the Mitigation Plan.

Integration with FEMA Mitigation Programs and Initiatives

The planning process for this mitigation plan integrated the new DFIRM floodplain maps from Forest County for the Tribal area. In addition, planning staff participated in FEMA's Risk Map Discovery process for the Wolf River Basin which includes the Tribal area; providing information to the process and incorporating recommendations from it into the mitigation plan.

FEMA mitigation programs (grants) were evaluated for applicability to Tribal situations and incorporated into the mitigation strategy as appropriate. See Part IV and Table 8. As the Tribe's capabilities increase, see below, integration with FEMA programs and initiatives will also increase.

TRIBAL CAPABILITY ASSESSMENT

The Sokaogon Chippewa Community is a small tribe with limited staffing, resources and funding. At this time the Tribe does not have any formal pre- or post- disaster hazard management laws, regulations, policies or programs, including those related to development in hazard prone areas.

With the implementation, if funding can be secured, of Recommended Action 10 in Part IV of this Plan related to the formation of an Emergency

Management Position, the Tribe would have the ability to develop its capabilities which could eventually lead to the development of formalized regulations, policies and programs for hazard management in the future.

Individual Tribal departments have some capacity to integrate mitigation goals into their regular day-to-day activities to achieve progress on basic mitigation recommendations and projects. Refer to the "Responsible Department" column of the mitigation strategies table shown at the end of Chapter IV of this report for department(s) anticipated to lead each recommendation. However, a dedicated position would be able to provide guidance and support needed to facilitate more involved projects and programs.

Funding Capabilities

The mitigation strategies table also contains a column titled "Existing and Potential Resources to Implement". In addition to the department(s)/staff that will be dedicated to a particular strategy, this column identifies current and potential future funding sources that the Tribe has access to or may apply for to fund the identified mitigation recommendations and programs.

Because the Tribe has limited funding availability, funding will often have to be pooled from various sources to provide the budget needed for many of the recommendations, and grants will be vital to successful implementation. For example, FEMA has a program that will pay up to 50% of the costs for county and tribal emergency management directors. The Potawatomi and other area tribes utilize this funding for their emergency management positions. The Potawatomi program may be a useful model to aid in establishing the position in Mole Lake.

The Tribe should explore its eligibility to continue the grant funding that supported its "Bioterrorism" position. If sufficient funding still cannot be found to provide the necessary match, the Tribe should consider utilizing its Tribal Trust Fund Endowment. The endowment supports projects and activities that have a positive beneficial impact on the Tribe, its people and their environment.

PLAN EVALUATION AND MAINTENANCE

Planning is an ongoing process. Because of this, this document should grow and adapt in order to keep pace with growth and change of the Tribe. DMA2K requires that mitigation plans be updated at least every five years to remain eligible for assistance.

The Plan will be reviewed and evaluated on an annual basis, or more frequently as needed. Within this period, Tribal Administration will evaluate incoming information against the contents of the Plan as needed to prepare for revisions. The Planning Taskforce will be called together to discuss evaluation and revisions to the Plan one year from its adoption and annually thereafter. During these meetings, the Taskforce will review progress made on achieving goals and implementing mitigation strategies and actions. The Tribe is encouraged to consult/coordinate with the NCWRPC at the time of revision.

Tribal Government meetings are open to the public, and the public can bring questions or comments regarding this Plan to any regular meeting. The final plan document will be available on the internet until the next draft is posted for review. The public can continue to submit questions or comments at any time via an email link.

The Plan must also be evaluated and revised following disaster events to determine if the recommended actions are appropriate given the impact of the event. The risk assessment (Part III) should also be reviewed to see if any changes are necessary based on the pattern of disaster damages.

Full updates are required every five years. As a result, every fifth year, the annual review will be expanded to an overall plan update to meet FEMA requirements. All stakeholders and the public will again be involved in the update. The Tribe will conduct a variety of open meetings including at least one public informational open house. This also provides an opportunity to inform on the progress of any projects.

The Tribal Council must approve all changes and updates to the Plan.

Appendix A – Meeting Notices

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Sokaogon Chippewa Community - Mole Lake

Tribal All Hazards Mitigation Plan

Plan Committee Meeting

October 1, 2014

Agenda

1. Project Overview
2. Review scope of work and timeline
3. Discuss Planning Area Background and Data Needs
4. Risk Assessment Part 1
5. Discuss October 21 Interest Group (Departments and Agencies) Meeting
6. Next Steps and Meeting Date

SOKAOGON CHIPPEWA COMMUNITY
ENVIRONMENTAL DEPARTMENT
3051 SAND LAKE ROAD
CRANDON WI 54520
715-478-7605



MEMORANDUM

TO: Government agencies, Tribal department staff, and other private or non-profit organizations affecting Sokaogon Chippewa Community of Mole Lake
FROM: Tina L. Van Zile, Environmental Director
DATE: October 2, 2014
RE: Sokaogon Chippewa Community All-Hazards Mitigation Plan Interest Group Meeting Notice

The Sokaogon Chippewa Community has received a grant through the Federal Emergency Management Agency (FEMA) to complete an All-Hazards Mitigation Plan to protect the health and safety of Mole Lake residents from the impacts of natural hazards and to minimize and prevent damages caused by these events. The North Central Wisconsin Regional Planning Commission (NCWRPC) is assisting the Community with this plan.

As a requirement of the planning process, we are extending an invite and opportunity to local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as business, academia and private and nonprofit interests to be involved. To meet this requirement, an interest group meeting is scheduled for the following date and place:

When: Tuesday, October 21, 2014 at 1:00 p.m.
Where: Tribal Administration Building
3051 Sand Lake Road
Crandon (Mole Lake), WI 54520

In addition to meeting FEMA requirements, the interest group meeting will be a way to gather ideas on how to safeguard the residents and visitors of Mole Lake and protect property in the event of natural disasters. Since you live and/or do business in or around Mole Lake, your input in this process is very valuable.

Please call or email me if you have any questions regarding this meeting. My number is 715-478-7605, and my email is tina.vanzile@scc-nsn.gov. It would be greatly appreciated if at least one staff person from your department or agency with responsibilities relating to or potentially impacted by natural hazards / disaster can attend.

Miigwech (Thank you).

Sokaogon Chippewa Community - Mole Lake

Tribal All Hazards Mitigation Plan

Plan Committee Meeting

February 9, 2015

Agenda

1. Review Project Status
2. Recap Agency & Interest Group Meeting
3. Discuss Risk Assessment
4. Risk Assessment Exercise
5. Discuss FEMA "Tribal Capabilities", if time
6. Discuss Public Informational Meeting
7. Next Steps and Meeting Date

Sokaogon Chippewa Community - Mole Lake

Tribal All Hazards Mitigation Plan

Plan Committee Meeting

March 31, 2015

Agenda

1. Review Project Status
2. Recap Agency & Interest Group Meeting
3. Discuss Risk Assessment
4. Discuss Initial Proposed Recommendations
5. Next Steps and Meeting Date

**MOLE LAKE SOKAOGON CHIPPEWA
HAZARD MITIGATION PLAN
PUBLIC INFORMATIONAL MEETING**

Notice is hereby given by the Mole Lake Sokaogon Chippewa that there will be a public informational meeting at the Tribal Administration Building, 3051 Sand Lake Road, Mole Lake on Tuesday, March 31, 2015 from 5:30 pm to 7:00 pm to discuss the draft Tribal All Hazards Mitigation Plan.

The meeting will be an open house format and provide information about the natural hazards that can affect the Mole Lake Community and the strategies being developed to mitigate against future losses and reduce public expenditure for response and recovery. A copy of the draft material can be reviewed on the web at <http://www.ncwrpc.org/Forest/MoleLakeHzdPlan.html>

All interested parties are encouraged to attend. Contact Sokaogon Environmental Director, Tina Van Zile at 715-478-7605 for more information.

03/10//15

Sokaogon Chippewa Community - Mole Lake

Tribal All Hazards Mitigation Plan

Plan Committee Meeting

9 am - May 12, 2015

Agenda

1. Discuss Final Proposed Recommendations
2. Assign Priority Level to Recommendations
3. Discuss Tribal Capability Assessment
4. Next Steps: Plan Review and Adoption Process

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Appendix B – Resolution of Plan Adoption

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Sokaogon Chippewa Community

3051 Sand Lake Road, Crandon, WI 54520
Phone: (715) 478-7500 * Fax: (715) 478-5275

www.sokaogonchippewa.com



Resolution No. 4-18-A-2016

WHEREAS, the Sokaogon Chippewa Community is a federally recognized Indian Tribe, organized under a Constitution adopted August 25, 1938, and approved on November 9, 1938, pursuant to Section 16 of the Indian Reorganization Act; and

WHEREAS, the Sokaogon Chippewa Community, Mole Lake Band of the Lake Superior Chippewa Indians adopted a Constitution on November 9, 1938, as amended which confers certain sovereign powers upon the Tribal Council by the members of the Sokaogon Chippewa Community; and

WHEREAS, the Sokaogon Chippewa Community recognizes the threat that natural hazards pose to people and property; and

WHEREAS, under taking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save tribal funds; and

WHEREAS, an adopted All Hazards Mitigation Plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the Sokaogon Chippewa Community participated in a planning process designed to satisfy all Federal requirements for a Tribal All Hazards Mitigation Plan including involvement of the public, neighboring communities, and other local and regional agencies.

NOW THEREFORE BE IT RESOLVED, that the Sokaogon Chippewa Community Tribal Council, hereby adopts the Sokaogon Chippewa Community All Hazards Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the Sokaogon Chippewa Environmental Department will submit, on behalf of the Tribe, the adopted All Hazards Mitigation Plan to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

Ga-na-waji Ga-wi-nug Way-ji-mooki-ji-wung Yi-ewe-meing-gun-a-sepii

CERTIFICATION

I, the undersigned, as Tribal Secretary of the Sokaogon Chippewa Community Tribal Council, do hereby certify that the Tribal Council composed of 6 members, of whom 6 were present, constitute a quorum, at a meeting duly called, and convened on the 18 day of April, 2016, and that the foregoing Resolution was passed by an affirmative vote of 6 for, and 0 members against and 0 members abstaining, 0 absent.


Myra Van Zile, Tribal Secretary