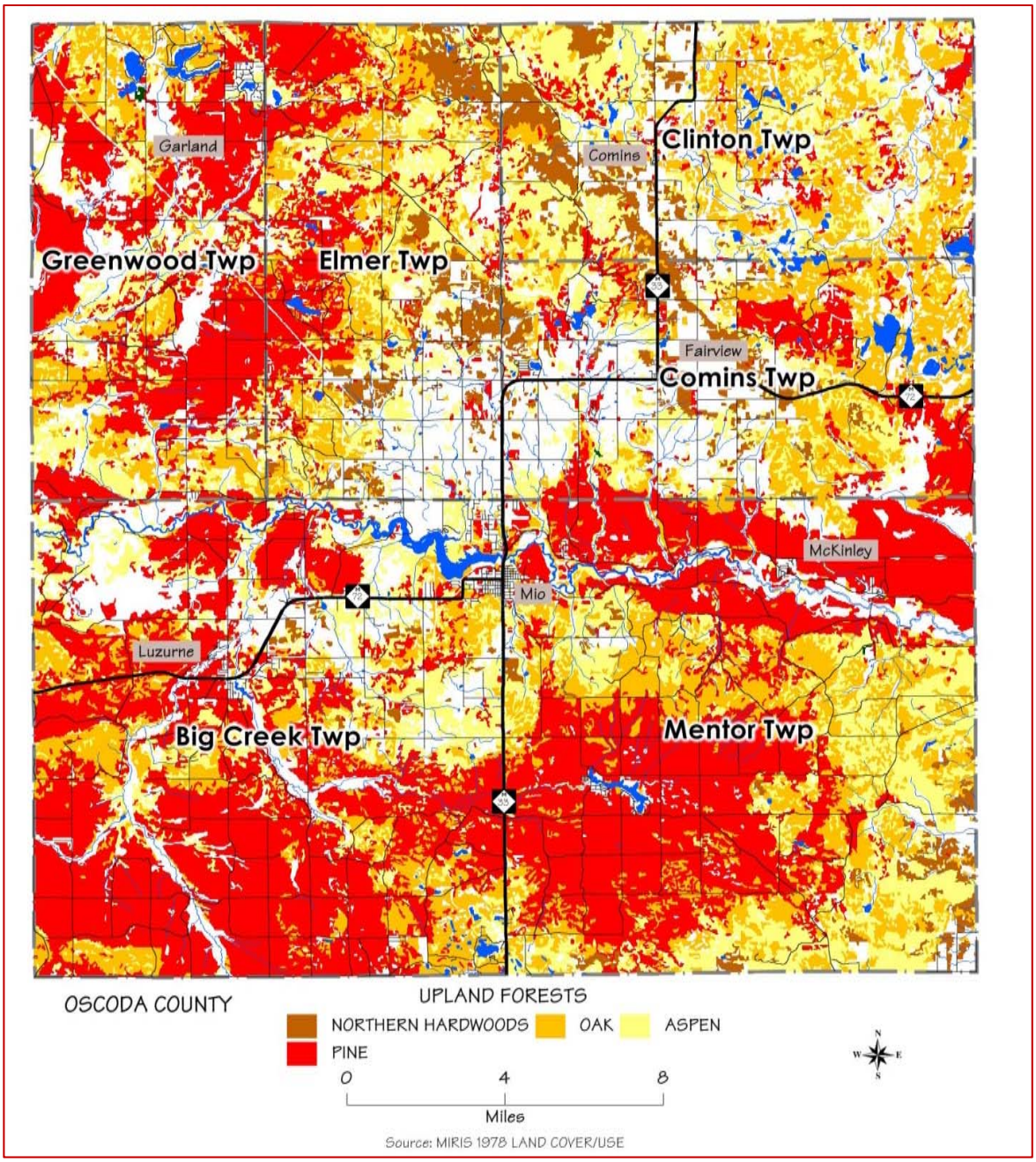
Hazard Mitigation Plan

Oscoda County

Michigan



Oscoda County Office of Emergency Management
PO Box 399, Mio, MI 48647

2014

OSCODA COUNTY HAZARD MITIGATION PLAN
2014

Oscoda County, Michigan

Prepared for:

Oscoda County
and the
Townships in Oscoda County

Prepared by:

Northeast Michigan Council of Governments
121 East Mitchell Street
P. O. Box 457
Gaylord, Michigan 49735

The Hazard Mitigation Plan is available on the following Web Sites

www.nemcog.org

Adopted: November 5, 2013

OSCODA COUNTY
HAZARD MITIGATION PLAN

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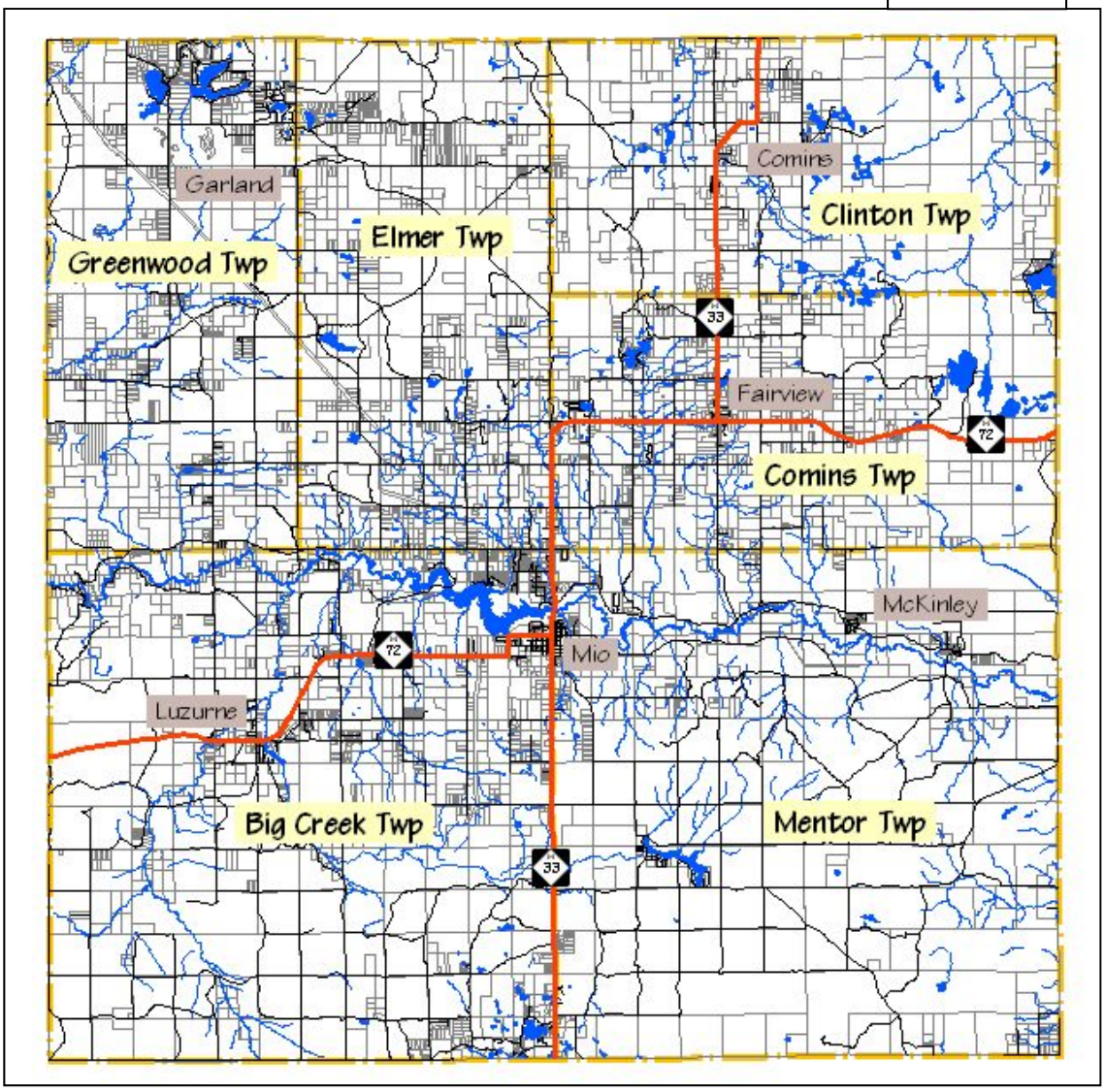
Chapter 1 - Introduction

Oscoda County is located in the northeastern portion of the Lower Peninsula and covers an area of 568 square miles. The county is composed of six townships: Big Creek, Clinton, Comins, Elmer, Greenwood and Mentor and no incorporated cities or villages. The community of Mio is the county seat and is located near the geographic center of the county. Fifty-seven percent of the County is in public ownership and 83 percent of the county is forested. The largest landowner is the Huron National Forest, owning some 231 square miles. A major recreational attraction, the well-known AuSable River flows west to east through the central part of the County. According to the 2010 US Census the year round population of the county was 8,640 persons. The Census also found nearly 52 percent or 4,704 houses were seasonal. Given this high number of seasonal structures, large fluctuations in the population occur during peak summer times. Regional transportation access is provided by M-72 that runs east-west, and M-33 a north-south state highway.

Figure 1.1



Purpose and Approach

What is Hazard Mitigation Planning? In partnership with seven counties in Northeastern Lower Peninsula of Michigan, Northeast Michigan Council of Governments (NEMCOG) worked with each county in its region to prepare hazard mitigation plans. The Disaster Mitigation Act (DMA) of 2000 included new requirements for hazard mitigation planning. In order to become eligible for hazard mitigation grant program funds in the future, counties must prepare and adopt hazard mitigation plans. The County prepared its first Hazard Mitigation Plan in 2005. This planning document represents an update of the 2005 plan.

The intent of a hazard mitigation plan is to inventory possible hazards, assess what hazards the community is vulnerable to, and to provide possible mitigation activities for those hazards. *The focus of the hazard mitigation plan is the development of projects and policies that can be implemented to reduce or prevent losses from future disasters.* The **Oscoda County Hazard Mitigation Plan** includes text, tables, charts and maps necessary to describe and discuss the following: 1) a hazard analysis based on a current community profile, hazard identification, risk assessment, and vulnerability assessment; 2) a listing of the communities goals and objectives; 3) a discussion of the alternatives for solving problems; 4) evaluation and prioritization of alternatives; 5) selection of feasible mitigation strategies; and 6) recommended mitigation strategies. The plan contains a hazard mitigation element that can be easily integrated into the county or township comprehensive plans.

The process of Hazard Mitigation Planning update consists of the following steps:

- Reviewed and updated Chapter 2: Environment. Updated information on the climate, soils, sites of environmental contamination, wetlands, discharge permits.
- Reviewed and updated Chapter 3: Community Profile. Updated demographics and housing information
- Reviewed and updated Chapter 4: Land Use. Updated information on oil and gas wells
- Reviewed and updated Chapter 5: Community Services. Updated all sections of the chapter
- Reviewed and updated Chapter 6: Hazard Identification. The committee updated information on wildfires, severe weather, severe wind storms, extreme temperatures, other natural hazards, and technological hazards. Information on local jurisdictions was updated including compiling new maps for each community.
- Reviewed and updated Chapter 7: Risk and Vulnerability Assessment. Evaluation criteria, and hazard analysis evaluation measures and benchmark factors were reviewed and no changes were made. Alpena County Hazard Rating was reviewed and the committee made adjustments according to updated hazard information. The Risk Assessment and Vulnerability Assessment was updated to reflect data and activities
- Reviewed and updated Chapter 8: Goals and Objectives. The committee added a goal concerning regional cooperation
- Reviewed and updated Chapter 9: Mitigation Strategies and Priorities. The committee made changes to this section, eliminating some actions, adding new actions and amending this list of responsible parties.
- Minor changes were made to Chapters 1 & 10.

NEMCOG staff worked closely with the Oscoda County Emergency Management Director and Local Emergency Management Committee to prepare the Hazard Mitigation Plan. Considerable effort was made to gain input from stakeholders in the county. This included meetings with

townships; township association; county board of commissioners; local, state and federal agencies; local officials; community leaders and general public.

Information Collection

NEMCOG reviewed relevant plans, maps, studies and reports. Federal, state, regional and local government sources were reviewed to develop a current community profile. Information sources included: U.S. Census, zoning ordinances, master plans, recreation plans, capital improvement plans, parcel maps, aerial photography, MIRIS land use/land cover, USGS topographic maps, U.S Weather Service, NRCS soils maps, Michigan Department of Transportation, Michigan Hazard Analysis, local hazard analysis, Flood Insurance Rate Maps, emergency management plans, and Section 302 Sites from the LEPC.

Geographic Information System Support

NEMCOG's Geographic Information System (GIS) was used as a decision support tool and public education tool throughout the process. Existing data sets were incorporated and new data sets created in order to analyze existing conditions and study potential future scenarios. Specialized maps showing community hazards, land cover use, infrastructure, topography, soils, national wetlands inventory, forest cover, gas and oil wells, zoning, future land use and community facilities were prepared as part of the plan development. Maps helped identify community characteristics, vulnerable populations, and hazard areas. GIS data and maps will be retained by the community for future use to help implement and monitor hazard mitigation activities.

Increased Community Awareness of Hazards and Hazard Mitigation

Information was disseminated to the communities and public through the use of public meetings, presentations, news releases, and web sites. A secondary benefit of the planning process was the education of community leaders and citizens of the community in regards to hazard awareness. This education supported the decision making process and will assist communities in making better, more informed decisions in the future. In addition, the process strengthened partnerships between local units of government, planning commissions, emergency services, public agencies and private interests to pool resources and helped facilitate communication and understanding between various entities. By fostering lines of communication and increasing awareness of the cross jurisdictional impacts of land use and policy decisions, better and more informed decisions will be made in the future.

Hazard Mitigation Steering Committee

The hazard mitigation plan was developed through the Local Emergency Planning Committee. The committee has representatives from local units of governments; local, state and federal agencies; law enforcement, fire departments and community organizations. Committee members provided feedback during plan development, including identification of hazards and high hazard areas, identification of hazard mitigation strategies and selection of an action plan.

Community Involvement

The planning process provided several opportunities for public, community and agency input and comments. Presentations were made to all townships at their monthly Michigan Township

Association meeting. Presentation was made to the County Board of Commissioners to present the draft plan for commissioners' approval. Staff met with the Local Emergency Planning Committee several times during plan development. This group has representatives from all local communities, state and federal agencies and citizens. The group was instrumental in guiding the plan development. All LEPC and community meeting were open to the public.

Region 7 Meeting – January 5, 2012 Provided information on the planning updates. Also, NEMCOG staff met with county Emergency Managers prior to the regional meeting.

Oscoda Mitigation Planning Committee (LEPC): Meeting to discuss the planning process and existing conditions sections of the plan, February 20, 2012

Oscoda Mitigation Planning Committee (LEPC): subcommittee meeting to update risk and vulnerability assessment, goals and objectives, and mitigation strategies, June 26, 2012.

Oscoda Mitigation Planning Committee (LEPC): Review draft plan and approve for review and comment. November 20, 2012

Oscoda County Township Association: January 14, 2013

Oscoda Mitigation Planning Committee (LEPC): Meeting to discuss Mitigation Action Strategies, November 19, 2013

Oscoda County Board of Commissioners: Adoption of Hazard Mitigation Plan on November 5, 2013.

Participation

During the development of the Oscoda Hazard Mitigation Plan representatives from local units of governmental participated directly in meetings. In addition to Oscoda County government, other governmental units involved in the process were: Big Creek, Clinton, Comins, Elmer, Greenwood and Mentor Townships. There are no incorporated cities or villages. These communities are continuing participants in the Oscoda County Hazard Mitigation Plan.

Other Public Outreach
Newspaper articles of the planning effort were published in the local newspaper. Information and draft sections of the plan were posted on Oscoda County's and NEMCOG's web pages.

Public Input for Plan Approval

A copy of the draft plan on CD was provided to local communities and any agencies requesting a copy for review. The plan was posted on NEMCOG's web site.

Summary of Review and Adoption of Plan

A draft plan was reviewed by the steering committee, stakeholders and the public. Comments and suggestions obtained in the review process were incorporated into the final plan. The final plan contains mitigation strategies and an action plan that assigns priorities for specific hazards and mitigation measures; defines roles and responsibilities; and identifies the process for

reviewing and updating the plan. The hazard mitigation plan was adopted by County Board of Commissioners, and distributed to the various municipalities for review and adoption.

The Oscoda County Hazard Mitigation Plan represents Oscoda County and all of the local jurisdictions which include: the Townships of Big Creek, Clinton, Comins, Elmer, Greenwood and Mentor. While projects have a more county-wide perspective, all of the communities were asked to adopt the plan. It is anticipated in subsequent years; communities will identify projects, present them to the Hazard Mitigation Committee, and request to have the plan amended to include the new projects.

Summary of Recommended Plan Implementation Process

The primary entities responsible for implementing the Hazard Mitigation Plan are the Oscoda County Board of Commissioners and the Oscoda County Emergency Management Coordinator. The Local Emergency Management Committee (LEPC) is organized under Michigan SARA Title III Program and meets on a regular basis to carry out its duties. This plan recommends the committee expand its role to function as the County Hazard Mitigation Committee to oversee implementation of the plan. The Oscoda County Emergency Management Coordinator will function as the county staff person to provide program administration and project oversight. The HMC developed a five year action list of projects from the mitigation strategies in the Oscoda County Hazard Mitigation Plan. The HMC should review the Hazard Mitigation Plan each year at their annual meeting, determine what projects have been accomplished and add new projects to the five year action list. The Hazard Mitigation Committee should identify steps needed to complete a chosen project, such as funding sources, staff and agencies required to complete the project, timelines and overall project costs. It should be understood, that additional emergency management staff time will be required to assist the HMC in completing its mission.

Since the Hazard Mitigation Committee is a subcommittee of the Oscoda County LEPC, it will function, as does the LEPC, under the umbrella of the Oscoda County Board of Commissioners. Members of the HMC must be members of the LEPC, who are appointed by the County Board. Staff support will be provided by the Oscoda County Emergency Management office which functions as a county department and therefore the program must coordinate with the County Board of Commissioners.

Local units of government, county departments, and local, state and federal agencies will have the ability to propose and sponsor projects from the Hazard Mitigation Plan. Coordinating with the HMC will support plan implementation and allow the committee to monitor progress and determine timing and scope of plan revisions.

A Brief History of the Area

The word "Oscoda" was coined by the Michigan historian, Henry R. Schoolcraft when he visited the area in the mid 1800’s, originating from two Indian words: ossin," meaning: stones or pebbles, and muskoda," meaning: prairie. Together, they signify a "pebbly prairie." This area, originally ceded in 1819 by the Indians in the Treaty of Saginaw, began developing only during the lumber era. Oscoda County was officially incorporated in 1881, using the name created by Schoolcraft. Typical to the rest of the northern Lower Peninsula, Oscoda County's early settlement and development was due mostly to farming and logging activities. Early settlements were located near the AuSable River, which was the primary means of transportation. The waterways were used to transport supplies inland and raw materials such as pine logs out to the

coastal mills for processing. Eventually cart trials or haul roads were established and in the 1890's one rail line was built to the station at Comins.

Beginning with the Homestead Act of 1863, an influx of settlers of European descent came into northern Michigan, including Oscoda County. Following the axe of the loggers, settlers established farms. The majority of the first settlers in the county began homesteads mostly in the southwestern part of the county. However, due to the thin top soil and poor farming practices, much of this farm land was abandoned and eventually reverted back to the government. Partially for this reason, over half of the county's land is in public ownership (State or federal properties). Because of the availability of inexpensive land, Mennonite farmers were attracted to the Fairview area starting at the turn of the century. By using better farming practices, they have succeeded where the early farmers failed. Many of these lands are still being farmed today.

Lumbering of the area began in the 1870's and continues today. After the bulk of the virgin timber was harvested, however, farming became the area's chief industry. Since the end of World War II, the county's economy has diversified from farming to more tourism based, with logging and agriculture still important ingredients. A large part of the county is in public ownership and includes the Huron National Forest and the AuSable Sate Forest. The open public lands and associated two-tracks, ATV and hiking trails draw recreation enthusiasts to the county for year round outdoor sports. The AuSable River, a nationally recognized trout stream and very popular canoeing river flows through the county. Retreating continental glaciers left behind expansive sandy plains and created perfect conditions for fire dependent trees species like jack pine. Prehistoric fires started by lightning and possibly Native Americans maintained extensive areas of pine forests. The globally rare Kirtland Warbler, winters in the Bahamas and builds its summer nests only in the young dense jack pine stands. Development in jack pine areas, historically prone to wildfires, puts that population at risk.

Clinton Township is located in the far northeast corner of Oscoda County. It is bisected by M-33, which runs north/south through Comins, its largest community. Comins was named after one of the founding fathers of Mio, Coolidge Comins. This area was first settled during the lumber days of the 1880's by the H. M. Loud & Sons Lumber Company, who built a narrow gauge railroad in the area, which included a depot at Comins. A post office was eventually opened here in 1900.

Fairview, located in Comins Township, at the situated at the north junction of M-33 and M-72, about nine miles northeast of Mio. Fairview was founded in 1883 by W. L. Bond. Its station on the Au Sable & Northwestern Railroad during the lumber era assured the community's permanence. Township offices are located here, along with several stores and restaurants. The Township was named after Coolidge Comins, one of the founding fathers of Mio and Oscoda County. A small narrow gauge railroad reminiscent of the lumber era, which is open on weekends, can be found about 3 miles south of Fairview, off County Road 601.

Luzerne is located in southwestern Oscoda County in Big Creek Township. This town was named after Luzerne, Pennsylvania in 1881 by Myron B. Hagaman, who moved here from Pennsylvania at that time.

Greenwood Township is located in the northwestern corner of Oscoda County. The beautiful Garland Golf Course community is located in the township. This Township includes the small community of Red Oak, once a thriving lumber town. It received a post office and station on the Au Sable & Northwestern Railroad in 1888.

In the northeast corner of Mentor Township, the small community of **McKinley** is located on the Au Sable along County Road F-32. This was once known as "Potts' Headquarters," the first thriving community in the lumber era of the 1880's, complete with hotels, stores and churches -- started by an early settler from Simcoe, Canada, J. E. Potts. His J. E. Potts Salt & Lumber Company just east in Iosco County became one of the world's largest until 1890, when the lumber era came to an abrupt halt. The town also declined rapidly, as there was no railroad nearby, leaving it landlocked, accessible only by the river.

Mio is an unincorporated community located in Big Creek and Mentor Townships in Oscoda County. Mio was named for M-10, the main highway that divided the center of the town. It is the county seat, with a courthouse that is over 100 years old.

Amish History in Oscoda County, Michigan

Located in Oscoda County in Michigan's Lower Peninsula, the area was offered to the Amish by the railroad company in 1899. Virgin timber had been removed leaving a fertile land after clearing the land and removal of stumps. The first Amish settlers arrived in 1900. It became a flourishing community in the years to come settled by both Amish and Mennonite groups. However, by 1964 the interest among the Amish was waning and many families either moved on or left the Michigan settlement.

By 1970, only seven members remained with the Amish settlement but a renewed interest in the area was beginning. Families from Geagua County in Ohio began moving to northern Michigan in December of 1970. Other families from Ohio and Indiana began to follow.

Currently the Amish community in Oscoda County consists of approximately 50 households. The small community includes two church districts and three schools. The small community depends upon lumbering and the pulp industry, farming, carpentry and producing furniture and cabinetry. There are also shops for welding, buggy wheel repair, harness making, small engine repair, greenhouse and bakeries. Many homemakers produce woven items and quilts.

The area is also known for producing maple syrup. In the spring as the sun warms the earth, it is time to tap the trees. As the sweet sap runs, community members tap the maple trees and haul it to the sugar camp to be boiled in the huge evaporators to become Maple Syrup. The syrup is bottled and sealed at the camp to be ready to take to market.

Chapter 2 - Environment

Overview

Upland forest is the primary land cover in the County, with much of that being pine and oak. These drought tolerant species prefer and thrive on the mostly sandy soils. Farming is limited with Oscoda County and tends to be concentrated in southeastern Elmer Township and western Comins Township. The AuSable and Thunder Bay Rivers, with their interconnected network of smaller streams and creeks, and the many lakes and impoundments provide an abundant source of high quality surface water features.

The greatest attraction for the residents and visitors of Oscoda County is the area's environment and the rural nature. Recreational activities such as hunting, fishing, golfing, snowmobiling, boating and a multitude of other outdoor activities attract people from urban areas of Michigan, as well as from other states. Many long time visitors decide to move to the area upon retirement. Because of the abundant outdoor recreation opportunities, the natural environment is a major economic base and income generator.

At the same time, the environment places constraints upon human activities. Certain critical and sensitive parts of the natural landscape cannot be altered without creating problems that are not easily corrected. Increased flooding and soil erosion due to the indiscriminate filling of wetlands and clearing of land are but two examples. Therefore, it is essential that any future development respect the different characteristics of the natural environment. This is important in preserving the attractiveness of this part of the State, preventing potential hazards related to undue alteration of the land, and maximizing the economic benefits of the tourist and recreation industry.

Climate

The climate of Oscoda County makes it an attractive area for four-season recreational pursuits. A generous amount of snowfall in the winter makes winter sports popular in the county (snowmobiling, skiing, ice fishing, etc.). The warmth of summer, however, makes outdoor summer activities also possible and popular (swimming, boating, hiking, biking, etc.). Spring time weather brings out mushroom hunters and bird watchers, while the fall is prime time for hunting activities and fall color tours.

A summary of Oscoda County's climate includes an average annual precipitation of nearly 29 inches (including the water equivalent of snow), an average snowfall of 56.5 inches, and a mean annual temperature of 42.2 degrees. The temperature records show extremes higher in the summer and lower in the winter than in counties bordering Lakes Michigan and Huron, due to the moderating effects of the Great Lakes. The average frost-free season, as shown by the average dates of the last killing frost (June 5) to the first (September 14) is 101 days. Killing frosts have been recorded in every month of the year, especially in the lower lying areas along the AuSable River.

Mio, the county seat, holds the record high temperature for the State of Michigan (112 degrees), which was recorded July 13, 1936. This temperature, however, is far from normal for the area. The low temperature is normally recorded at -30 degrees, during isolated periods of the winter months. Average snowfall varies from 60 inches along the southern boundary of the county, to

a high of 90 inches in the extreme northwest corner. The snowfall is heaviest from November to March, but light amounts have been recorded as late as May and as early as September. **Table 2.1** provides a listing of temperature and precipitation averages for the years from 1981 to 2010.

Severe Weather

Data from the National Oceanic and Atmospheric Administration shows that from October 2006 to June 2012 there were 36 severe weather events recorded in Oscoda County. Damages from these events in Oscoda County and the surrounding region are estimated at over 1.416 million dollars.

Although relatively rare, tornadoes have occurred in Oscoda County and have caused extensive damage. Michigan is located on the northeast fringe of the Midwest tornado belt. The lower frequency of tornadoes occurring in Michigan may be, in part, the result of the colder water of Lake Michigan during the spring and early summer months, a prime period of tornado activity. Michigan averages approximately 15 tornadoes per year. Over the past 6 years, 2 tornadoes have been recorded in Oscoda County and while tornados are not frequent, these storm events account for 1.39 million dollars in property damage. Tornadoes are most common in the afternoon and all of the tornadoes in Oscoda County occurred in the afternoon between the hours of 1:00 and 7:00 P.M. In Northern Michigan tornadoes are most likely in the summer months, although tornadoes have occurred in the spring and fall. In Oscoda County, tornadoes have been recorded in the months of April and May. The most destructive tornado to touch down in Oscoda County was an F2 tornado that occurred on July 3, 1999 causing $1.5 million in damages. Contrary to past trends, the second most destructive tornado in recent times occurred on October 18, 2007. The F2 tornado caused 1.35 million in property damage. The magnitude of a tornado is described by using the Fujita Scale. The Scale ranks tornadoes from F0 to F6 based on wind speed and intensity. F0 and F1 tornados are described as weak tornados with wind speeds from 40 to 112 mph, F2 and F3 are strong tornados with wind speeds from 113-206 mph, F4 and F5 are violent tornados with wind speeds from 207 to 318 mph and an F6 is an inconceivable tornado with wind speeds above 319 mph. Of the 5 tornados that have been recorded in Oscoda County, one was an F2, three were an F1 and one was an F0.

Strong winds and thunderstorm winds are common severe weather that affects Oscoda County. Annually, thunderstorms will occur on an average of 25 days per year and on average one or two thunderstorms per year will have severe winds. Since 2006 there have been 6 severe wind events recorded in the County. Strong winds are most likely to be associated with thunderstorms that occur in the summer, but can occur any time of year. One of the most powerful windstorms ever recorded in the Great Lakes region occurred on November 10, 1998. Wind speeds from this powerful storm reached 82 knots.

Winter weather hazards consisting of heavy snow, freezing rain and blizzards are prevalent natural hazard that occurs in Oscoda County and can be expected to occur several times every year, see **Figure 2.1**. Since 2006, 18 winter storm events, with 8 heavy snowstorms. In March of 2012, a major late winter storm event occurred in northern Michigan that resulted in thousands of homes and businesses losing power. Over the past 6 years the county has averaged 3 severe winter weather hazards each year. The number and intensity of winter weather hazards can fluctuate dramatically from year to year. In 1993 heavy snowstorms, freezing rain and or blizzards occurred 8 times while in 1995 only one heavy snow storm was recorded.

Table 2.1: Climate Data Oscoda 1981 - 2010

Year	Average Mean Temperature	Extreme Minimum Temperature	Extreme Maximum Temperature	Annual Precipitation (Inches)	ANNUAL Snowfall (inches)
1981	43.8	-31	94	20.77	44.4
1982	42.6	-22	90	25.65	51.5
1983	44.5	-16	99	26.62	52.4
1984	43.9	-28	92	28.36	39.2
1985	43.3	-25	93	31.15	91.3
1986	44.1	-20	95	29.19	46.5
1987	46.4	-25	100	25.34	47.5
1988	43.9	-19	101	28.16	29.7
1989	41.7	-18	95	18.93	68.9
1990	45.0	-11	95	33.07	22.6
1991	45.5	-16	93	32.06	35.6
1992	42.7	-18	91	27.93	27.5
1993	42.6	-23	92	26.93	39.2
1994	43.2	-29	98	33.81	53.4
1995	43.4	-17	103	24.96	63.7
1996	41.8	-31	92	23.19	22.9
1997	42.7	-19	93	23.13	27.3
1998	47.8	-11	97	28.08	40.0
1999	45.8	-16	93	24.26	33.1
2000	44.4	-17	87	24.26	25.9
2001	46.6	-11	99	26.70	6.9
2002	45.4	-11	96	22.46	29.3
2003	43.6	-20	97	29.94	33.0
2004	44.5	-21	90	29.81	67.7
2005	46.0	-19	95	26.16	39.5
2006	47.4	-2	101	39.95	29.6
2007	44.9	-19	96	30.10	73.2
2008	43.0	-16	90	36.09	85.7
2009	42.4	-22	96	30.22	55.3
2010*	46.0	-6	92	23.21	11.8*

Temperature: Fahrenheit *2010 is partial winter season through December
Source: Midwest Regional Climate Center
Site: Mio Hydro Plant

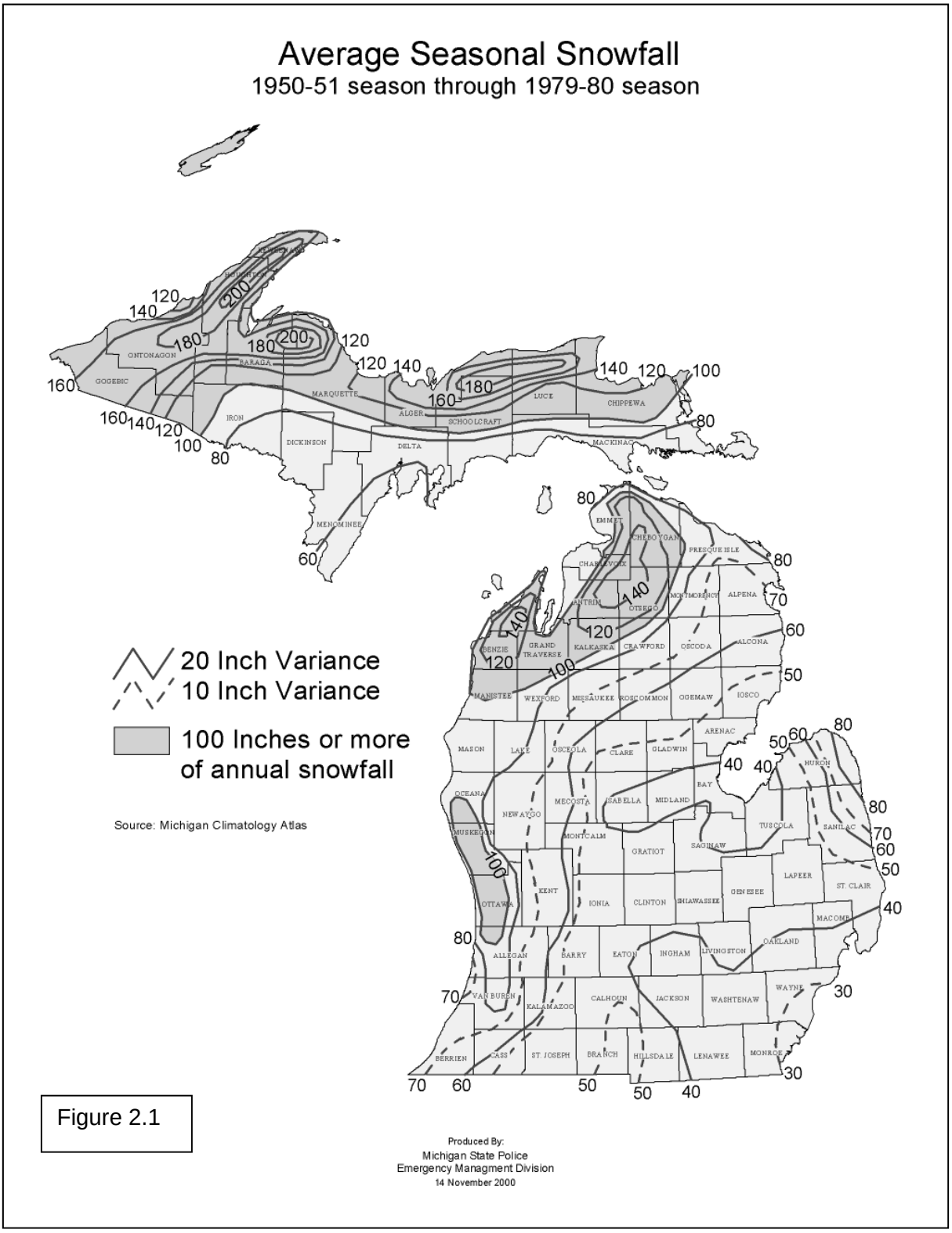

Average Seasonal Snowfall
1950-51 season through 1979-80 season
20 Inch Variance
10 Inch Variance
100 Inches or more of annual snowfall
Source: Michigan Climatology Atlas
Produced By:
Michigan State Police
Emergency Managment Division
14 November 2000

Figure 2.1

Topography

The elevation of the county ranges from 1,000 to 1,200 feet above sea level. Small areas in the central and northern parts of the county lie between elevations of 1,300 to 1,400 feet, while the lowest elevation of 900 feet is found on the AuSable, near the east boundary of the county.

Oscoda County is part of a highland plain built up by a great thickness of glacial deposits. Within the county, the highland plain is bisected east and west by the AuSable River, which flows through a terraced valley about three miles wide and lying from 200 to 400 feet below the highest parts of the upland. Both the northern and southern plateaus have much the same character and surface configuration. On each there are three major relief features and land divisions, namely, smooth sand and gravel plains, broad swells and hills of sandy land, and level or undulated wet and dry clay plains. The greater part of the land is comprised of high, dry, sandy and gravel plains, most of which are level and lack any conspicuous surface features or local differences in elevation. In places, however, they are broken by pits and by long dry valleys or swales. The higher lying masses of hilly plateau land rise gradually or abruptly from the sandy plains, and they consist of broad swells with long, smooth slopes. Locally, however, they are rough in aspect, as the land is characterized by domes, knobs, ridges and comparatively deep potholes, lake basins and valleys. The clay plains are smooth or undulating and they include shallow swales and hummocky swells of sandy land with some stream dissection and some small irregular spots of wetlands.

The AuSable River is bordered by three narrow sandy and gravel terrace plains. The first lies from 10 to 15 feet above the river; the second, from 35 to 40 feet; and the third, at approximately 70 to 80 feet. The terrace plains are composed of beds of loose stratified sand and gravel, ranging from six to more than 15 feet in thickness and resting on clay.

Geology

The rolling hills, river valleys, swamps and lakes were created by the retreating continental glacier some 12,000 to 15,000 years ago. Beneath this thick mantel of the glacial deposits lays a foundation of layered sedimentary bedrock. This section will describe the glacial landforms or quaternary geology and the underlying bedrock geology.

Starting some 2 million years ago, during the Pleistocene era, continental glaciers formed in the Hudson Bay area. Several times, over this two million year period, the massive sheets of ice built up and inched their way south across what is today Michigan. The massive ice sheets, that were more than one mile thick, advanced in a southerly direction bulldozing their way across the landscape. The glacier pushed material in front of it, incorporated rocks and soil into the debris laden ice; and scraped, ground and broke apart the sedimentary bedrock of the Michigan Basin.

Each advance and retreat of the continental glaciers took tens of thousands of years. This reoccurring process shaped and reshaped the land; obliterating and then creating hills, valleys, rivers and lakes, swamps and marshes. The last glacial period, called the Wisconsin era, created the landscape we know today. The glacier left behind boulders, rocks, cobble, sand, gravel, silt, clay and loam. In some areas the material was deposited in unsorted masses called till plains, ground moraines and end moraines. Water flowing from the melting glaciers also sorted materials, creating outwash channels, sand deltas, kames and eskers. Fine materials, captured in the fast moving glacial meltwater, settled to the bottom of expansive glacial lakes creating lacustrine clay and silt plains.

Surface geology of Oscoda County is directly related to the advancing and retreating of glaciers thousands of years ago. Four geologic features can be used to describe the surface geology of the county: moraines, till plains, outwash plains and lacustrine plains. Moraines (linear hilly ridges) were formed by the deposition of unconsolidated sand, gravel, rock and clay at the margins of a glacier. A moraine represents the former position of a glacier's edge. Moraines are scattered throughout the county. Till plains, deposition of unsorted sand, gravel and clay by melting ice, are located just north of Mio. They are level areas between moraines consisting of the same type of material. Outwash and lacustrine plains are water laid deposits from the melting glacier. Outwash plains are stratified deposits consisting of silt, clay and fine sediments in glacial and post-glacial lakes that have since been drained. Outwash and lacustrine plains are interspersed throughout the county. Thickness of glacial drift ranges from 200 to 400 feet in Oscoda County.

Beneath the glacial deposits, hundreds of feet below the surface, is sedimentary bedrock that was created during the Devonian and Mississippian ages of the Paleozoic Era. The bedrock was formed in ancient seas which covered the area some 250 to 600 million years ago. The shallow marine seas deposited layers of silt, clay, sediments, marine animals, plants, coral, and other calcareous materials. These deposits formed shale, limestone, and dolomite bedrock. The youngest bedrock is found in the southern part of the county include Michigan and Marshall Formations. Coldwater shale, Berea sandstone, Bedford shale and Antrim shale form upper layers of bedrock in the northern half of the County. Antrim shale contains rich deposits of natural gas. In recent years, intensive exploration has resulted in numerous producing wells throughout the region. Additionally, oil and gas deposits have been found in columnar coral formations within the county.

Soils

The content of organic matter in the upper layer of the county's soils is comparatively low. Most of the county's soils are naturally fairly well drained, as the water table is not high and the slope is sufficient to provide run-off. Much of the soil is poor, because of the combination of low or medium content of plant nutrients and a deficiency of moisture, as in the pine covered, outwash sand plains.

The soil types of the county are grouped as follows::

1. Grayling-Rubicon-Croswell Association: Nearly level to undulating areas dominated by well-drained and moderately well-drained sandy soils.

2. Grayling-Graycalm-Montcalm Association: Rolling to hilly areas dominated by well-drained and moderately well-drained sandy soils.

3. Leelanau-Emmet-Kalkaska Association: Rolling to steep areas dominated by well-drained sandy and loamy soils.

4. Emmet-Leelanau-Menominee Association: Undulating to rolling areas dominated by well-drained and moderately well-drained sandy and loamy soils.

5. Nester-Kawkawlin-Iosco Association: Nearly level to undulating areas dominated by well-drained to poorly drained loamy and clayey soils.

6. Carbondale-Lupton-Tawas Association: Nearly level areas dominated by somewhat poorly drained to very poorly drained sandy soils to sloping well-drained sandy soils, and nearly level, poorly drained organic soils.

Forest and Wetland Resources

Since over 80 percent of the County is forested and forest fires have been identified as the number one natural hazard in the Oscoda County Hazard Analysis Plan, an analysis of forest types will assist in defining vulnerable areas and populations. The Michigan Resource Information System's (MIRIS) 1978 land use inventory compiled land cover maps that depict forest types in the county, **Figure 2.2**. Tree species vary depending upon the soils, moisture and past activities such as logging, fires and land clearing. Jack pine, aspen-birch and oak are the most common forest types. According to the MIRIS Land Cover/Use Inventory, the most prevalent forest type is jack pine, covering over 34 percent of the county. The draughty, low fertility sandy soils, found in outwash plains and channels, supported pre-settlement jack pine forests that for thousands of years were perpetuated by wildfires. Today, residential development has occurred within these wildfire prone areas.

Red and white pine forest types are included in the pine forest category. Bigtooth aspen, quaking aspen, white birch, red maple and red oak are the primary tree species found in the aspen-birch type. Red oak, white oak, black oak and northern pin oak are the primary species growing in the oak forests. Northern hardwoods include species such as sugar maple, red maple, American beech, basswood and yellow birch.

Poorly drained, lowland areas support northern white cedar, tamarack, balsam fir, black spruce, eastern hemlock, white pine, balsam poplar, trembling aspen, paper birch, black ash, speckled alder and shrub willows. Northern white cedar dominates the wetland areas where there is good lateral water movement and the soils are high in organic content. These lowland forests are typically located adjacent to water features and function as riparian forests and water quality buffers. The network of lowland forests, associated with rivers and creeks, also function as wildlife corridors and are the backbone of large regional ecological corridors. Nonforested wetland types include lowland brush, marshes and bogs. Forested and nonforested wetlands are a finite resource in the township. Land use planning activities should focus on protecting and preserving these limited and critical resources.

Pre-Settlement Vegetation

The Michigan Department of Natural Resources has compiled pre-settlement vegetation maps of counties in Michigan. The maps were generated from information contained in the first government land survey notes in the 1800's along with information such as current vegetation, land forms and soils, **Figure 2.3**. A review of the pre-settlement vegetation map of Oscoda County show extensive areas were covered with pine and oak forests. This clearly shows a long history of wildfires in the area. The map delineates jack pine-red pine forest, white pine-red pine forest, pine barrens, pine-oak barrens and pine-oak forests, which combined, accounted for 71 percent of the County. Jack pine forests were estimated to cover 63 percent of the county. In the late 1800's extensive logging and subsequent wildfires altered the forest make-up, yet still today as noted on the 1978 forest vegetation map, jack pine covers 34 percent of the county. Logging and wildfire resulted in the conversion of pine forests to oak and aspen forests. Today, some 38 percent of the county is covered with aspen and oak forests. Areas that were once covered with pine forests still have a high propensity for wildfires.

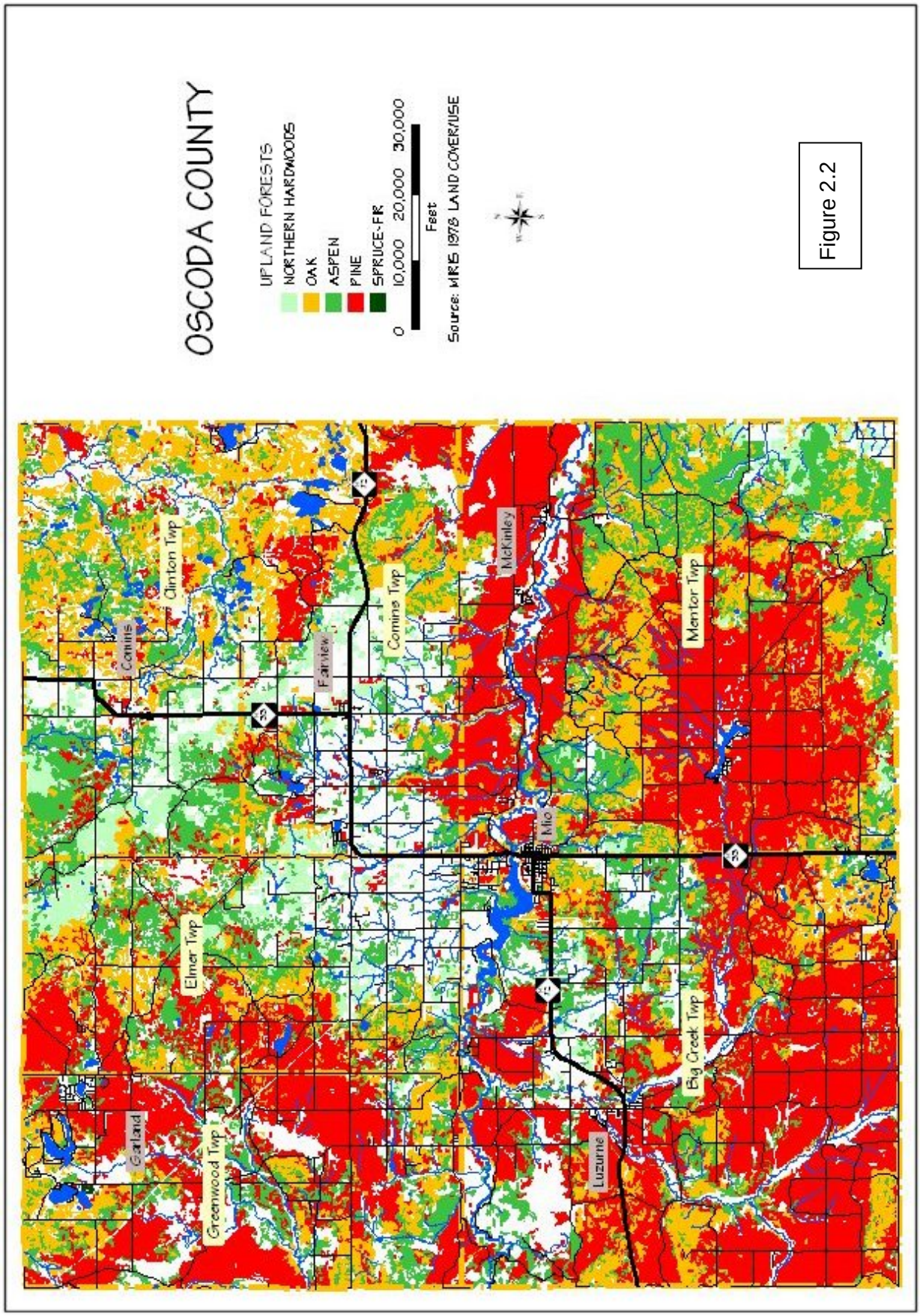

OSCODA COUNTY
UPLAND FORESTS
NORTHERN HARDWOODS
OAK
ASPEN
PINE
SPRUCE-FIR
0 10,000 20,000 30,000
Feet
Source: MRIS 1978 LAND COVER/USE
Garland
Greenwood Twp
Elmer Twp
Comins
Clinton Twp
Fairview
Comins Twp
McKinley
Mio
Mentor Twp
Luzerne
Big Creek Twp

Figure 2.2

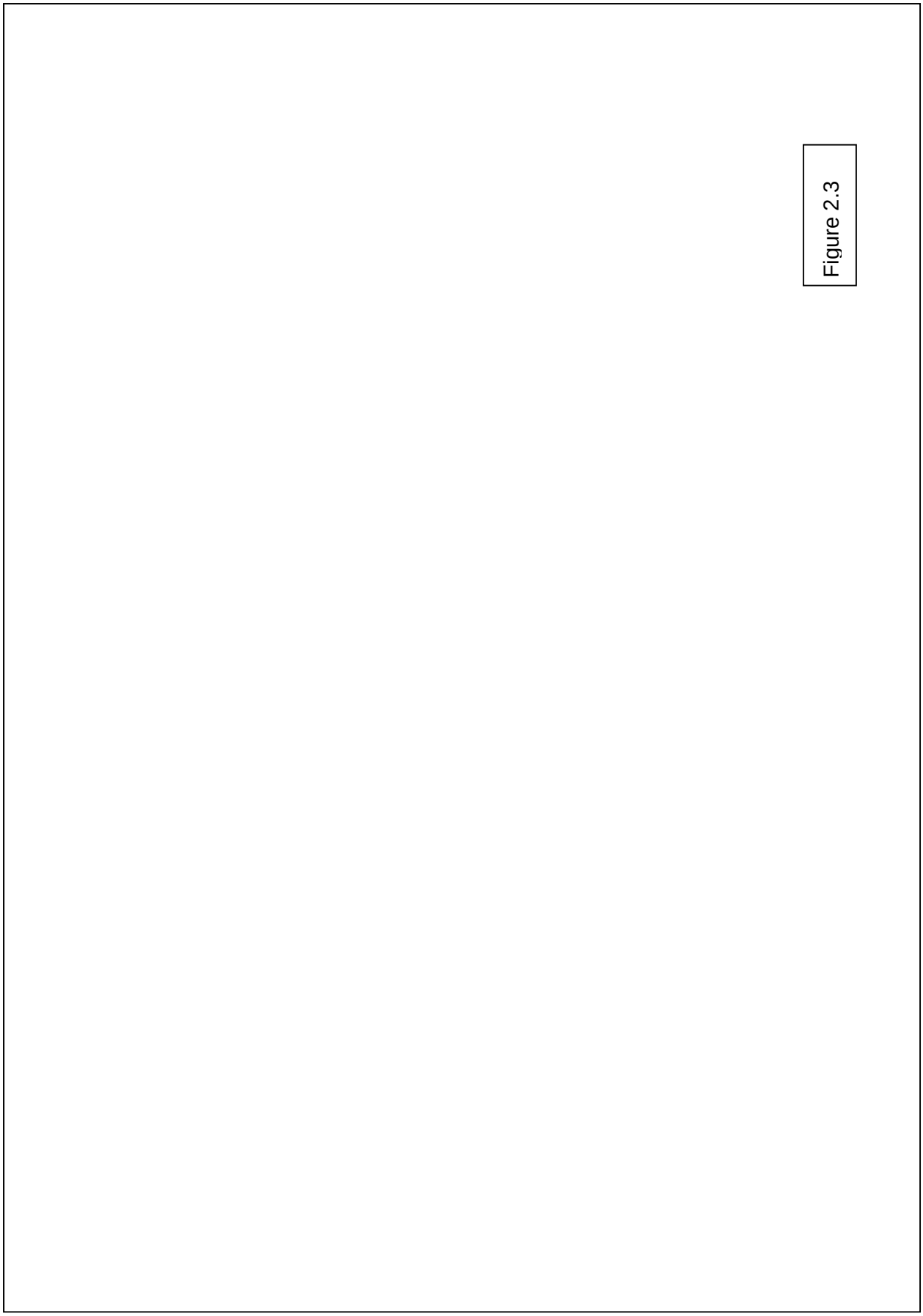
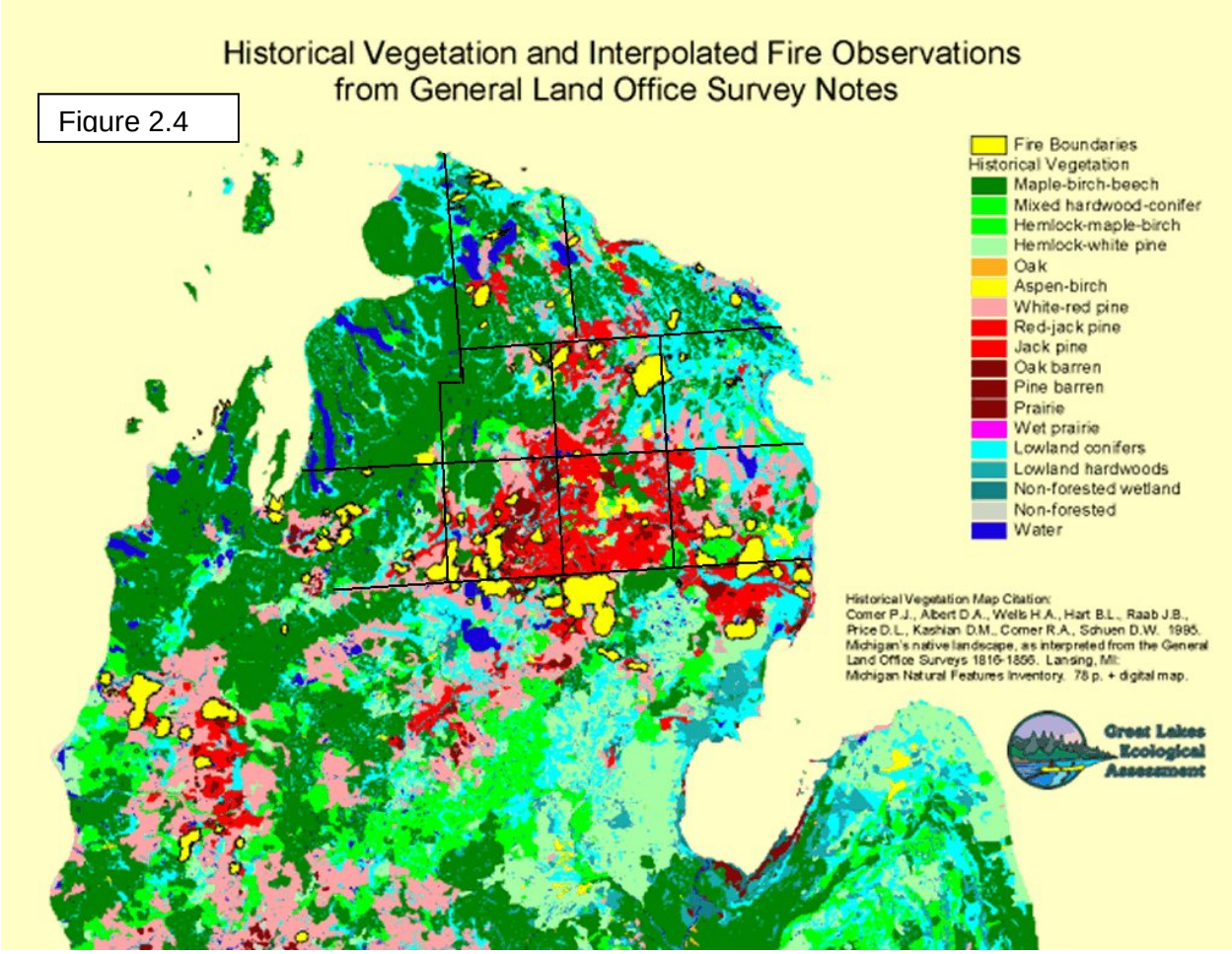


Figure 2.3

The following map was compiled by the Great Lakes Ecological Assessment project, **Figure 2.4**. The map shows historical vegetation and interpolated fire observations (in yellow) for northern Michigan. Approximate county boundaries were drawn on the maps as a reference. As can be seen on this map, Oscoda County was covered with forests prone to wildfires and wildfires were common.



Water Resources

Water plays an important part in the recreation industry of Oscoda County. There are 358 natural or artificial bodies of water in the county, which makes up 3,937 acres of surface water, and 219 miles of streams and river frontage. **Table 2.2** provides information on the major water bodies in Oscoda County. There are 136 manmade water impoundments in the county, including the largest, Mio Pond. Construction work was completed on the Mio Dam in 1916. The back waters extend six miles upstream and cover 860 surface acres. The dam has a head of 28.5 feet. Approximately 23,000 acres or 6.5 percent of the county land areas is classified as flood plains or wetlands. The rivers and lakes in particular support much of the tourist industry in the county. Fishing is very popular for trout on most streams, with several lakes also having trout populations. The warmer lakes normally have bluegill, bass, perch and pike. Tiger musky have also been stocked in several lakes.

The AuSable River is probably the best known tourist attraction in the county. This river system is virtually undeveloped because nearly all of the property along the river was owned by a public utility company. The property has been purchased by the State and federal government and has been designated as a natural river.

The AuSable River and Big Creek systems afford excellent trout fishing, with the AuSable being rated one of the ten best trout streams east of the Rocky Mountains. The AuSable flows 31 miles through Oscoda County and the Big Creek systems furnish over 15 miles of top rated trout fishing waters. Other streams, along with the AuSable and Big Creek systems provide over 219 miles of trout fishing areas.

Groundwater supplies in the county are very productive in the predominant gravels and sands of the glacial drift. The groundwater aquifers are recharged by precipitation which is readily absorbed by the permeable soils. Individual wells near the lakes and streams are usually quite shallow due to the high water table. The county drains into the AuSable River and the Thunder Bay River watershed systems.

Table 2.2
Major Lakes In Oscoda County

Name of Lake, Surface Area and Location	Description of Lake
Loon Lake, 90.4 acres Sec. 35 T25N, R2E	Public access. Pan fishing. 98% mineral shoreline; 2% organic, maximum depth 50 feet.
Mio Pond, 944 acres T26N, R2E	Panfish, pike, trout and other species; public access. 100% mineral shoreline.
Mack Lake, 175 acres Sec. 4,9,10 T25N, R3E	Maximum depth 5 feet. 95% mineral shoreline, 5% organic.
Muskrat Lake, 86 acres Sec. 6,7,8 T27N, R2E	Residential development around lake; shoreline is 50% mineral, 50% organic
McCollum Lake, 143 acres Sec. 1 T27N, R4E	Panfish, pike; shoreline is 50% mineral, 50% organic. Residential development around lake.
North Lake, 75 acres Sec. 2 , 11 T 27 N, R4E	Undeveloped, natural lake
Indian Lake, 55 acres Sec. 5 T27N, R4E	Undeveloped natural lake. 80% mineral shoreline, 20% organic
Shamrock Lake, 220 acres T27N, R4E	Panfish, pike; maximum depth 12 feet. Residential development around eastern half of lake.
Island Lake, 105 acres Sec. 13, 14 T27N, R4E	Undeveloped natural lake with 50% mineral shoreline, 50% organic
Tea Lake, 216 acres Sec. 2,3,10,11 T28N, R1E	Trout fishing, panfish, public access; residential development; 99% mineral , 20% organic shoreline
Snyder Lake, 135 acres Sec. 4,9 T28N, R1E	Some residential development around lake. 80% mineral, 20% organic shoreline
(Little) Bear Lake, 52 acres Sec 9 T28N, R1E	Some residential development; 50% mineral, 50% organic shoreline
Woodbury Lake, 55 acres Sec. 23, 24 T28N, R3E	Residential development around much of lake
Island Lake, 125 acres Sec. 7,8,17 T28N, R4E	Residential development around south and western side of lake.
Source: Oscoda County Recreation Plan	

Fish and Wildlife

The Mio area has been known as the center of the prime deer range for many years. The large deer herd built up following the wild fires of the 1890's to 1920's, with the herd peaking in the late 1940's to early 1950's. Large areas of public hunting ground and the tremendous deer herd combine to attract a large number of hunters to the county.

Oscoda County, along with four other neighboring counties (Alcona, Alpena, Montmorency and Presque Isle), is within the area which has been hit by an outbreak of Bovine T.B. in the local deer herd and in other wild animals. The Michigan Department of Natural Resources (DNR) has created a special separate deer management unit to oversee the situation, called DMU452. This allows the DNR to enforce special regulations covering deer hunting and feeding within these counties. Although the incident of Bovine T.B. found in the deer herd of this area has been very low (estimated at under one percent of the population), the DNR and other agencies are trying to manage the situation, prevent it from becoming more wide spread and in the long run to totally eradicate T.B. from the wildlife community. In order to do this, the DNR has been instituting new regulations which will reduce the amount of nose to nose contact (which is how the disease is spread) within the deer herd, through regulations on deer feeding. In an effort to bring down the numbers of deer, they have increased the length of the deer hunting season and are encouraging the hunting of antlerless deer. The long term effect that the Bovine T.B. situation will have on hunting within the area is not known.

In addition to deer hunting, small game hunting is also popular with the local residents of Oscoda County, as well as with tourists. Grouse, woodcock, rabbit and squirrel attract hunters from all over, due to excellent hunting conditions.

The Kirtland's Warbler is a rare and endangered songbird that resides in a very limited area of the State, including Oscoda County. The bird nests only within a small area, centered on Mio. Public agencies are managing over 18 square miles of forest area for the use as the Warbler's nesting area. Many birdwatchers come to this area in order to view this bird. A "Kirtland's Warbler Festival" is being held annually at the Kirtland Community College (near Roscommon) as a tribute to this bird. This weekend festival includes many activities for individuals and families designed for better environmental awareness and appreciation.

Riparian forests adjacent to streams and lakes provide critical habitat for many species of wildlife and reptiles. The land and water interface is a long narrow, sometimes meandering, edge habitat. In Oscoda County and throughout Michigan, natural, undeveloped lakeshore habitat is one of the most endangered habitats. There is a continuing trend for lake lot owners to clear brush, aquatic weeds, dead trees and live trees that interfere with a wide-open view of the water. The native vegetation is replaced with well-manicured and chemically treated lawns down to the water’s edge. This practice not only degrades critical wildlife habitat but also impacts water quality by diminishing the riparian zone's capacity to filter nutrients and ability to stabilize shoreline erosion.

Birds that use floodplain habitat for feeding and nesting include the red shouldered hawk, barred owl, kingfisher, northern oriole, red-headed woodpecker, pileated woodpecker, woodcock, wood duck and great blue heron. Deer, raccoon, northern flying squirrel, water vole, mink and river otter also frequent these areas. As well, numerous species of turtles, frogs, snakes and salamanders newts can all be found in river/flood plain areas.

The Oscoda County area is home to many lakes, rivers and streams. The Au Sable River a premier trout stream and popular canoeing river is known far beyond the county borders. The rivers and lakes in particular support much of the tourist industry in the county. Fishing is very popular for trout on most streams, with several lakes also having trout populations. The warmer lakes normally have bluegill, bass, perch and pike. Tiger musky have also been stocked in several lakes.

Threatened and Endangered Species

Oscoda County is home to a number of plants and animals that are threatened endangered or are of special concern as identified in Michigan Natural Features Inventory (MNFI) database. Michigan Natural Features Inventory (MNFI) is a program of Michigan State University Extension that works in close cooperation with the Michigan Department of Natural Resources and The Nature Conservancy. **Table 2.3** is the County Element List of endangered or threatened plant and animal species in Oscoda County, which are protected under the Natural Resources and Environmental Protection Act of the State of Michigan (Part 365 of Public Act 451 of 1994, as amended). This list also includes plant and animal species of special concern. While not afforded legal protection under the act, many of these species are of concern because of declining or relict populations in the State. Should these species continue to decline, they would be recommended for threatened or endangered status. Protection of special concern species before they reach dangerously low population levels, would prevent the need to list them in the future by maintaining adequate numbers of self-sustaining populations.

The most widely known of the endangered species is the Kirtland's Warblers. These warblers utilize only young jack pine stands for nesting. In a natural unmanaged setting, jack pine forests are perpetuated by forest fires. During prehistoric times, wildfires would periodically sweep across the landscape, burning native pine forests and creating favorable seed beds for species like jack pine. In fact, jack pines need fire to open the cones and release seeds. According to the Natural Features Inventory, "The Kirtland's warblers' breeding range currently encompasses ten counties in Michigan's northern Lower Peninsula and four counties in the Upper Peninsula. They primarily overwinter in the 600 mile Bahama Archipelago, although, individuals also have been observed on surrounding island chains (Evers 1994).

The bulk of the breeding population, 93% of the singing males in 2001, resides in the Northern Lower Peninsula counties of Crawford, Ogemaw, Oscoda, Roscommon, and Alcona. During the breeding season, the Kirtland's warbler is dependent upon large, relatively homogeneous stands of jack pine *(Pinus banksiana)* with scattered small openings. Warblers will start using a jack pine stand when the height of the tree reaches 5 to 7 feet, or at an average tree age of 5-8 years old. Nests are built on the ground, concealed in the low cover of grasses, blueberries, sweet fern, bracken fern, blackberry, trailing arbutus, and/or wintergreen. Once jack pine reaches a height greater than 18 feet (approximately 20 years old), the lower branches begin to die and the ground cover changes in composition, thereby leading to unfavorable nesting conditions. (Evers 1994). Jack pines need fire to open the cones and release seeds. All managed jack pine stands are harvested and planted or seeded mechanically to create warbler nesting habitat. Occasionally, harvested sites may be burned prior to planting or seeding."

Table 2.3
Oscoda County Element List
Michigan Natural Features Inventory

Scientific Name	Common Name	Federal Status	State Status
Accipiter gentilis	Northern Goshawk		SC
Agoseris glauca	Prairie or Pale Agoseris		T
Appalachia arcana	Secretive Locust		SC
Appalachina sayanus	Spike-lip Crater		SC
Astragalus canadensis	Canadian Milk-vetch		T
Atrytonopsis hianna	Dusted Skipper		T
Buteo lineatus	Red-shouldered Hawk		T
Cirsium hillii	Hill's Thistle		SC
Cygnus buccinator	Trumpeter Swan		T
Cypripedium arietinum	Ram's Head Lady's-slipper		SC
Dendroica discolor	Prairie Warbler		E
Dendroica kirtlandii	Kirtland's Warbler	LE	E
Dry sand prairie	Dry Sand Prairie, Midwest Type		
Dry-mesic northern forest			
Festuca scabrella	Rough Fescue		T
Gavia immer	Common Loon		T
Glyptemys insculpta	Wood Turtle		SC
Great blue heron rookery	Great Blue Heron Rookery		
Haliaeetus leucocephalus	Bald Eagle	PS:LT,PDL	T
Huperzia selago	Fir Clubmoss		SC
Incisalia henrici	Henry's Elfin		SC
Isotria verticillata	Whorled Pogonia		T
Mesic northern forest			
Prunus alleghaniensis var. davisii	Alleghany or Sloe Plum		SC
Pyrgus wyandot	Grizzled Skipper		SC
Rich conifer swamp			
Sistrurus catenatus catenatus	Eastern Massasauga	C	SC
Southern floodplain forest			
Stagnation topography	Geographical Feature		

Source: Michigan Natural Feature Inventory, Michigan State University Extension Service
*LE = Listed endangered, LT = Listed threatened, PDL = Proposed delist, PS = Partial status (federally listed in only part of its range), C = Species being considered for federal status.
** E = Endangered, T = Threatened, SC = Special concern.
Current as of 6/4/2003

Sites of Environmental Contamination

The Michigan Environmental Response Act (Part 201 of PA 451 of 1994, as amended) provides for the identification, evaluation and risk assessment of sites of environmental contamination in the State. The Environmental Response Division (ERD) is charged with administering this law. A site of environmental contamination, as identified by ERD, is “a location at which contamination of soil, ground water, surface water, air or other environmental resource is confirmed, or where there is potential for contamination of resources due to site conditions, site

use or management practices. A search of the Department of Environmental Quality's web site database found ten sites of environmental contamination in Oscoda County.

Site ID: 68000001
Site Name: Hoskins Manufacturing
Site Address: 830 E Kittle Road
City: Mio
Zip Code: 48647
County: Oscoda
Source: Metal processing
Pollutant(s): PCE TCE Chromium , Nickel Copper , Chlorides
Score: 36 out of 48
Score Date: 6/18/2004
Township: 27N Range: 03E Section: 32
Quarter: NE Quarter/Quarter: NE
Status: Interim Response in progress

Site ID: 68000002
Site Name: Oscoda Co Rd Comm Mio
Site Address: 300 8TH ST
City: MIO
Zip Code: 48647
County: Oscoda
Source: Salt Storage
Pollutant(s): Chlorides
Score: 18 out of 48
Score Date: 3/11/2004
Township: 26N Range: 02E Section: 13
Quarter: SE Quarter/Quarter: SE
Status: Inactive - no actions taken to address contamination

Site ID: 68000005
Site Name: Washout Laundry
Site Address: 200 Deyarmond St
City: Mio
Zip Code: 48647
County: Oscoda
Source: Laundry Dry Cleaner
Pollutant(s): PCE TCE , DCE
Score: 32 out of 48
Score Date: 7/28/2004
Township: 26N Range: 02E Section: 12
Quarter: SE Quarter/Quarter: SE
Status: Interim Response conducted - No further activities anticipated

Site ID: 68000006
Site Name: Washout Laundry Lagoons
Site Address: North of M-72
City: Mio
Zip Code: 48647

County: Oscoda
Source: Laundry dry cleaners
Pollutant(s): Perchlorethylene
Score: 33 out of 48
Score Date: 9/13/2005
Township: 26N Range: 02E Section: 15
Quarter: NW Quarter/Quarter: SE
Status: Inactive - no actions taken to address contamination

Site ID: 68000007
Site Name: Chlorides Res Well Fairview
Site Address: M72
City: Fairview
Zip Code: 48621
County: Oscoda
Source: Unknown
Pollutant(s): Chlorides
Score: 19 out of 48
Score Date: 6/2/2004
Township: 27N Range: 03E Section: 14
Quarter: SW Quarter/Quarter: SW
Status: Inactive - no actions taken to address contamination

Site ID: 68000011
Site Name: Mio Res Wells
Site Address: Much of community affected
City: Mio
Zip Code: 48647
County: Oscoda
Source: Unknown
Pollutant(s): Benzene; PCE
Score: 30 out of 48
Score Date: 7/28/2004
Township: 26N Range: 03E Section: 07
Quarter: SW Quarter/Quarter: SW
Status: Interim Response conducted - No further activities anticipated

Site ID: 68000013
Site Name: Don's Marathon
Site Address: 1945 East Miller (M-72)
City: Fairview
Zip Code: 48621
County: Oscoda
Source: Gasoline Service Station
Pollutant(s): 1,2,4 TMB; 1,3,5 TMB; Benzene; Ethylbenzene; Naphthalene; Toluene; Xylenes
Score: 31 out of 48
Score Date: 8/1/2006 1:50:19 PM
Township: 27N Range:03ESection:22
Quarter: Quarter/Quarter:
Status: See Leaking Underground Storage Tank Site Database
Site ID: 68000024

Site Name: Family Bookshelf
Site Address: 1511 N Abbe Rd.
City: Fairview
Zip Code: 48621
County: Oscoda
Source: Gasoline Service Station
Pollutant(s): 1,2,4 TMB; 1,3,5 TMB; 2-Methylnaphthalene; Benzene; Ethylbenzene; Naphthalene; Toluene; Xylenes
Score: 34 out of 48
Score Date: 7/31/2006 8:41:04 AM
Township: 27N Range:03ESection:15
Quarter: Quarter/Quarter:
Status: See Leaking Underground Storage Tank Site Database

Site ID: 68000026
Site Name: Mio Cleaners former
Site Address: 109 East 10th Street
City: Mio
Zip Code: 48647
County: Oscoda
Source: Laundry Dry Cleaner
Pollutant(s): PCE
Score: 34 out of 48
Score Date: 7/28/2004 2:46:32 PM
Township: 26N Range:03ESection:18
Quarter: NWQuarter/Quarter: NW
Status: Interim Response conducted - No further activities anticipated

Discharge Permits

Surface Water - National Pollution Discharge Elimination (NPDES) Facilities

Anyone discharging, or proposing to discharge, waste or wastewater into the surface waters of the State is required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES program is intended to control direct discharge into the surface waters of the State by imposing effluent limits and other conditions necessary which meet State and federal requirements. The NPDES program regulates pollutants discharged directly into waterways from wastewater sources. The lists below show NPDES permits issued in Oscoda County. See **Table 2.4.**

Air Discharge Permits

Table 2.5 shows the Renewable Operating Permit (ROP) Air Discharge Permits issued in Oscoda County. The ROP program is a national permitting system administered by each state. Each major source of pollution is subject to the program. A "major source" is a facility that is capable of emitting more than specific amounts of air contaminants.

Table 2.4: NPDES Permits			
Facility Location Name	**Address**	**Permit No.**	**Expiration**
Ausable Valley Nursing Home Incorporated	1390 Maple Drive	GW186800102	7/1/2007
Big Creek/Mentor Utility Authority	1048 East 8th Street	GW1810100	6/1/2014
Consumers Energy Company	Pond Drive, Route 1	MIG250381	4/1/2013
Cooper Standard Automotive	526 East Miller Road	MIS410709	4/1/2014
Copper Standard Automotive-Fairview Division	2799 East Miller Road	NEC157068	8/4/2016
Garland Resort	4700 North Red Oak Road	GW1810209	12/1/2012
M-33	M-72 north of Mio from south of Popps Road to	MIR110449	9/24/2012
M-72	East of M-33 to east of Crooked Lake Road	MIR110726	5/28/2013
Oscoda County Road Commission	countywide roads	GW1510240	4/1/2015
Valley Road	from Mapes Road to M-33	MIR110368	7/26/2012
Ausable Valley Nursing Home Incorporated	1390 Maple Drive	GW186800102	7/1/2007
Big Creek/Mentor Utility Authority	1048 East 8th Street	GW1810100	6/1/2014
Consumers Energy Company	Pond Drive, Route 1	MIG250381	4/1/2013
Cooper Standard Automotive	526 East Miller Road	MIS410709	4/1/2014
Copper Standard Automotive-Fairview Division	2799 East Miller Road	NEC157068	8/4/2016
Garland Resort	4700 North Red Oak Road	GW1810209	12/1/2012
M-33	M-72 north of Mio from south of Popps Road to	MIR110449	9/24/2012
M-72	East of M-33 to east of Crooked Lake Road	MIR110726	5/28/2013
Oscoda County Road Commission	countywide roads	GW1510240	4/1/2015
Valley Road	from Mapes Road to M-33	MIR110368	7/26/2012
Source: State of Michigan Department of Environmental Quality			

Table 2.5: Air Discharge Permits
Breitburn Operating LP - Elmer Fudd East
Source: State of Michigan Department of Environmental Quality

Chapter 3 – Community Profile

Population

The 2010 Census showed that Oscoda County experienced a population decrease from 2000 to 2010 of 8.3 percent of its population (778 people). The county population density is 15.1 persons per square mile. The county population has increased by 150 percent since 1960 (an increase of 5,193 people) with the population peaking in 2000.

Population by Municipality

Between 2000 and 2010, population loss was experienced by most municipalities in Oscoda County with the exception of Elmer Township which experienced a slight population increase of 3.9 percent. The highest percentage losses were experienced by Big Creek Township (16.4 percent) and Clinton Township (13.7 percent). The Mio CDP lost a population total of 190 persons.

Table 3.1
Population For Oscoda County & Municipalities, 2000-2010

Municipality	2000 Population	2010 Population	Percent Change	Numeric Change
Oscoda County	**9,418**	**8,640**	**-8.3%**	**-778**
Big Creek Township	3,380	2,827	-16.4%	-553
Clinton Township	511	441	-13.7%	-70
Comins Township	2,017	1,970	-2.3%	-47
Elmer Township	1,095	1,138	3.9%	43
Greenwood Township	1,195	1,121	-6.2%	-74
Mentor Township	1,220	1,143	-6.3%	-77
Mio CDP*	2,016	1,826	-9.4%	-190

Source: U.S. Bureau of the Census
Note: Red text indicates decline; green text indicates an increase
Population counts appear as part of another municipality in the county.

Seasonal Population

In 2010, the Census reported that 51.6 percent of the housing units in the county were seasonal. Obtaining accurate numbers of seasonal residents and tourists is difficult. Because the decennial U.S. Census is conducted in April, the numbers only reflect those persons who live in the county on a year-round basis. A rough estimate of the number of county seasonal residents can be calculated by multiplying the number of county seasonal housing units (4,704) by the county's average number of persons per household (2.27), for a total of 10,678 persons. Seasonal residents, therefore, bring the total county residents to 19,318 compared to the actual 2010 Census figure of 8,640 persons. This figure does not include those seasonal visitors or tourists staying in area motels, campgrounds or family homes. It is impossible to obtain accurate count of the number of the tourists who annually visit the county

Age Distribution

2010 Census data shows that 57 percent of Oscoda County's population was 45 years old or older, a 58 percent increase since 2000 (see **Table 3.2 and Figure 3.1**). The shift towards an older population could be due to the existing residents getting older along with in migration of retirees. The age group 45-64 is the most populous age group in all municipalities in Oscoda County. Most municipalities are similarly represented in the age groups. However, Elmer Township and the Mio CDP have fewer 65+ residents than the rest of the county. Clinton Township has the highest percentage of the 45-64 year old age group.

Increase in the median age is also evidence of a relatively stable population that is getting older. The median age of residents in Oscoda County increased from 43.7 to 49.7 during the period 2000-2010, (see **Table 3.2**)**.** At the same time the State's median age increase from 35.5 to 38.9 years. The difference in median age between the County and State increased from 1990 to 2010 as the County's population make-up "ages" at the faster rate. Greenwood Township and Clinton Township have the highest median age (54.3 and 54.0 respectively) while Elmer Township has the lowest at 41.8 – not far off the state average.

In conclusion, shifts in the County's demographic make-up are changing the population structure. Long term trends in the increase in median age continue at a faster rate than the State of Michigan and US. The rate has increased with the down turn in the economy, as young families move to other areas for employment. An aging population needs access to social and medical services. The county's emergency response services will experience an increase in demands.

Figure 3.1

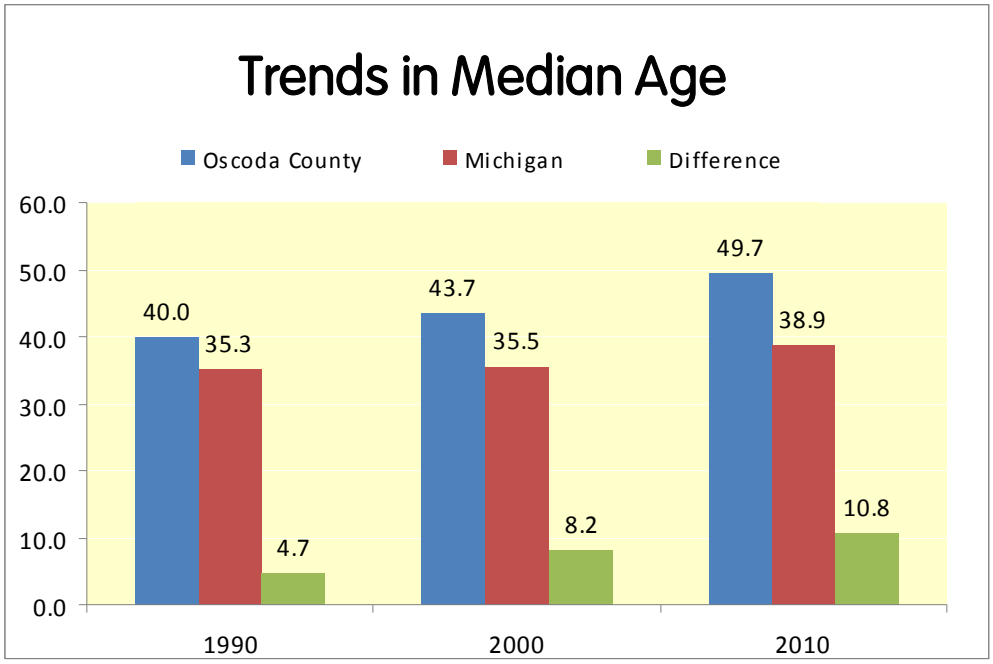


Table 3.2
Age Distribution By Municipality For Oscoda County - 2010

Community	< 5 Yrs.	%*	5-19 Yrs.	%*	20-24 Yrs.	%*	25-44 Yrs.	%*	45-64 Yrs.	%*	65 Yrs. & >	%*	Median Age
Oscoda County	**431**	**5.0**	**1489**	**17.2**	**365**	**4.2**	**1456**	**16.8**	**2865**	**33.2**	**2034**	**23.5**	**49.7**
Big Creek Township	132	4.7	474	16.7	117	4.1	500	17.7	978	34.6	626	22.2	49.3
Clinton Township	10	2.3	58	13.2	14	3.2	70	15.8	179	40.7	110	24.9	54.0
Comins Township	113	5.7	380	19.2	69	3.5	316	16.1	613	31.1	479	24.3	49.2
Elmer Township	98	8.6	244	21.4	72	6.3	182	16.0	342	30.1	200	17.5	41.8
Greenwood Township	38	3.4	156	13.9	44	3.9	170	15.2	388	34.6	325	29.0	54.3
Mentor Township	40	3.5	177	15.5	49	4.3	218	19.1	365	31.9	294	25.8	51.1
Mio CDP*	110	6.0	363	19.9	98	5.4	374	20.4	551	30.1	330	18.1	43.1
Michigan		**6.0**		**20.8**		**6.8**		**24.7**		**27.9**		**13.8**	**38.9**

*Figure shows the percentage each age grouping represents of the local unit's total population.
Source: U.S. Bureau of the Census

Disability Status

While data relating to disabled status is not currently available for Alcona County, the data shown on Table 3.3 gives an indication of the number of disabled people residing in Northeast Michigan. A person was classified as having a disability if they had a sensory disability, physical disability, mental disability, self-care disability, going outside the home disability or an employment disability. Over 38 percent of the population aged 21+ are classified as having a disability in Northeast Michigan.

Table 3.3
Disability Status in 8-county region* 2005-2007

% of Population with a disability age 21-64	21.0%
% of Population with a disability age 64+	17.4%
% of Population with a disability who are employed (Ages 16-64)	33.1%
% of Households with members with a disability that lives alone	28.8%

Source: American Community Survey (PUMS: Public Use Microdata)
*Region includes Alcona, Alpena, Cheboygan, Crawford, Montmorency, Oscoda, Otsego, and Presque Isle

Selected Economic Indicators for Oscoda County, MI

In Oscoda County, 2010 Census data shows a loss in population levels over the last decade. The number of people in the labor force has also dropped from 3,894 in 2000 to 3,745 in 2010. The unemployment rate has increased from 6.1 percent in 2000 to 19.3 percent in 2010. 2011 shows the unemployment rate dropping to 16.5 percent. The unemployment rate for the county has been consistently higher than region-wide, state and national rates. See **Figure 3.2.** In 2009, Oscoda County was 5th in the nation (of the 3144 counties) with the highest unemployment rate.

Table 3.4
Median Household Income: Northeast Michigan

Place	2010
Alcona County	$34,858
Alpena County	$36,242
Cheboygan County	$37,100
Crawford County	$39,665
Montmorency County	$34,447
Oscoda County	$32,346
Otsego County	$44,510
Presque Isle County	$37,383
State of Michigan	$45,413
United States	$50,046

Source: U.S. Bureau of the Census – American Community Survey

Income and Poverty

A reliable measure of the economic health of families is median household income which is the midpoint of income for all households. While all eight counties of Northeast Michigan have generally exhibited a steady increase in median income over the past several decades, Northeast Michigan still lags behind the state as a whole. **Table 3.4** presents information on the median household income for counties in Northeast Michigan. According to the U.S. Census Bureau, Oscoda County has the lowest median household income in the region. The 2010 median household income for Oscoda County was $32,346 which was 71 percent of State's median household income and 65 percent of the national median household income. In Northeast Michigan, the median household income of most counties is much lower than the State's. However, Oscoda was the only county in the region to experience an increase in the median household income from 2009 to 2010.

Generally speaking, individuals who have steady, year-round employment will tend to have higher overall incomes than those who are laid-off for part of the year. As more retirees move into the region and the local economy becomes more reliant on service and tourism job sectors, this trend of widening gaps between regional and state median household incomes is expected to continue. Lower incomes create challenges for balanced economic growth. As expenses for gas, food and housing continue to increase, families will be forced to move to areas that offer higher incomes. This could create an imbalance in the labor force necessary for positive economic growth.

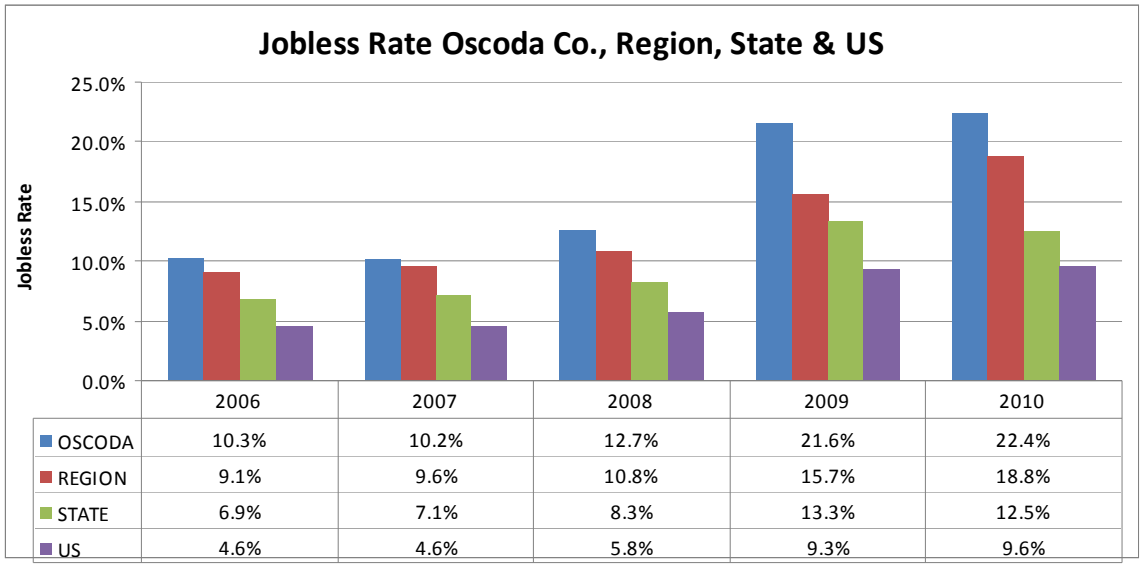
Table 3.5
Income & Benefits per Household

	2006-2010
Less than $10,000	7.6%
$10,000 - $14,999	5.1%
$15,000 - $24,999	15.3%
$25,000 - $34,999	14.2%
$35,000 - $49,999	25.1%
$50,000 - $74,999	17.3%
$75,000 – $99,999	8.3%
$100,000 +	7.2%

Source: U.S. Bureau of the Census - American Community Survey

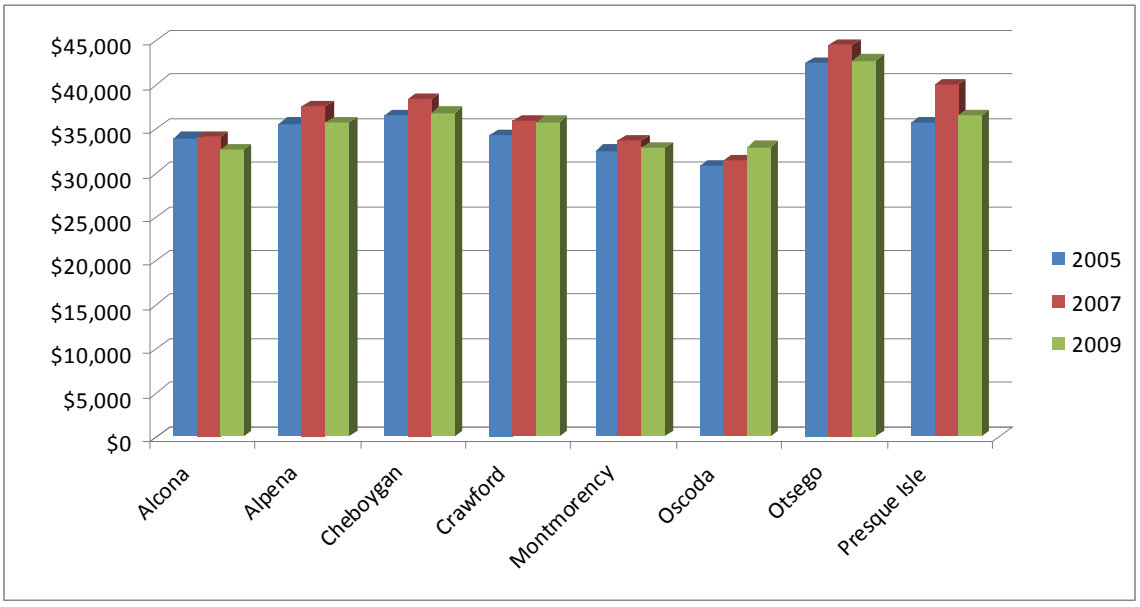
The American Community Survey estimates that median household income in Oscoda County from 2006-2010 was $32,346 **(Table 3.4**). **Table 3.5** shows that 28 percent of households in Oscoda County have a total income (plus benefits) of less than $25,000. Over 42 percent of the households have an income of less than $35,000.

Figure 3.2: Jobless Rate



	2006	2007	2008	2009	2010
OSCODA	10.3%	10.2%	12.7%	21.6%	22.4%
REGION	9.1%	9.6%	10.8%	15.7%	18.8%
STATE	6.9%	7.1%	8.3%	13.3%	12.5%
US	4.6%	4.6%	5.8%	9.3%	9.6%

Figure 3.3: Median Household Income



Poverty rates continue to be a problem in Oscoda County and the Northeast Michigan region in general. Nearly 15 percent of all families are estimated to be in poverty. When children are present, this percentage increases to 25 percent, **Table 3.6**. Again, this number increases dramatically (36.1 percent) when a female head of household is present and goes even higher (42.8 percent) when children under the age of 18 are in the household. Oscoda County had the highest poverty rates for all persons and for children of all counties in the Region.

Table 3.6
Poverty Rates 2006-2010

Category	Percent
Families	14.9
All families w/related children under 18	25.0
Married couple families	11.2
Married couple families w/related children under 18	18.2
Female householder, no husband present	36.1
Female householder, no husband present w/ related children under 18	42.8
Householder 65+ years	10.9
Source: U.S. Bureau of the Census – American Community Survey	

Agriculture

According to the Michigan Department of Agriculture 2009 Survey, there were 136 farms with 21,801 acres of farmland in Oscoda County. The 2009 survey found annual value of agricultural production was $7,620,000 with $4,494,000 in livestock sales, $2,717,000 in dairy production, and $409,000 in crop sales. The Amish and Mennonite farm communities are central to the county's agricultural base. **Table 3.7 and 3.8**

Table 3.7
2009 Agricultural Survey Oscoda County

Agricultural Lands	**Amount**
Total number of farms:	136
Total farmland:	17,579 acres (4.9% of total area)
Forage/pasture/non-crop farmland:	4,582 acres (26.1% of farmland)
Number of farms using organic production:	3 (3 certified organic farms)
Cropland in transition to organic:	265 acres
Area of greenhouse/nursery operations	18,000 sq. ft.
Local Distribution	**Amount**
Farmers' markets:	1
U-pick farms /On-farm markets:	0
Farms using Community Supported Agriculture:	0
Value of direct-to-consumer farm product sales:	$134,000
Local food production index:	27
Agricultural Revenues	**Amount**
Total market value of agriculture production	$4,903,000
Total crop sales	$409,000
Total livestock sales	$4,494,000
Michigan Department of Agriculture – July 2009	

Table 3.8 Major Crops in Oscoda County		
Key Products	**Production**	**Revenues**
Corn, soy, and wheat	957 acres (5.4% of cropland)	$16,000
Vegetables	27 acres (0.2% of cropland)	not available
Fruit and tree nuts	3 acres (0.1% of cropland)	not available
Dairy farms	16 farms (0.7% of all in MI)	$2,717,000
All animal operations	125 operations (6,611 animals)	
Michigan Department of Agriculture – July 2009		

Housing Stock

Housing characteristics from the 2010 US Census are presented in **Table 3.9**. The Census found 9,118 housing units with 3,772 units occupied and 5,346 units vacant. Big Creek Township has the most housing units at 3,140 units. Oscoda County has a high percentage of seasonal housing units (51.6 percent) with Greenwood Township having 62 percent of housing units considered seasonal. Comins Township and Mio CDP have relatively low seasonal housing rates at 29.6 and 23.6 respectively. Communities with, lakes, rivers and considerable private forestlands tend to have higher numbers of seasonal housing units. Communities with high numbers of seasonal housing present unique challenges when mitigating hazards. Given their geographic location, structures are more vulnerable to wildfires and flooding hazards.

Table 3.9
Housing Counts and Occupancy Status in Oscoda County

Area Name	2010					
	Total	Occupied	Vacant	Percent Vacant	Seasonal	* Percent Seasonal
Oscoda County	**9,118**	**3,772**	**5,346**	**58.6**	**4,704**	**51.6**
Big Creek Township	3,140	1,289	1,851	58.9	1,625	51.8
Clinton Township	568	210	358	63.0	321	56.5
Comins Township	1,302	788	514	39.5	385	29.6
Elmer Township	990	419	571	57.7	521	52.6
Greenwood Township	1,701	520	1,181	69.4	1,054	62.0
Mentor Township	1,417	546	871	61.5	798	56.3
Mio CDP*	1,211	804	407	33.6	286	23.6

* Percent of total housing
Source: US Census Bureau

Information found in **Table 3.10** a shows the year that housing units were built in Oscoda County. Generally speaking, the older a housing unit is the more it is likely to be in need of rehabilitation. As a rule of thumb, any housing unit that is older than 50 years may be in need of at least some, if not a great deal of renovation. Over 28 percent of the housing in Oscoda County was built prior to 1960 with at least six percent having been built prior to 1940. However, over 18 percent of the housing stock in Oscoda County was built after 1990.

Table 3.10
Year Structure Built - Oscoda County

Year Structure Built	Units
2000 or later	5.2%
1990-1999	13.1%
1980-1989	14.9%
1960-1979	38.6%
1940-1959	22.0%
1939 or earlier	6.1%
Source: American Community Survey 2010	

Chapter 4 - Land Use Characteristics

Land Divisions and Ownership

Most of the private ownership is divided into tracts 10 acres or larger. Large hunt clubs, owning several sections of land are common in the northeast part of the county. Small lots and subdivisions can be found within the communities of Mio, Comins, Fairview, Luzerne and McKinley; and around the many lakes within the County. Land divisions over the last two decades have primarily entailed dividing up large tracts into five and ten acre parcels.

The Huron National Forest occupies most of the southern half of Oscoda County, while the northwest corner of the county is in State ownership, see **Figure 4.1**. The US Forest Service owns 147,885 acres or 231 square miles of Oscoda County. This is all within the Huron National Forest, which occupies the entire southern half of the county and stretches into neighboring counties. State ownership in the county equals 55,000 acres or 86 square miles. Primarily due to these two large holdings, 57 percent of the land is in public ownership and 83 percent of the county is forested.

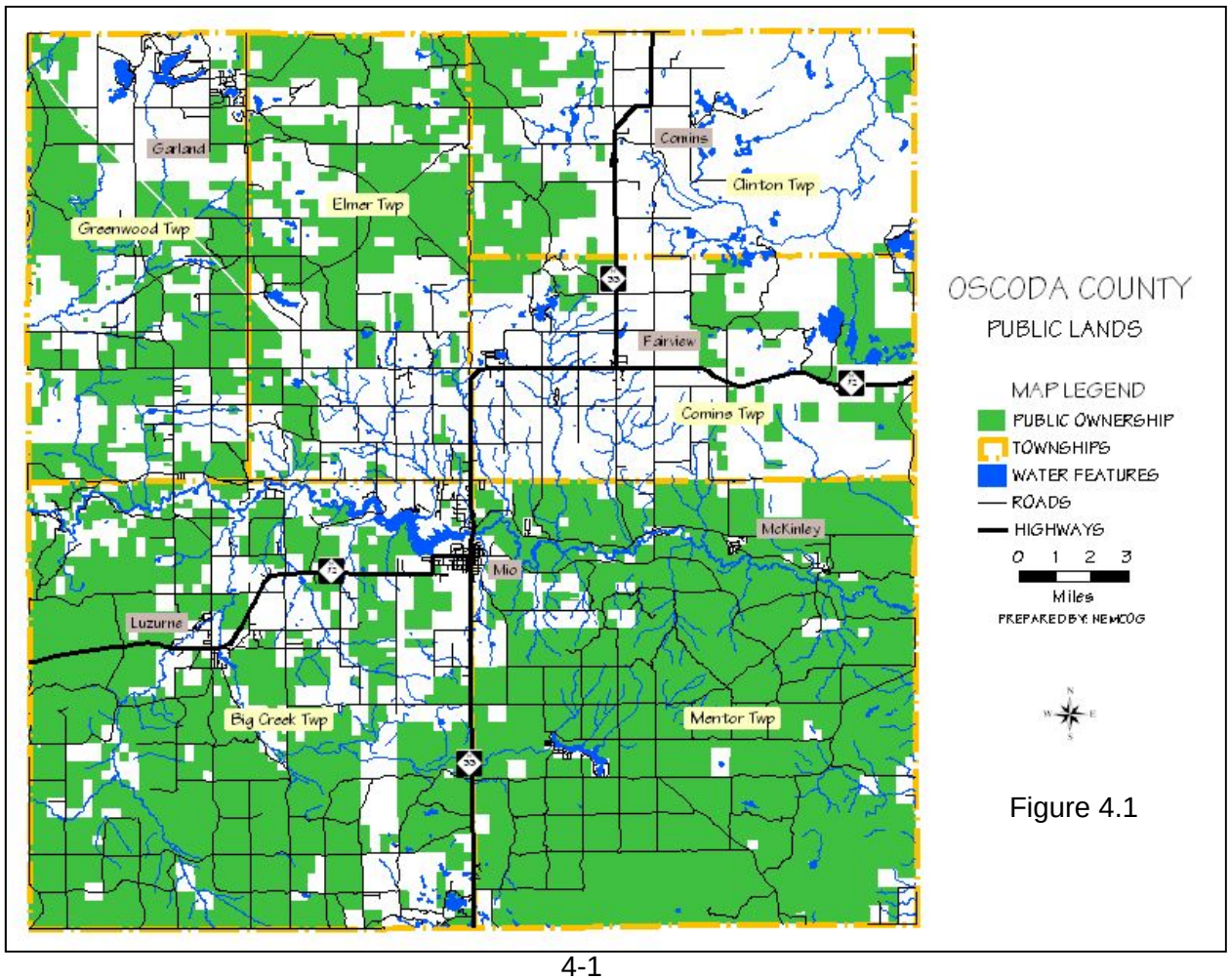


Figure 4.1

Land Cover/Use

With the economic downturn in 2007, minimal development has occurred in the county. Therefore, no significant changes in development have occurred since the previous plan was completed.

In 1978 a countywide land cover use inventory was completed under the Michigan Resource Information System of the Michigan Department of Natural Resources. This is the only countywide land use inventory ever completed. The map of 1978 land cover use, shown as **Figure 4.2**, illustrates the distribution of land uses throughout the County. **Table 4.1** is a listing of the land cover/use categories by acreage. Upland forest, mainly jack pine and oak forest types, was the primary land cover/use in Oscoda County. The top five largest categories included upland forest, upland openings, lowland forests, farmland, and non-forested wetlands. These five categories accounted for 97 percent of the land cover/use. While residential and commercial development has occurred since the 1978 inventory, the amount of undeveloped land is still expected to be around 95 percent of the County.

As would be expected, residential development is found mostly in or near the community of Mio, with lesser amounts of similar development in the communities of Fairview, Luzerne, Comins and McKinley. Commercial-industrial development is minimal and tends to be located in or near the communities of Mio and Fairview.

Residential

As can be seen on the Existing Use Map and table, residential use occupied almost two percent (6,401 acres) of the land in the county. As would be expected, residential development is found mostly in or near the communities of Mio, Fairview, Luzerne, Comins and McKinley. Newer, "up-scale" residential development can be found at the Garland Resort, in Greenwood Township. Seasonal residential development tends to be clustered along lakeshores and streams. As well, residential development is scattered along major roads. General trends in residential development have been construction of primary or secondary homes on lots two acres and larger. Much of the housing around the lakes, and in the county, was originally seasonal and, as is the case with much of northern Michigan, the seasonal housing is transitioning into year round dwellings.

Commercial

The largest concentrations of commercial uses are found in the communities of Mio and Fairview. Strip commercial development is also located along M-33/M-72 between Mio and Fairview. Most of the commercial land uses are service and retail in nature, catering to local residents and tourists. Small pockets of commercial uses can be found in several rural locations around the county. These rural commercial uses are typically convenience retail uses that serve the rural residents and tourists. Lands used for commercial purposes comprised less than one tenth of one percent of the county's area.

Industrial Extractive/Transportation

Land in this use category included industrial, extractive (sand and gravel pits) and transportation (airports) and accounted for less than one percent of the land area.

Institutional/Recreational
This land use includes such uses as schools, churches, cemeteries and recreational areas. This category accounts for 835 acres or 0.2 percent of the land area in the county. Approximately 57% of Oscoda County is in public ownership, most of which is in the Huron National Forest. While these lands were not mapped as recreational, the considerable amount of public land does offer residents and visitors ample area for a wide range of outdoor recreational activities such as fishing, hunting, cross country skiing and snowmobiling.

Agricultural
According to the 1978 inventory, a majority of the agricultural lands were concentrated in the center of the county, just north of Mio. The townships with the greatest percentage of agricultural lands were Elmer, Comins and Clinton, with smaller amounts found in Big Creek and Mentor. While there has been a downward trend in acreage dedicated to agricultural uses, these lands are falling idle as opposed to being developed for urban built-up uses like other parts of the state and country.

Non-Forested Uplands
The 27,898 acres (7.6 percent) of non-forested upland openings made it the second largest land cover in the county. This category consists of herbaceous open and shrub land. This land cover was scattered throughout the county with larger concentrations in the central part. Much of the non-forested land was once active farmland. Given the downward trend in acreage dedicated to farming, this category has increased over the last 25 years.

Upland Forest
The upland forest lands were the most predominant land cover in the county and accounted for 76.4 percent or 279,371acres of the county. Of the forested land, the most prevalent forest type was jack pine. Young jack pine forests provide critical nesting habitat for the globally rare Kirtland Warbler. Other forest types include red and white pine; aspen-birch; northern hardwoods, and oak-aspen.

Table 4.1
1978 Land Cover/Use of Oscoda County
Michigan Resource Information System

Category	Acres	Percent of Total
Residential	6,401.1	1.75%
Commercial	147.6	.04%
Industrial/Extractive/Transportation	868.8	.24%
Institution/Recreation	835.3	.23%
Agricultural	12,092.0	3.31%
Non-forest/upland openings	27,898.5	7.63%
Upland forest	279,371.2	76.40%
Lowland forest	22,621.3	6.18%
Non-Forested Wetlands	11,491.5	3.14%
Surface water	3,937.5	1.08%
Total	365,664.8	100%

Source: Michigan Department of Natural Resources - MIRIS: 1978

Lowland Forests and Wetlands
Wetlands include land that has sufficient water at, or near, the surface to support wetland or aquatic vegetation. These areas are commonly referred to as swamps, marshes and bogs.

The wetland category comprises non forested types such as lowland brush (tag alder and willow) and wet meadows. Non-forested wetlands accounted for 11,491acres or three percent of the county land area. Lowland forests grow on soils with a seasonally high water table and are often classified as wetlands. Lowland forests include areas that support lowland hardwoods and conifers, such as northern white cedar, black spruce, balsam fir, elm, red maple, ash and aspen species. Approximately 22,621acres or six percent of the county's total acreage was classified as lowland forest. Lowland forests are usually swampy in nature and often are classified as wetlands.

Two of the most important functions of wetlands are water quality protection and ecological corridors. As can be noted in **Figure 4.2,** the major wetland areas are adjacent to streams and lakes. The networks of wetlands receive surface water and subsurface water discharge, creating the many streams and creeks which in turn flow into the area lakes. The interconnected resources exemplify how activities distant from major water bodies can still have an impact on the water quality.

Surface Water

Oscoda County is home to 258 natural and artificial bodies of water and 219 miles of rivers and streams. Lakes and impoundments were mapped as open water and accounted for one percent of the area in the county. The county's major waterway is the Au Sable River, which cuts through the mid-point of the county on an east-west course. Mio Pond, an impoundment of the Au Sable River, is the largest water body at 944 acres in size.

Planning and Zoning

Oscoda County Planning Commission completed a master plan in 2005. Oscoda County has no zoning enforced at the county level. Three of the county's six townships have exercised their authority under state statutes to administer their own planning and zoning. They are Comins, Greenwood and Mentor Townships. These three communities have a zoning administrator, planning commission and zoning board of appeals that administer their zoning. The planning commissions are responsible for overseeing the master plan, recreation plan and zoning ordinance. The Township Boards and County Board are the governing bodies responsible for managing finances and making policy decisions. None of the communities have planning and zoning staff and rely on planning commissions to oversee planning and zoning activities. Communities do not have staff, but rely on elected officials to conduct township business.

Planning and Zoning are the principal tools that local communities have to manage growth, preserve community character, protect property values and enhance the economic viability of the area. Planning helps establish and focus the desired future of the community and zoning ordinances are used as one of the primary ways to implement the community master plan and achieve the goals of the community.

A key element of the community master plan is the future land use plan. This is the culmination of the planning process that entails an analysis of existing conditions, public input and goal setting, and finally establishing the community’s desired future. The community-wide future land use plan includes a map that depicts where the community envisions types and densities of development. As well, the plan may address important resource areas to protect. Accompanying text describes future land use categories, compatible uses, incompatible uses and development densities. Special issue areas may include utility service areas, roads, open space development and waterfront development.

The future land use plan is a policy document designed to guide land use decisions over a given planning horizon, usually 20 years. By comparison, the zoning ordinance and zoning map is a local law that regulates how property can be developed today.

Land-use planning and zoning are governmental functions critical to public safety. However, because these functions are political as well, they are subject to intense differences of opinion and to public controversy. Therefore, they tend to lag behind development until the problem becomes aggravated. Being political they are also subject, even after enactment into law, to pressures for variances and modifications. With few exceptions, they cannot be made retroactive and, consequently, older developments are not much affected by them. Where land-use planning and zoning have been enforced, however, they have achieved significant degrees of fire safety (Oreg. St. Dep. For. 1978b, San Bernardino County Bd. Sup. 1974).

While building codes provide guidance on how to build in hazardous areas, planning and zoning activities direct development away from these areas, especially floodplains and wetlands. They do this by designating land uses that are compatible to the natural conditions of the land, such as open space or recreation in a flood plain, or by simply allowing developers more flexibility in arranging structures on a parcel of land through the planned development approach.

Capital improvement plans guide major public expenditures for communities for the next 5 to 20 years. Capital expenditures may include creating access roads and fire breaks, hazardous fuels reduction projects including community vegetation management, vegetation removal, and vegetation clearing and/or thinning, and retrofitting existing public structures against wildfire, etc.

Master plans, including the future land use plan, are implemented through zoning, capital improvement programs and recreation planning. Zoning is the primary tool used by most communities to implement their master plan. Zoning regulates the type, intensity and location of development in a community. As such, zoning provides communities a means to implement hazard mitigation strategies for land use development, which may include standards for private/public road construction; driveway standards; requirements for developments (such as subdivisions, condominium, commercial, recreational and industrial) to have two egress ingress roads; and house addresses to be displayed on 911 signs at the driveway end.

Another important zoning tool available to communities is the Planned Unit Development (PUD). Use of PUDs provides flexibility to both the community and developer to incorporate Firewise development standards. In high risk areas, PUD standards should include use of defensible zones, fuel breaks, road and driveway design, signage for street identification, ingress and egress roads, underground utilities and vegetative maintenance for managing dangerous fuel loads in high fire risk areas.

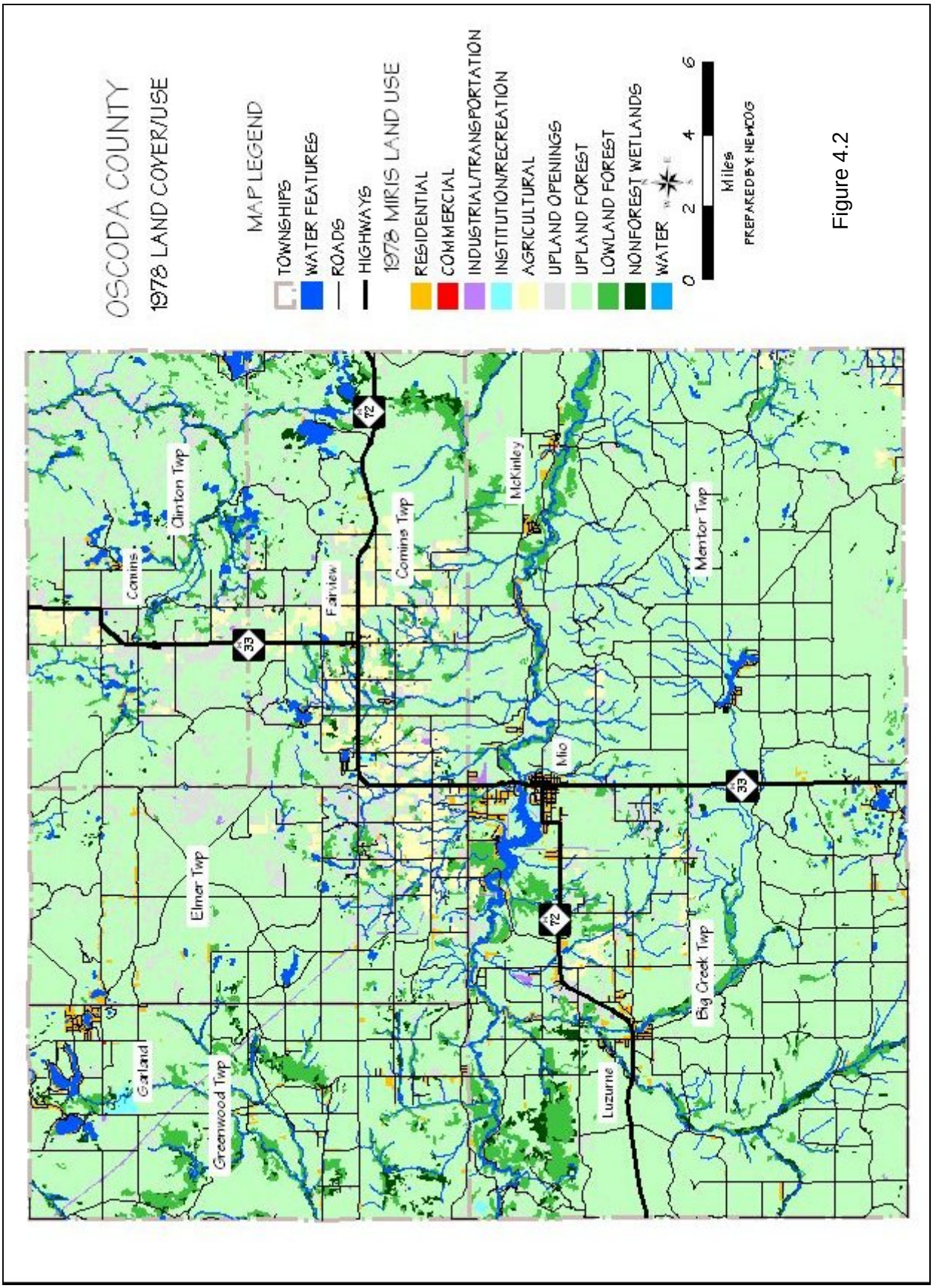

OSCODA COUNTY
1978 LAND COVER/USE
MAP LEGEND
TOWNSHIPS
WATER FEATURES
ROADS
HIGHWAYS
1978 MIRIS LAND USE
RESIDENTIAL
COMMERCIAL
INDUSTRIAL/TRANSPORTATION
INSTITUTION/RECREATION
AGRICULTURAL
UPLAND OPENINGS
UPLAND FOREST
LOWLAND FOREST
NONFOREST WETLANDS
WATER
0 2 4 6
Miles
PREPARED BY: NEMCOG
Clinton Twp
Comins
Fairview
Comins Twp
McKinley
Mentor Twp
Mio
Elmer Twp
Garland
Greenwood Twp
Big Creek Twp
Luzerne
33
72

Figure 4.2

Chapter 5 - Community Services and Facilities

County Government

The Oscoda County Board of Commissioners meets on the second and fourth Tuesday of each month, unless posted otherwise, at the Courthouse Annex, P.O. Box 399, Mio, MI 48647, telephone (989) 826-1130. The County is represented by Five Commissioners. During 2003-2004 the County Commissioners are Joe Stone, Chair; Michael Hunt, Vice-Chair; Tom Trimmer, and Richard Monk. Secretary to the Board is Brenda Moore, PO Box 399, Mio, 48647, (989) 826-1130.

County Officials

County Clerk/Register	PO Box 399, Mio, MI 48647	(989) 826-1110
Treasurer	PO Box 399, Mio, MI 48647	(989) 826-1112
Board Secretary	PO Box 399, Mio, MI 48647	(989) 826-1130
Sheriff	PO Box 129, Mio, MI 48647	(989) 826-3214
Prosecuting Atty.	PO Box 399, Mio, MI 48647	(989) 826-1119
Friend of the Court	Box 837, Tawas City, MI 48764	(989) 362-1424
23rd Circuit Court	PO Box 399, Mio, MI 48647	(989) 826-1109
82nd District Court	PO Box 399, Mio, MI 48647	(989) 826-1106
Magistrate	PO Box 399, Mio, MI 48647	(989) 826-1106
Juvenile Court Administrator	PO Box 399, Mio, MI 48647	(989) 826-1108
Probation Officer	311 Morenci St., Mio, MI 48647	(989) 826-2285
Probate Judge	PO Box 399, Mio, MI 48647	(989) 826-1107
Equalization Director	PO Box 399, Mio, MI 48647	(989) 826-1103
Road Commission Mgr.	PO Box 760, Mio, MI 48647	(989) 826-3218
Building Inspector	PO Box 399, Mio, MI 48647	(989) 826-1165
Housing Commission	PO Box 399, Mio, MI 48647	(989) 826-1167
Emergency Management	PO Box 333, Mio, MI 48647	(989) 826-1191
Health Department #2	630 Progress, West Branch, MI 48661	(989) 345-5020
County Office	393 S Mt. Tom Rd., Mio, MI 48647	(989) 826-3970
Oscoda County Park	1110 Jay Smith Drive, Mio, MI 48647	(989) 826-5114
Library Director	430 W. Eighth St., Mio, MI 48647	(989) 826-3613
MSU Cooperative Extension	PO Box 69, Mio, MI 48647	(989) 826-1160

Township Government

Oscoda County has six townships and no incorporated city or village

Big Creek Township, 1175 Ryno Rd., Luzerne, 48636, (989) 826-5992
Clinton Township, 4232 Abbe Road, Comins, MI 48619, (989) 848-8138
Comins Township, 2090 East Miller, Fairview, MI 48621, (989) 848-5811
Elmer Township, 863 West Kittle Road, Mio, MI 48647, (989) 826-3451
Greenwood Township, 4030 Williams Rd. P.O. Box 129, Lewiston, MI 49756, (989) 786-7872
Mentor Township, 216 East 10th Street, Mio, MI 48647, (989) 826-5414

Other Agencies in Oscoda County

Oscoda County FIA, 200 W. Fifth St, Mio, MI 48647 (989) 826- 826-4000

Michigan Works!, 1329 South Mt. Tom St., PO Box 608, Mio, MI 48647, (989) 826-6107
Oscoda County Chamber of Commerce, PO Box 670, Mio, MI 48647, (989) 826-3331
Economic Development Alliance of Oscoda County, 201 S. Morenci, Mio, MI 48647, (989)826-5777
Oscoda County Library, 430 W. Eighth St., Mio, MI 48647, (989) 826-3613
USFS Mio Ranger Station, 401 Court Street, Mio, MI 48647, (989) 826-3252
DNR Mio Field Office, 191 South Mt. Tom, P.O. Box 939, Mio, MI 48647, (989) 826-3211.

Public Safety

Law Enforcement: The only local Law Enforcement agency in Oscoda County is the Sheriff Department, located at 301 Morenci, P.O. Box 129, Mio, MI 48647, telephone number (989) 826-3214. The County 911 system is co-located in the Sheriff Department. Oscoda County does "not" have a jail. The County relies on a small holding cell while contracting detention services with other counties. The County receives Michigan State Police support from the Alpena Post Headquarters.

Emergency Medical Services: Oscoda County maintains its own Emergency Medical Services, headquartered at Morenci Street, Mio, MI 48647, telephone number (989) 826-1131.

Fire Services: Oscoda County has five Fire Departments consisting of Fairview FD, Greenwood FD, Luzerne FD, McKinley FD and Tri-Townships FD. Table 5.1 provides additional information on community fire departments. Additionally, wild fire protection on National Forest and State Forest land is coordinated by the USFS Mio Ranger Station, located at 401 Court Street, Mio, MI 48647, telephone (989) 826-3252; and the DNR Mio Field Office, located at 191 South Mt. Tom, P.O. Box 939, Mio, MI 48647, telephone (989) 826-3211.

Medical Facilities

There are no hospitals located in Oscoda County. The AuSable Valley Health Center, located at 1392 Maple Drive in Fairview. The Alcona Health Center is located in Lincoln and the VA Health Center is located in Oscoda. Additionally, there are doctor's offices in Mio and Fairview. For health care services not available at these facilities, residents travel to Alpena General Hospital in Alpena, Grayling Mercy Hospital in Grayling, Tollfree Memorial Hospital in West Branch, Tawas St. Joseph Hospital in Tawas City and Munson Medical Center in Traverse City.

District Health Department #2 is often able to fill health care needs of the community, which are not available or affordable elsewhere. The Health Department service area includes Alcona, Iosco and Oscoda Counties. Programs offered by the Health Department fall under three categories: home health care services, environmental health services and personal health services. AuSable Valley Community Mental Health provides support services to developmentally disabled persons as well as persons needing mental health services.

Utility Services

Due to the large amount of public land and internal parcels (parcels in the center of a section that do not abut a public road), utility services are lacking in some areas of the County. Costs of providing telephone service to isolated residences can be prohibitively high. Since these landowners must pay the cost of running the lines, some have chosen not to bear the expense, instead relying on cellular telephones.

The Big Creek Mentor Utility Authority provided public water and sewer services to portions of the community of Mio. Residents and business owners in the remainder of the County must rely on on-site private wells for domestic drinking water needs and private on-site septic systems for wastewater disposal. District Health Department # 2 regulates and maintains a permitting system for private wells and septic systems.

Detroit Edison provides natural gas service within the community of Mio, and north and south along County Road F-41. Frontier provides telephone service to the largest geographic area of the County. Consumer's Energy provides electricity to the developed areas within the County.

Table 5.1
Fire Departments Serving Oscoda County

Fairview FD, 1947 E Miller Rd., Fairview, MI 48621 New Equipment: 1 small light tower, putting together new tanker anticipated ready summer 2012 Staff: 15 volunteers Budget: $36,058 Service Area: 144 sq. mi. Population Served: 2,600
Luzerne FD, 2284 Deeter Rd, Luzerne New Equipment: '04 Chevy Silverado truck, 2 1/5 ton tanker, thermal imager, 3 800 MHz radios, 6 mobile & 18 handheld VHF radios, 18 pagers Staff: 20 volunteers Budget: $52,000 Service Area: 143 sq. mi. Population Served: 3,100
McKinley FD, 4725 McKinley Rd., McKinley New Equipment: 3 800 MHz radios, 4 or 5 portable VHF radios, 10 mobile radios, 10 pagers Staff: 10 volunteers Budget: $20,000 Service Area: East of Abbe Rd to Cherry Creek Rd to the Alcona/ Oscoda Co line to Mack Lake Population Served: 500 houses & cabins, approx. 250 fulltime residents
Greenwood FD, 3108 West Kneeland Road, Lewiston, MI New Equipment: Staff: Budget: Service Area: 108 square miles Population Served: 1,100
Tri Town FD, 1508 W 11th St., Mio New Equipment: '88 1500gal pumper, '08 Freightliner 3,600 gal vacuum tanker, 3 800 MHz radios, Location for & use of '88 Chevy 5/4 ton pickup truck belonging to DNR Staff: 16 volunteers Budget: $70,000 Service Area: 166 sq. mi. Population Served:

Schools

Oscoda County is within the Crawford, Ogemaw, Oscoda and Roscommon (COOR) Intermediate School District. The County is part of four school districts. These include Mio-AuSable School District, Fairview Area School District, West Branch-Rose City Area School District, and Johannesburg-Lewiston Area School District. The Fairview Area schools include K-12 and are located at 1879 Miller Road, in Fairview. There were 343 students enrolled during the 2010-2011 school year. Mio-AuSable schools include K-12 and are located in Mio at 1110 West Eight Street. During the 2002-2003 school there were 649 students enrolled in the school. Schools for the other two school districts are located outside the county. Other schools include the Mio Head Start, located at 574 River Road in Mio.

Special Populations

Nursing Homes and Adult Foster Care Facilities

AuSable Valley Community is located at 1390 Maple Drive in Fairview. The facility has 62 beds.

Beechwood CLF, 214 Hughes Lake Road, Rose City, Oscoda County. The facility is licensed as a small group facility with a capacity of six residents.

County House AFC, 279 N. Mt. Tom Road, Mio, Oscoda County. The facility is licensed as a medium group facility with a capacity of 12 residents.

Hanson's AFC, 279 N. Mount Tom Rd., Mio, MI 48647 1-989-826-3019

Roads and Highways

The major north-south highway in Oscoda County is State Route M-33, which cuts through the center of northeastern Michigan and connects county residents with Interstate 75 to the south, a distance of approximately 35 miles from Mio (see figure below). The county's major east-west route is M-72, which connects the county with Grayling and I-75 to the west and with Harrisville and Lake Huron to the east. Other significant roads include County Road 608, which runs east-west through Greenwood and Elmer Townships; County Road 489, which runs north-south through Greenwood and Big Creek Townships and connects to M-72; County Road 610, which runs north-south and follows the boundary between Elmer and Clinton Townships and connects to M-72; and County Road 600, which runs east-west from M-72 through Mentor Township and connects the Mio area to the small community of McKinley. In addition, the U.S. Forest Service maintains 500 miles of roads with their territory.

Public Transportation and Rail Service

There is no countywide demand-response public transportation service available within the county. The Council on Aging, however, has bus transportation available for senior citizens and handicapped persons. No passenger or freight rail services exist within the county.

Airports

There are two private airfields (Garland Resort and Lost Creek Sky Ranch) in Oscoda County. Garland is open for public use. Oscoda County owns and operates an airstrip north of Mio. The

Dennis Kauffman County airport was recently upgraded to a 3000 ft. x 75 ft. / 914 m x 23 m asphalt runway. Several other private resorts have small grass runways for the use of their customers.

Water Transportation

During prehistoric times, Native American people used waterways as primary transportation routes. The Au Sable River was one such major transportation route. Early settlers also used the Au Sable River system to move supplies and people to the interior and haul raw materials like pine logs out to the factories located along the coastline for processing. Today the rivers are used for recreational boating, canoeing, fishing and swimming.

Community Events

Date and Sponsor:	Activities:
June Fishing Tournament & Kids Free Fishing Days Northeast Michigan Sportsman's Club	Fishing activities
May & August Mud Drags Chamber of Commerce for Oscoda County	Drag racing
4th of July Luzerne Chapter of the Chamber of Commerce for Oscoda County	Luzerne Parade Carnival, fireworks, dance
4th of July Concerned Citizens of Comins	Comins Parade Potluck, bake sale, dance
4th of July Mio Chamber of Commerce	Mio Parade Crafts, BBQ
3rd Weekend of July Oscoda County Fair board	Forestry Expo & County Fair
3rd Weekend of July Mio Chamber of Commerce	Canoe Races
1st Saturday in August Northern Michigan Mennonite Churches	North Michigan Relief Sale Breakfast - Lunch - Dinner
3rd Saturday in August McKinley Citizens	McKinley Days Parade, bed races, tractor pull, flea market
Labor Day AuSable Valley Home	Fairview Community Caring Festival 4 mile run, BBQ, softball, horseshoes
Labor Day Luzerne Chapter of the Chamber of Commerce for Oscoda County	Luzerne MDA Bingo, auction, car show, archery shoot
November Light Parade	Holiday parade

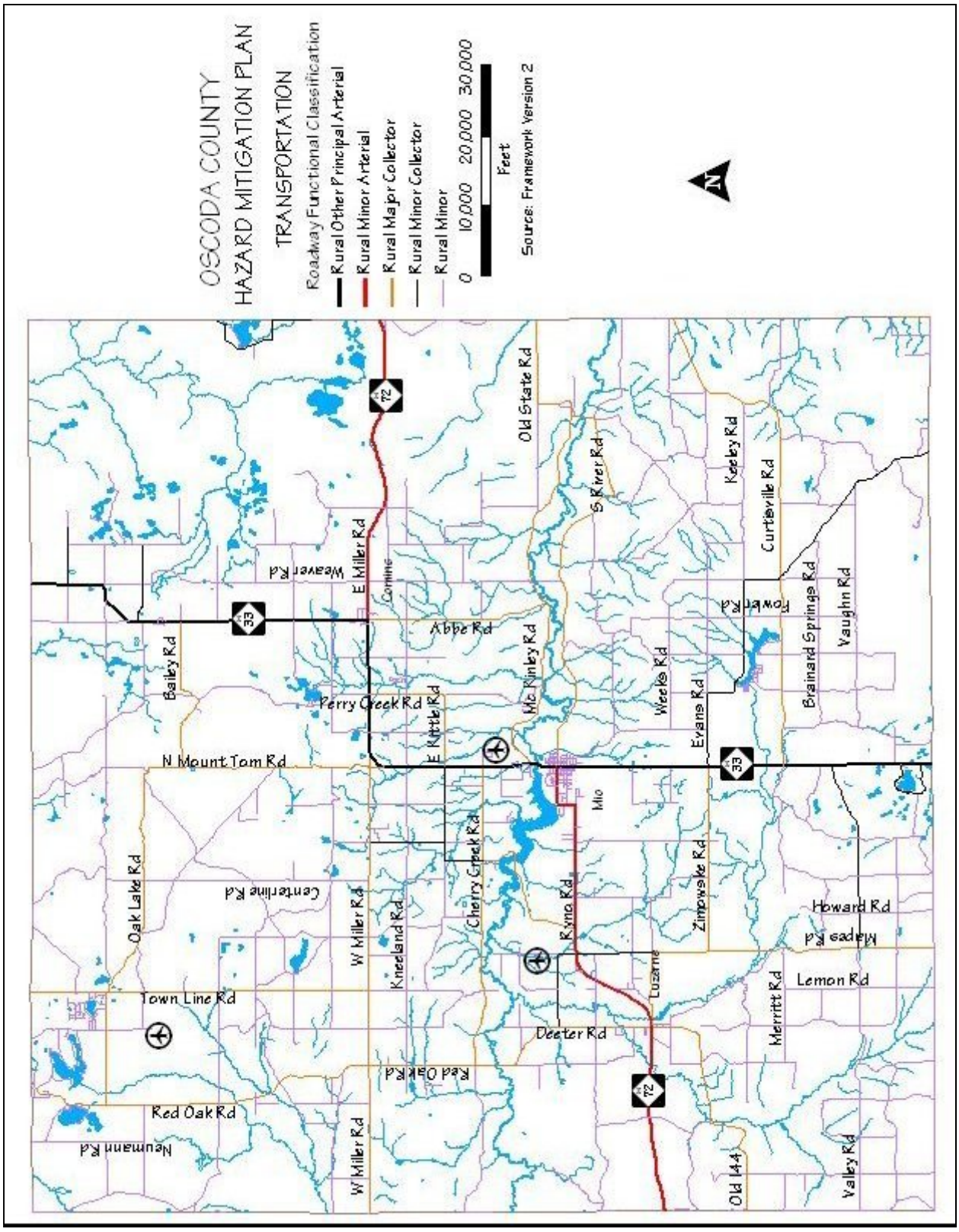
Mio Chapter of the Chamber of Commerce
for Oscoda County

Early Warning Systems

There are “no” outdoor warning sirens in Oscoda County. The County uses NOAA Weather Radio as the primary means of warning the public. The County warning system is directly related to the National Weather Service’s NOAA Weather Radio alert system and the national Emergency Alert System. In Oscoda County, it is difficult to find anywhere that one cannot receive the NOAA signal.

The NOAA transmitters are located in Alpena, Gaylord (Waters), and West Branch. Like any other radio signal, topography plays a big role. Due to hills and terrain, there will always be isolated areas that cannot pick up the signal. It is doubtful this will be corrected anytime soon. The EM Coordinator was on the committee that put the transmitter in West Branch a few years ago and it was a major undertaking. Before that, the situation was much worse.

The Emergency Alert System also broadcasts over every radio and television station in the area. The problem with EAS is even more complicated though. Many folks have satellite TV, which, of course, does not broadcast local information.


OSCODA COUNTY
HAZARD MITIGATION PLAN
TRANSPORTATION
Roadway Functional Classification
Rural Other Principal Arterial
Rural Minor Arterial
Rural Major Collector
Rural Minor Collector
Rural Minor
0 10,000 20,000 30,000
Feet
Source: Framework Version 2
N
Old State Rd
S River Rd
Keeley Rd
Curtisville Rd
Howen Rd
Brainard Springs Rd
Vaughn Rd
Weaver Rd
E Miller Rd
Coming
Abbe Rd
Mc Kinley Rd
Weeks Rd
Evans Rd
Bailey Rd
Perry Creek Rd
E Kittle Rd
N Mount Tom Rd
Mio
Oak Lake Rd
Centerline Rd
W Miller Rd
Kneeland Rd
Cherry Creek Rd
Rymo Rd
Zimmerske Rd
Howard Rd
Maples Rd
Lemon Rd
Merritt Rd
Luzerne
Deeter Rd
Town Line Rd
Red Oak Rd
Neumann Rd
Old 144
Valley Rd
72
33

Chapter 6- Hazard Identification

Overview

Oscoda County is vulnerable to a wide range of natural, technological and human-related hazards. Managing these many varied threats, and protecting life and property, are the challenges faced by emergency management officials at all levels of government. In order to attain an effective emergency management capability to mitigate, prepare for, respond to, and recover from all types of hazards, an understanding of the multitude of hazards that confront the County must first be obtained. The first step is to identify potential hazards within a community. Next, the hazards are ranked according to the relative risk to the community. The final step in the process will be to assess the level of vulnerability for each identified hazard.

When coupled with relevant community profile information, the hazard identification and vulnerability assessment becomes a powerful planning tool that enables emergency management officials to set priorities and goals for resource allocation and mitigation and preparedness activities. This process should not be considered a reliable predictor of the occurrence of any hazard. Hazards have always had an uncanny way of occurring when least expected. This section can give communities a realistic base by which to plan for mitigation, preparedness, response and recovery activities. **Figure 6.2** is a hazards map of Oscoda County.

Hazard Descriptions

Fire Hazards

Wildfires
An uncontrolled fire in grass, brush lands, or forested areas. The most immediate dangers from wildfires are the destruction of homes and timber, wildlife, and injury or loss of life to persons who live in the affected area or who are using recreational facilities in the area. Long-term effects can be numerous and include scorched and barren land, soil erosion, landslides/mudflows, water sedimentation, and loss of recreational opportunities.

Eighty percent of Oscoda County is forested. Forest types vary depending upon the soils, moisture and past activities such as logging, fires and land clearing. Jack pine, aspen-birch and oak are the most common forest types. According to the MIRIS Land Cover/Use Inventory, the most prevalent forest type is jack pine, covering over 34 percent of the county. The draughty, low fertility sandy soils, found in outwash plains and channels, supported pre-settlement jack pine forests that for thousands of years were perpetuated by wildfires. A review of the presettlement vegetation map of Oscoda County shows extensive areas were covered with pine and oak forests. Pine and oak forests covered 71 percent of the County. Jack pine forests were estimated to cover 63 percent of the county. Given jack pine is a species that coexists and in fact depends upon wildfires to regenerate new forests, one can only surmise that wildfires were common prior to the 1800's. The Oscoda County Hazards Map (**Figure 6.2**) and individual community maps at the end of the chapter show areas of highest wildfire risk, pine forests are red, oak-pine forest are orange and aspen-birch forests are yellow. Wildfires can occur in all cover types; however, these three forest types have the highest risk.

Although Michigan's landscape has been shaped by wildfire, the nature and scope of the wildfire threat has changed. Michigan's landscape has changed substantially over the last several decades as residential development continues to expand into the same historic wildfire prone areas. A 60% increase in the number of rural homes since the 1980's has increased the potential for loss of life and property from wildfires. There are simply not enough fire suppression forces available in rural areas to protect every structure from wildfire. The large number of permanent and seasonal homes in northeastern Michigan, coupled with the increase in tourists during the most dry (and therefore most vulnerable) times of the year, greatly increases the risk from wildfires.

Contrary to popular belief, lightning strikes are **not** the primary cause of wildfires in Michigan. Today, only about 2% of all wildfires in Michigan are caused by lightning strikes; the rest are caused by human activity. Outdoor burning is the leading cause of wildfires in Michigan. Most Michigan wildfires occur close to where people live and recreate, which puts both people and property at risk. The immediate danger from wildfires is the destruction of property, timber, wildlife, and injury or loss of life to persons who live in the affected area or who are using recreational facilities in the area.

Table 6.1
Number of Wildfires by County in Northeast Michigan, 2001-May of 2012
(MDNR jurisdiction only)

County	Number of Wildfires	Acres Burned
Otsego	**231**	**329**
Alcona	135	376
Alpena	135	303
Cheboygan	136	328
Crawford	224	11,819
Montmorency	110	416
Oscoda	61	256
Presque Isle	74	424

Source: Michigan Department of Natural Resources, Forest Management Division

Information from the Michigan Department of Natural Resources show there were 61 wildfires in Oscoda County from 2001 to 2012 It should be noted that the figures shown on the maps do not include those wildfires suppressed by local volunteer fire departments or the U.S. Forest Service. **Tables 6.2.1 and 6.2.2** show wildfires in Alcona County suppressed by the U.S. Forest Service between 2005 and 2010. Records show there were 28 fires that burned a total of 22.4 acres. A majority of the fires occurred in April, May and June. A graphic representation of historic wildfire data for lands under Michigan DNR jurisdiction can be found in **Figure 6.1**. The map shows between 1981 and 2000 there were 224 wildfires under MDNR jurisdiction.

Table 6.2.1
Wildfires in Oscoda County 2005 - 2010
US Forest Service Jurisdiction

Year	Twp.	Range	Sec.	Acres	Month	Day	Name
2005	0.1	25N	4E	18	4	8	Roadside
2005	2	25N	6E	20	4	10	Total Loss
2005	2	25N	2E	35	5	5	Loon Lake
2006	8.3	26N	3E	6	3	18	Frostbite
2006	3.2	25N	3E	29	4	15	Hoy Rd
2006	2	25N	2E	36	4	19	Loon Lake
2006	2	25N	2E	25	4	21	Hound Dog
2006	6.5	25N	3E	15	4	28	Friday
2006	5818	25N	2E	33	4	30	Hughes Lake
2006	0.2	26N	1E	23	6	16	Crestview
2006	6.5	26N	4E	2	7	17	Air Five
2006	0.3	26N	1E	11	9	8	Wet
2006	0.3	24N	4E	9	5	6	Maltby
2007	2	25N	4E	35	4	21	Smith Creek
2007	0.3	26N	2E	3	4	22	Donna Road
2007	0.1	23N	9E	4	4	25	Franklin
2007	0.3	26N	2E	29	6	7	Coupland Rd
2007	0.3	26N	2E	30	7	16	Wetmore Road
2007	0.1	25N	1E	14	8	11	Krit
2007	1	26N	1E	2	8	18	Deeter Park
2007	2	26N	2E	26	8	5	Mishler Rd
2007	6.3	25N	1E	11	9	29	Durfee Powerline
2008	0.1	25N	2E	6	4	7	Mapes Rd.
2008	0.3	26N	2E	35	4	21	Bronco Lane
2008	0.1	26N	3E	12	5	4	Mckinley House
2008	0.3	26N	2E	29	5	9	Powerline Trash
2006	76	26N	3E	31	5	22	M-33
2008	0.1	25N	4E	17	4	8	Driveby
2008	0.1	27N	3E	7	9	24	Wire
2009	0.5	22N	6E	29	4	15	Imperial
2009	5.9	25N	2E	14	5	2	The One
2009	0.1	27N	3E	31	5	23	Barn
2009	0.1	26N	2E	14	7	14	Marsh Drive
2009	0.1	25N	3E	30	7	17	Snag
2009	0.3	26N	4E	8	7	27	Labay
2009	0.1	26N	2E	15	8	3	Walleye Pond
2009	11.1	26N	1E	2	9	7	Deeter Rd

Source: Huron National Forest

Table 6.2.2
Wildfires in Oscoda County 2005 - 2010
US Forest Service Jurisdiction

Year	Twp.	Range	Sec.	Acres	Month	Day	Name
2009	0.1	26N	3E	5	9	20	Wilcox Rd
2010	11	26N	2E	17	4	2	Mapes
2010	20	26N	3E	30	4	3	Red Deer
2010	0.1	25N	3E	12	3	25	Mckinley Rd
2010	6	26N	3E	18	4	5	Nova
2010	0.2	26N	3E	7	4	16	Clinic
2010	0.5	26N	2E	24	4	27	Thirty Three
2010	0.5	26N	1E	27	5	12	Durfee Lane
2010	0.1	25N	2E	36	5	15	Crater
2010	8586	25N	1W	12	5	18	Meridian
2010	0.5	25N	3E	20	6	13	Gibby
2010	1	25N	2E	5	10	27	Mapes Line
2010	0.1	25N	2E	36	10	27	Hilda Lane
2011	0.5	26N	2E	15	4	15	Shell
2011	0.8	26N	2E	5	5	1	Nichols Rd
2011	0.1	25N	2E	34	5	9	Union Corners
2011	0.8	26N	2E	12	6	1	Gotts Landing
2011	0.1	26N	1E	4	6	3	Haskell
2011	0.3	26N	3E	17	9	18	Au-Sable Campground
2011	0.1	25N	3E	14	11	27	Fowler
Total	**14,587.8**						Totals from Tables 6.4.1, 6.4.2

Source: Huron National Forest

Table 6.3
Large Fire Incidents near Grayling and Mio MI

Year	Name	Acres Burned	Structures Damaged or Lost
1980	Mack Lake Fire	over 24,790 acres	1 Fire Fighter Killed 44 homes destroyed
1990	Billman Fire (i.e; Indian Glens)	615 acres	5 houses and 15 outbuildings
1990	Stephan Bridge Fire	5,916 acres	76 houses and 125 outbuildings
	Note- Stephan Bridge and Indian Glens Fires occurred simultaneously, Stephan fire burned over an 8 mile stretch in less than 4 hours		
1992	Luzerne Fire	687 acres	Destroyed several homes
2000	No Pablo Fire	5,200 acres	No structure lost
2000	Sunrise Fire	180 acres	1 out building
2001	Jacobs Fire		
2006	Hughes Lake Fire Suppression costs over 1 million	6,000 acres	23 structures
2008	Four Mile Road Fire note this fire closed I-75 for a period and interfaced with the City of Grayling	1,345 acres	4 houses,
2008	Staley Lake Fire	80 acres	0 structures
2010	Meridian Boundary Fire	8,586 acres	12 houses and 39 outbuildings
2010	Range #9 Fire	1,040 acres	4 houses, 3 commercial buildings, 1 outbuilding
	Note, Meridian and Range 9 Fires burned simultaneously		
2011	Howes Lake Fire heavy interface with residential area much potential for loss of homes with this fire	817 acres	2 outbuildings
Source: MDNR			

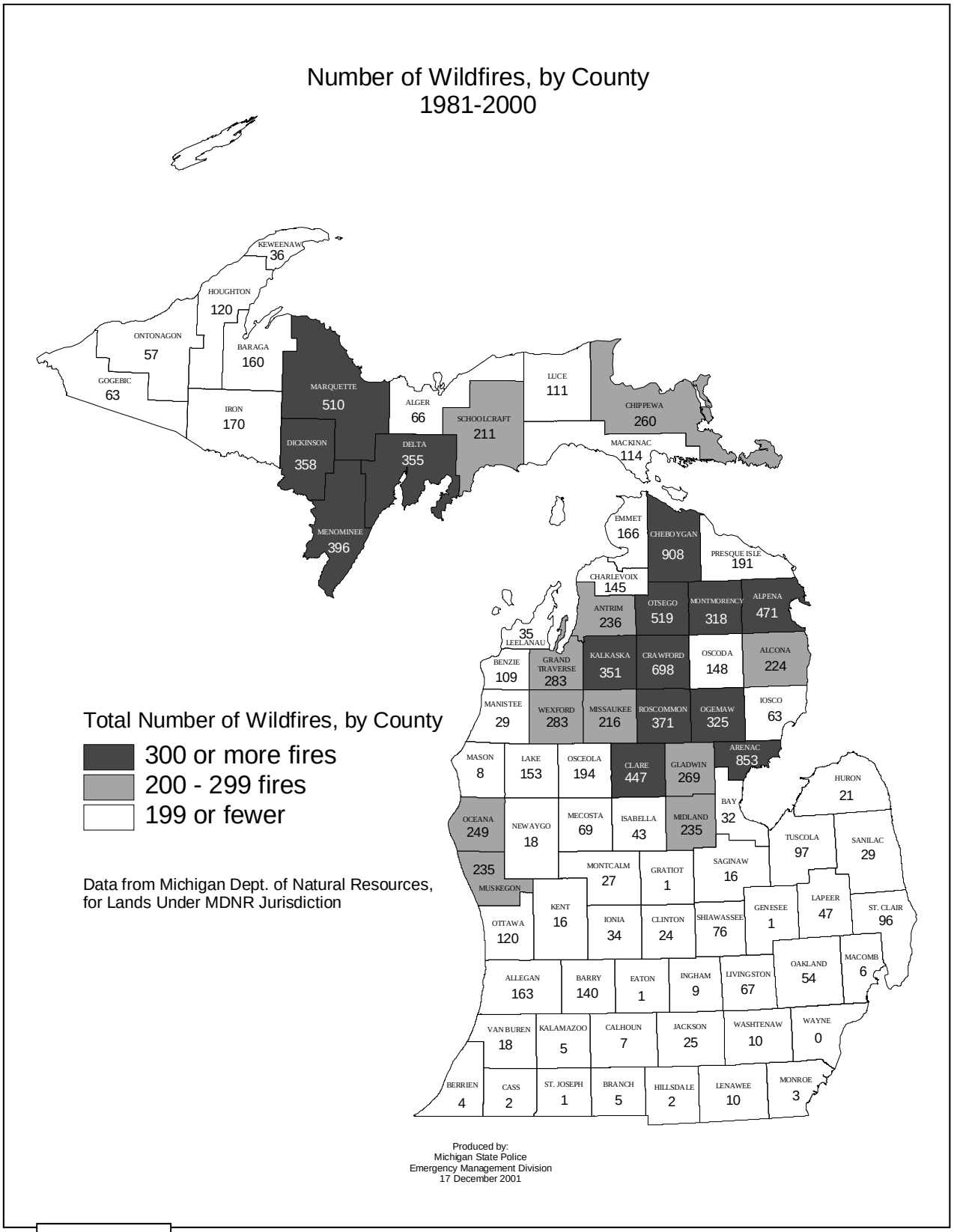

Number of Wildfires, by County
1981-2000
KEWEENAW 36
HOUGHTON 120
ONTONAGON 57
BARAGA 160
GOGEBIC 63
MARQUETTE 510
IRON 170
ALGER 66
SCHOOLCRAFT 211
LUCE 111
CHIPPEWA 260
MACKINAC 114
DICKINSON 358
DELTA 355
MENOMINEE 396
EMMET 166
CHEBOYGAN 908
PRESQUE ISLE 191
CHARLEVOIX 145
ANTRIM 236
OTSEGO 519
MONTMORENCY 318
ALPENA 471
LEELANAU 35
BENZIE 109
GRAND TRAVERSE 283
KALKASKA 351
CRAWFORD 698
OSCODA 148
ALCONA 224
MANISTEE 29
WEXFORD 283
MISSAUKEE 216
ROSCOMMON 371
OGEMAW 325
IOSCO 63
ARENAC 853
MASON 8
LAKE 153
OSCEOLA 194
CLARE 447
GLADWIN 269
HURON 21
BAY 32
OCEANA 249
NEWAYGO 18
MECOSTA 69
ISABELLA 43
MIDLAND 235
TUSCOLA 97
SANILAC 29
MUSKEGON 235
MONTCALM 27
GRATIOT 1
SAGINAW 16
KENT 16
OTTAWA 120
IONIA 34
CLINTON 24
SHIAWASSEE 76
GENESEE 1
LAPEER 47
ST. CLAIR 96
ALLEGAN 163
BARRY 140
EATON 1
INGHAM 9
LIVINGSTON 67
OAKLAND 54
MACOMB 6
VAN BUREN 18
KALAMAZOO 5
CALHOUN 7
JACKSON 25
WASHTENAW 10
WAYNE 0
BERRIEN 4
CASS 2
ST. JOSEPH 1
BRANCH 5
HILLSDALE 2
LENAWEE 10
MONROE 3
Total Number of Wildfires, by County
300 or more fires
200 - 299 fires
199 or fewer
Data from Michigan Dept. of Natural Resources, for Lands Under MDNR Jurisdiction
Produced by:
Michigan State Police
Emergency Management Division
17 December 2001

Figure 6.1

Scrap Tire Fires

Any instance of uncontrolled burning a scrap tire storage or recycling site. Each year in the U.S., an estimated 250 million vehicle tires have to be disposed of. Michigan alone generates 7.5-9 million scrap tires annually. Many of these scrap tires end up in disposal sites (legal or illegal), some of which may have several hundred thousand tires. Michigan currently has more than 24 million scrap tires at disposal sites scattered across the state. Tire disposal sites can be fire hazards due to the large quantity of "fuel" onsite, coupled with the fact that the shape of a tire allows air to flow into the interior of a tire pile, rendering standard firefighting practices nearly useless. Flowing burning oil released by the burning tires spreads the fire to adjacent areas. Some scrap tire fires have burned for months, creating acrid smoke and an oily residue which can leach into the soil, creating long-term environmental problems. Scrap tire fires differ from conventional fires in several respects: 1) even relatively small scrap tire fires can require significant resources to control and extinguish; 2) the costs of fire management are often far beyond that which local government can absorb; 3) the environmental consequences of a major tire fire can be significant; and 4) the extreme heat from the fire converts a standard passenger vehicle tire into about two gallons of oily residue, which can then leach into the soil or migrate to streams. There are no known tire storage sites in Oscoda County.

Structural Fires

Any instance of uncontrolled burning which results in structural damage to residential, commercial, industrial, institutional, or other properties in developed areas. In terms of average annual loss of life and property, structural fires - often referred to as the "universal hazard" because they occur in virtually every community - are by far the biggest hazard facing most communities in Michigan and across the country. Each year in the U.S., fires result in approximately 5,000 deaths and 300,000 injuries requiring medical treatment. According to some sources, structural fires cause more loss of life and property damage than all types of natural disasters combined. Particularly devastating are large urban conflagrations, in which multiple structures are damaged or destroyed. Not surprisingly, Michigan's structural fire experience mirrors the national figures. According to statistics compiled by the Fire Marshal Division, Michigan Department of State Police for 1998 (the last year for which statewide statistics are available), nearly 22,000 structural fires occurred in Michigan, resulting in 213 deaths and 669 injuries. Dollar losses for structural fires were estimated at nearly $400 million. The Fire Marshal Division estimated that a structural fire occurred in Michigan every 27 minutes, 37 seconds in 1998. Nationally, Michigan's fire death rate in 1996 of 21.1 persons per million population puts it in the upper third of all states in the nation.

Oscoda County, like all other rural areas of Michigan, relies on a network of township volunteer fire departments. The fire departments provide excellent firefighting services in their respective communities, and are often an element of community pride. However, the lack of full-time professional fire fighters means less time is available to conduct fire inspections and take other preventive measures necessary to lessen the structural fire threat. Out of necessity, efforts in these communities are directed at fire suppression. This typical scenario in rural areas of the state poses great challenges for maintaining a sustainable fire prevention and inspection program.

The other major challenge facing Michigan fire service is the lack of a state-mandated fire safety code and code enforcement program for all occupancies. The State enforces fire safety codes in schools, dormitories, health care facilities, and correctional facilities, plus some businesses, the remainder of the job is left to local officials. Since there is no uniform, mandated fire safety

code at the state level, a variety of local ordinances have emerged. Some communities may not have fire safety codes. This problem manifests itself more seriously in rural areas and small towns, which typically have few, if any, paid full-time fire fighters. Even if a mandated fire safety code were instituted statewide, it wouldn't totally solve the problem of structural fire prevention because the costs of compliance in existing buildings would often be prohibitive for business owners. Such a measure would, however, help ensure that new construction doesn't compound the problem.

According to the Michigan Department of State Police, Fire Marshal Division in 1998, there were 6.58 structural fires and other types of fires per 1000 persons in Oscoda. The number is above average for counties in the state with a couple of reasons likely contributing to this figure. First of all, the per 1000 population in this statistic is based on the U.S. Census year round population not the seasonal population. Given the high number of seasonal housing units (48 percent or 4,174 housing units) if the seasonal population were used the number of fires per 1000 population would be much lower. Also, given that other fires are included, the higher incidence of wildfires would inflate figures. This is not to diminish the importance of programs to reduce the number of fires and continued support of fire suppression activities.

Flooding Hazards

Dam Failures

The collapse or failure of an impoundment resulting in downstream flooding. Dam failures can result in loss of life and extensive property or natural resource damage for miles downstream from the dam. Failure of a dam does not only occur during flood events, which may cause overtopping of a dam. Failure can also result from mis-operation, lack of maintenance and repair, and vandalism. Such failures can be catastrophic because they occur unexpectedly, with no time for evacuation. The Michigan Department of Environmental Quality (MDEQ) has documented approximately 278 dam failures in Michigan.

Part 315, Dam Safety, of the Natural Resources and Environmental Protection Act (451 P.A. 1994), as amended, provides for the inspection of dams. This statute requires the MDEQ to rate each dam as either "high", "significant", or "low" hazard potential, according to the potential downstream impact if the dam were to fail (not according to the physical condition of the dam). The MDEQ has identified and rated over 2,400 dams. Dams over 6 feet in height that create an impoundment with a surface area of more than 5 acres are regulated by this statute. Dam owners are required to maintain an EAP for "high" and "significant" hazard potential dams. Owners are also required to coordinate with local emergency management officials to assure consistency with local emergency operations plans. Dams regulated by FERC, such as hydroelectric power dams, are generally exempt from this statute. The FERC licenses water power projects (including dams) that are developed by non-federal entities, including individuals, private firms, states and municipalities. Under provisions of the Federal Power Act and federal regulations, the licensee of the project must prepare an EAP. This plan must include a description of actions to be taken by the licensee in case of an emergency. Inundation maps showing approximate expected inundation areas must also be prepared. Licensees must conduct a functional exercise at certain projects, in cooperation with local emergency management officials.

Mio Dam is a FERC license hydro dam and is classified as high hazard by the Department of Environmental Quality, Land and Water Management Division. Consumers Energy has compiled inundation maps for the AuSable River below Mio and Alcona Dams. Maps show failure of the Mio Dam would flood a number of homes downstream in the McKinley area. The

company conducts functional exercises according to the Federal Power Act. There are seven other dams in the county. All are considered low hazard by the DEQ.

B. Riverine and Urban Flooding: *Riverine flooding is defined as the periodic occurrence of overbank flows of rivers and streams resulting in partial or complete inundation of the adjacent floodplain*. Riverine floods generally caused by prolonged, intense rainfall, snowmelt, ice jams, dam failures, or any combination of these factors. Most riverine flooding occurs in early spring and is the result of excessive rainfall and/or the combination of rainfall and snowmelt. Ice jams also cause flooding in winter and early spring. Severe thunderstorms may cause flooding during the summer or fall, although these are normally localized and have more impact on watercourses with smaller drainage areas. Oftentimes, flooding may not necessarily be directly attributable to a river, stream or lake overflowing its banks. Rather, it may simply be the combination of excessive rainfall and/or snowmelt, saturated ground, and inadequate drainage. With no place to go, the water will find the lowest elevations – areas that are often not in a floodplain. That type of flooding is becoming increasingly prevalent in Michigan, as development outstrips the ability of the drainage infrastructure to properly carry and disburse the water flow. Flooding also occurs due to combined storm and sanitary sewers that cannot handle the tremendous flow of water that often accompanies storm events. Typically, the result is water backing into basements, which damages mechanical systems and can create serious public health and safety concerns.

Riverine flooding, though not a common occurrence in Oscoda County, has caused damage to bridges and roadways. These events occurred in when spring snowmelt coincided with heavy prolonged rains. Riverine flooding is a problem in tributary creeks and streams of the AuSable. Mio dam controls flows of the of the main branch of the AuSable River. Ice jams are a concern on the AuSable and can cause riverine flooding. There are no documented cases of property damage due to ice jams, however, as development continues along the river side, incidents will likely happen is the future. *The Oscoda County Hazards Map, **Figure 6.2**, shows the Au Sable River and the many tributaries. Wetlands shown as dark green (National Wetlands Inventory Data) associated with waterways are high risk zones for spring time flooding.*

Pre-existing homes and businesses, though, could remain as they were. Owners of many of these older properties could obtain insurance at lower, subsidized, rates that did not reflect the property's real risk. In addition, as the initial flood risk identified by the NFIP has been updated over the years, many homes and businesses in areas where the revised risk was determined to be higher have also received discounted rates. This "Grandfathering" approach prevented rate increases for existing properties when the flood risk in their area increased.

In 2012, the U.S. Congress passed the Flood Insurance Reform Act of 2012 which calls on the Federal Emergency Management Agency (FEMA), and other agencies, to make a number of changes to the way the NFIP is run. As the law is implemented, some of these changes have already occurred, and others will be implemented in the coming months. Key provisions of the legislation will require the NFIP to raise rates to reflect true flood risk, make the program more financially stable, and change how Flood Insurance Rate Map (FIRM) updates impact policyholders. The changes will mean premium rate increases for some – but not all -- policyholders over time.

Flood Insurance Rate Maps (FIRM) will not be developed for Oscoda County. *A review of the State of Michigan database found no incidents of repetitive loss properties in Oscoda County.*

C. Shoreline Flooding/Erosion: *Flooding and erosion along Michigan's 3,200 mile long Great Lakes shoreline is typically caused by high Great Lakes water levels, storm surges, or high winds.* Shoreline flooding and erosion are natural processes that occur at normal and even low Great Lakes water levels. During periods of high water, however, flooding and erosion are more frequent and serious, causing damage to homes, businesses, roads, water distribution and wastewater treatment facilities, and other structures in coastal communities. Windstorms and differences in barometric pressure can temporarily tilt the surface of a lake up at one end as much as 8 feet. This phenomenon is called a storm surge and can drive lake water inland over large areas. Oscoda County does not border one of the Great Lakes. However, shoreline flooding and erosion can be a problem on inland lakes and streams. Erosion scares, dating back to turn of the century logging activities, can still be found on AuSable River banks. Sedimentation in river has negative impacts such as degrading fish habitat and filling hydro-electric reservoirs. Companies, agencies and conservation organizations have been working to stabilize significant erosion sites.

Other Natural Hazards

Severe Summer Weather Hazards

Hailstorms: *A condition where atmospheric water particles from thunderstorms form into rounded or irregular lumps of ice that fall to the earth.* Hail is a product of the strong thunderstorms that frequently move across the state. As one of these thunderstorms passes over, hail usually falls near the center of the storm, along with the heaviest rain. Sometimes, however, strong winds occurring at high altitudes in the thunderstorm can blow the hailstones away from the storm center, causing an unexpected hazard at places that otherwise might not appear threatened. Hailstones range in size from a pea to a golf ball, but hailstones larger than baseballs have occurred in the most severe thunderstorms. Hail is formed when strong updrafts within the storm carry water droplets above the freezing level, where they remain suspended and continue to grow larger, until their weight can no longer be supported by the winds. They finally fall to the ground, battering crops, denting autos, and injuring wildlife and people. Large hail is a characteristic of severe thunderstorms, and it often precedes the occurrence of a tornado.

The incidence of hail follows the incidence of severe thunderstorms. Therefore, those areas of the state most prone to severe thunderstorms are also most prone to large and damaging hail. Generally, severe thunderstorms that produce hail occur more frequently in the southern half of the Lower Peninsula than any other area of the state. However, damaging hail has occurred in every part of Michigan. The National Weather Service forecasts of severe thunderstorms usually give sufficient warning time to allow residents to take appropriate action to reduce the effects of hail damage to vehicles and some property. However, little can be done to prevent damage to crops.

According to the Michigan Hazard Analysis Plan: A line of severe thunderstorms that ravaged northern Lower Michigan during the weekend of September 26-27, 1998 produced hail up to 2" in diameter in Manistee County, destroying an estimated 30,000-35,000 bushels of apples at area farms. The same storm system produced tennis ball size hail north of the town of Gladwin, which damaged several homes and vehicles. In Arenac County, near Sterling, 3.5" diameter hail damaged crops and injured some livestock at area farms, and damaged several homes, satellite dishes, and vehicles.

The National Weather Service began recording hail activity in Michigan in 1967. Statistics since that time indicate that approximately 50% of the severe thunderstorms that produce hail have occurred during the months of June and July, and nearly 80% have occurred during the prime growing season of May through August. As a result, the damage to crops from hail is often extensive. According to the National Weather Service between October 2006 and May 2012 there were eight hail storm events in the county. Some of those events occurred on the same day but affected multiple communities. There were no recorded damages to personal property and crops.

Lightning: *The discharge of electricity from within a thunderstorm.* Although lightning is often perceived as a minor hazard, it damages many structures and kills and injures more people in the U.S. per year, on average, than tornadoes or hurricanes. Many lightning deaths and injuries could be avoided if people would have more respect for the threat that lightning presents. *Michigan ranks second in the nation in both lightning-related deaths and lightning-related injuries. In July of 2011, two people died and one was severely injured from a lightning strike near the community of Red Oak.*

The following information is compiled in the Michigan Hazard Analysis Plan: Statistics compiled by the National Oceanic and Atmospheric Administration (NOAA) and the National Lightning Safety Institute (NLSI) for the period 1959-1994 revealed the following about lightning fatalities, injuries and damage in the United States:

Location of Lightning Strikes
- 40% are at unspecified locations
- 27% occur in open fields and recreation areas (not golf courses)
- 14% occur to someone under a tree (not on golf course)
- 8% are water-related (boating, fishing, swimming, etc.)
- 5% are golf-related (on golf course or under tree on golf course)
- 3% are related to heavy equipment and machinery
- 2.4% are telephone-related
- 0.7% are radio, transmitter and antenna-related

Gender of Victims
- 84% are male; 16% are female

Months of Most Strikes
- July (30%); August (22%); June (21%)

Days of Most Strikes
- #1 – Sunday; #2 – Wednesday; #3 – Saturday

Time of Most Strikes
- 2:00 PM – 6:00 PM

Number of Victims
- One victim (91%); two or more victims (9%)

The NLSI estimates that 85% of lightning victims are children and young men (ages 10-35) engaged in recreation or work-related activities. Approximately 20% of lightning strike victims

die, and 70% of survivors suffer serious long-term after-effects such as memory and attention deficits, sleep disturbance, fatigue, dizziness, and numbness.

Table 6.4
Lightning-Related Deaths in Michigan: 1959-July 2001

Number of Deaths	Location	Percent of Total
28	Open fields, ball fields	28%
26	Under trees (not golf)	27%
11	Boats / water-related	11%
10	Golf course	10%
4	Near tractors / heavy equipment	4%
2	At telephone	2%
18	Other location / unknown	18%

Source: Storm Data, National Climatic Data Center

Unfortunately, lightning has taken a tremendous toll on Michigan's citizens in terms of injury and loss of life. Since 1959 when the National Weather Service began keeping such records, Michigan has incurred 99 lightning deaths, 693 lightning injuries, and 792 lightning casualties (deaths and injuries combined) – consistently ranking it near the top of the nation in all three categories. During the period 1959-1994 (the last period for which composite statistics are available), Michigan was ranked 2nd nationally (behind Florida) in lightning injuries, 12th nationally in lightning deaths, and 2nd nationally (again, behind Florida) in lightning casualties. Undoubtedly, the fact that Michigan is an outdoor recreation-oriented state contributes heavily to its high lightning death and injury tolls. As the table below indicates, Michigan's lightning deaths and injuries are fairly consistent with the national trends in terms of location of deadly or injury-causing strikes.

Severe Winds (Windstorm): According to the National Weather Service, winds in excess of 58 miles per hour are classified as a windstorm. Windstorms are a fairly common occurrence in many areas in Michigan. Along the Great Lakes shoreline, strong winds occur with regularity, and gusts of over 74 miles per hour (hurricane velocity) do occasionally occur in conjunction with a storm front. Severe windstorms can cause damage to homes and businesses, power lines, trees and agricultural crops, and may require temporary sheltering of individuals without power for extended periods of time. Windstorms occur in all areas of Michigan, although more often along the lakeshore and in central and southern Lower Michigan.

Severe winds spawned by thunderstorms or other storm events have had devastating effects on Michigan in terms of loss of life, injuries and property damage. According to data compiled by the National Weather Service for the period 1970-August 2000, Michigan experienced 9,215 severe wind events (not including tornadoes) that resulted in 115 deaths and millions of dollars in damage. In addition, between October 2006 through May 2012 records show there 2,325 severe wind events in Michigan that resulted in nine deaths and 26 injuries along with millions of dollars in damage. It is important to note that the high number of severe wind events is due in part to the fact that storm data is compiled by county. Thus, multi-county storms are counted more than once. Severe wind events are characterized by wind velocities of 58 miles per hour or greater, with gusts sometimes exceeding 74 miles per hour (hurricane velocity).

Figures from the National Weather Service indicate that severe winds occur more frequently in the southern-half of the Lower Peninsula than any other area of the state. On average, severe wind events can be expected 2-3 times per year in the Upper Peninsula, 3-4 times per year in the northern Lower Peninsula, and 5-7 times per year in the southern Lower Peninsula. It must be emphasized that this refers to winds from thunderstorms and other forms of severe weather, but **not** tornadoes. In terms of response to a severe wind event, providing for the mass care and sheltering of residents left without heat or electricity, and mobilizing sufficient resources to

clear and dispose of downed tree limbs and other debris from roadways, are the primary challenges facing Michigan communities. Therefore, every community should adequately plan and prepare for this type of emergency.

Strong winds and thunderstorm winds are common severe weather that affects Oscoda County. Annually, thunderstorms will occur on an average of 25 days per year and on average one or two thunderstorms per year will have severe winds. From 1982 to 2001 there were 33 severe wind events recorded in the County. From October 2006 to May 2012 there were six severe wind events (not including tornados) with $26,000 in property damage. Strong winds are most likely to be associated with thunderstorms that occur in the summer, but can occur any time of year. One of the most powerful windstorms ever recorded in the Great Lakes region occurred on November 10, 1998. Wind speeds from this powerful storm reached 82 knots.

Tornadoes: A violently whirling column of air extending downward to the ground from a cumulonimbus cloud. The funnel cloud associated with a tornado may have winds up to 300 miles per hour and an interior air pressure that is 10-20 percent below that of the surrounding atmosphere. The typical length of a tornado path is approximately 16 miles, but tracks much longer than that - some even up to 200 miles - have been reported. Tornado path widths are generally less than one-quarter mile wide. Historically, tornadoes have resulted in the greatest loss of life of any natural hazard, with the mean national annual death toll being 111 persons. Property damage from tornadoes is in the hundreds of millions of dollars every year. Tornadoes in Michigan are most frequent in the spring and early summer when warm, moist air from the Gulf of Mexico collides with cold air from the polar regions to generate severe thunderstorms. These thunderstorms often produce the violently rotating columns of wind that are called tornadoes. Michigan lies at the northeastern edge of the nation's primary tornado belt, which extends from Texas and Oklahoma through Missouri, Illinois, Indiana, and Ohio. Michigan averages approximately 16 tornadoes per year, most occurring in the southern Lower Peninsula.

National Weather Service data indicates that Michigan has experienced 893 tornadoes and 239 related deaths during the period from 1950-1999, an average of 18 tornadoes and 5 tornado-related deaths per year. The greatest number of tornadoes per year during that period occurred in 1974 with 39 tornadoes. The least number occurred in 1959 with only 2 tornadoes. From 1950-1999, Michigan experienced 473 “tornado days” (defined as days in which tornadoes are observed), an average of nearly 9.5 days per year. Approximately 63% of all Michigan tornadoes have been weak tornadoes (F0 or F1 intensity), while 33% have been strong tornadoes (F2 or F3 intensity) and 4% have been classified as violent tornadoes (F4 or F5 intensity). However, those few violent tornadoes have been responsible for 78% of Michigan’s tornado-related deaths. Strong tornadoes (F2 or F3 intensity) have accounted for approximately 21% of the deaths, while weak tornadoes (F0 or F1 intensity) have caused only 1% of all tornado-related deaths.

Although relatively rare, tornadoes have occurred in Oscoda County and have caused extensive damage. Michigan is located on the northeast fringe of the Midwest tornado belt. The lower frequency of tornadoes occurring in Michigan may be, in part, the result of the colder water of Lake Michigan during the spring and early summer months, a prime period of tornado activity. Michigan averages approximately 15 tornadoes per year. Over the past 15 years, 5 tornadoes have been recorded in Oscoda County. Tornadoes are most common in the afternoon and all of the tornadoes in Oscoda County occurred in the afternoon between the hours of 1:00 and 7:00 P.M. In Northern Michigan tornadoes are most likely in the summer months, although tornadoes have occurred in the spring and fall. In Oscoda County, a tornadoes have been recorded in the

months of April and May. The most destructive tornado to touch down in Oscoda County was an F2 tornado that occurred on July 3, 1999 causing $1.5 million in damages. According to the National Weather Service between October 2006 and May 2012 there were two tornados in Oscoda County that resulted in $1.39 million in property damage. The magnitude of a tornado is described by using the Fujita Scale. The Scale ranks tornadoes from F0 to F6 based on wind speed and intensity. F0 and F1 tornados are described as weak tornados with wind speeds from 40 to 112 mph, F2 and F3 are strong tornados with wind speeds from 113-206 mph, F4 and F5 are violent tornados with wind speeds from 207 to 318 mph and an F6 is an inconceivable tornado with wind speeds above 319 mph. Of the 5 tornados that have been recorded in Oscoda County, one was an F2, three were an F1 and one was an F0.

Severe Winter Weather Hazards

Winter weather hazards consisting of heavy snow, freezing rain and blizzards are prevalent natural hazard that occurs in Oscoda County and can be expected to occur several times every year. Since 1993, 29 heavy snowstorms and three blizzards were recorded in Oscoda County. Over the past 10 years the county has averaged 3.3 severe winter weather hazards each year. The number and intensity of winter weather hazards can fluctuate dramatically from year to year. In 1993 heavy snowstorms, freezing rain and or blizzards occurred eight times while in 1995 only one heavy snow storm was recorded.

Ice and Sleet Storms: *A storm that generates sufficient quantities of ice or sleet to result in hazardous conditions and/or property damage.* Sleet storms differ from ice storms in that sleet is similar to hail (only smaller) and can be easily identified as frozen rain drops (ice pellets) which bounce when hitting the ground or other objects. Sleet does not stick to trees and wires, but sleet in sufficient depth does cause hazardous driving conditions. Ice storms are the result of cold rain that freezes on contact with the surface, coating the ground, trees, buildings, overhead wires, etc. with ice, sometimes causing extensive damage. When electric lines are downed, inconveniences are felt in households and economic loss and disruption of essential services is often experienced in affected communities. Michigan has had numerous damaging ice storms over the past few decades.

Snowstorms: A period of rapid accumulation of snow often accompanied by high winds, cold temperatures, and low visibility. Blizzards are the most dramatic and perilous of all snowstorms, characterized by low temperatures and strong winds bearing enormous amounts of snow. Most of the snow accompanying a blizzard is in the form of fine, powdery particles of snow, which are wind-blown in such great quantities that, at times, visibility is reduced to only a few feet. Blizzards have the potential to result in property damage and loss of life. Just the cost of clearing the snow can be enormous. As a result of being surrounded by the Great Lakes, Michigan experiences large differences in snowfall in relatively short distances. The annual mean accumulation ranges from 30 to 170 inches of snow. Since winter storms tend to move from west to east, the western parts of the state usually have greater amounts of snow than the eastern parts. The highest accumulations are in the northern and western parts of the Upper Peninsula. In the northern Lower Peninsula, average snowfall ranges from 140 inches in the Gaylord area to less than 50 inches in the Harrisville area. From 1992 to 2002, Oscoda County has averaged 3.3 severe winter weather hazards each year. According to the National Weather Service between October 2006 and May 2012 there were 18 severe winter weather events (winter storms and heavy snow). The number and intensity of winter weather hazards can fluctuate dramatically from year to year. In 1993 heavy snowstorms, freezing rain and or blizzards occurred 8 times while in 1995 only one heavy snow storm was recorded.

Table 6.5
Severe Windstorms in Northern Michigan

Location	Summary of Impacts
Statewide	**Nov. 10-11, 1998**: One of the strongest storms ever recorded in the Great Lakes moved across Michigan on the 10th and 11th of November, 1998, producing strong, persistent winds that damaged buildings, downed trees and power lines, killed one person, and left over 500,000 electrical customers in the Lower Peninsula without power. Wind gusts of 50-80 miles per hour were common, and a peak gust of 95 miles per hour was reported on Mackinac Island. Damage was widespread but relatively minor for a storm of that intensity. However, there were several pockets of significant damage across the state. The U.S. Forest Service reported that at least $10 million worth of timber was lost in the Ottawa and Hiawatha National Forests.
Northern Lower Michigan	**Sept. 26-27, 1998:** During the weekend of September 26-27, 1998, severe thunderstorms ravaged northern Lower Michigan, producing strong winds that damaged or destroyed homes, businesses and public facilities, and downed trees and power lines. Otsego County, and specifically the city of Gaylord, was hardest hit, although damage was also reported in Crawford and Charlevoix counties as well. The storm front, which ran along and north of the M-32 corridor from East Jordan to Alpena, was approximately 12 miles wide and 15 miles long. When the front slammed into Gaylord, wind speeds had reached hurricane force of 80-100 miles per hour. The wind was accompanied by brief heavy rainfall and golf ball size hail. The storm lasted only a few minutes in Gaylord, but the damage was tremendous. Thousands of trees were snapped off at waist level, homes and businesses were torn apart, power lines were downed, and several public facilities were substantially damaged – including the Otsego County Courthouse, which lost half of its roof. Approximately 818 homes were damaged throughout Otsego County, including 47 that were destroyed and 92 that incurred major damage. In addition, the storm injured 11 persons – none seriously. Region-wide, about 12,000 electrical customers lost power. A Governor's Disaster Declaration was granted to the county to provide state assistance in the debris cleanup effort.
West-Central and Central Michigan	On May 31, 1998, a line of severe thunderstorms passed through west-central and central Michigan, producing in some areas hurricane and tornado-force winds that damaged or destroyed 1,500 homes and 200 businesses, severely damaged numerous public facilities, and downed thousands of trees and power lines throughout the 15 county affected area. The downed power lines left nearly 900,000 electrical customers without power, some for up to one week. The storms directly and indirectly caused four fatalities and injured over 140 more. The severe winds were measured at speeds of up to 130 miles per hour in some areas – equivalent to an F2 tornado or strong hurricane. Damage to homes and businesses was estimated at $16 million, while public damage totaled another $36 million. A Presidential Major Disaster Declaration was granted for 13 of the 15 counties, making available both public and hazard mitigation assistance to affected local jurisdictions. In addition, Small Business Administration disaster loans were made available to 11 of the 15 counties to help rebuild homes and businesses damaged in the storms.
West Michigan	On April 6-7, 1997, an intense early spring low pressure system moving across the Great Lakes brought gale force winds to much of Lower Michigan. Wind gusts of 50-70 miles per hour created 10-15 foot waves on the Lake Michigan shoreline, causing widespread wind damage and lakeshore beach erosion. Private damage was estimated at $5 million, most of that occurring in a handful of West Michigan counties. The winds downed numerous trees and power lines across the region, causing roof damage to many structures and power outages for nearly 200,000 Consumers Energy electrical customers. No deaths or injuries were reported in this severe wind event.
Lower Michigan	On April 30, 1984 a windstorm struck the entire Lower Peninsula, resulting in widely scattered damage, 1 death, and several injuries. Wind gusts measured up to 91 miles per hour in some areas. Damage was widely scattered, but extensive, with 6,500 buildings, 300 mobile homes, and 5,000 vehicles being damaged. Over 500,000 electrical customers lost power. In addition, 10-16 foot waves on Lake Michigan caused severe shore erosion, collapsing some cottages and driving many boats aground.

Extreme Temperatures

Prolonged periods of very high or very low temperatures, often accompanied by other extreme meteorological conditions such as high humidity, lack of rain (drought), high winds, etc.

Extreme temperatures - whether extreme heat or extreme cold - share a commonality in that they both primarily affect the most vulnerable segments of society such as the elderly, children, impoverished individuals, and people in poor health. The major threats of extreme heat are heatstroke (a major medical emergency), and heat exhaustion. Extreme heat is a more serious problem in urban areas, where the combined effects of high temperature and high humidity are more intense. Nationwide, approximately 200 deaths a year are directly attributable to extreme heat. Extreme summer heat is also hazardous to livestock and agricultural crops, and it can cause water shortages, exacerbate fire hazards, and prompt excessive demands for energy. Roads, bridges, railroad tracks and other infrastructure are susceptible to damage from extreme heat.

Like heat waves, periods of prolonged, unusually cold weather can result in a significant number of temperature-related deaths. Each year in the United States, approximately 700 people die as a result of severe cold temperature-related causes. The major direct threats of extreme cold are hypothermia (also a major medical emergency) and frostbite. However, a significant number of cold-related deaths are the result of illnesses and diseases that are negatively impacted by severe cold weather, such as stroke, heart disease and pneumonia. Oscoda County is subject to both temperature extremes. According to the National Weather Service between October 2006 and May 2012 there was one Extreme Cold/Wind Chill event in 2007.

Drought

According to the Michigan Hazard Analysis: Drought is a normal part of the climate of Michigan and of virtually all other climates around the world – including areas with high and low average rainfall. Drought differs from normal arid conditions found in low rainfall areas in that aridity is a permanent characteristic of that type of climate. Drought is the consequence of a natural reduction in the amount of precipitation expected over an extended period of time, usually a season or more in length. The severity of a drought depends not only on its location, duration, and geographical extent, but also on the water supply demands made by human activities and vegetation. This multi-faceted nature of the hazard makes it difficult to define a drought and assess when and where one is likely to occur.

Droughts can cause many severe impacts on communities and regions, including: 1) water shortages for human consumption, industrial, business and agricultural uses, power generation, recreation and navigation; 2) a drop in the quantity and quality of agricultural crops; 3) decline of water quality in lakes, streams and other natural bodies of water; 4) malnourishment of wildlife and livestock; 5) increase in wildfires and wildfire-related losses to timber, homes and other property; 6) declines in tourism in areas dependent on water-related activities; 7) declines in land values due to physical damage from the drought conditions and/or decreased economic or functional use of the property; 8) reduced tax revenue due to income losses in agriculture, retail, tourism and other economic sectors; 9) increases in insect infestations, plant disease, and wind erosion; and 10) possible loss of human life due to food shortages, extreme heat, fire, and other health-related problems such as diminished sewage flows and increased pollutant concentrations in surface water.

The 1976-77 drought in the Great Plains, Upper Midwest, and West also severely impacted Michigan. Extreme drought conditions contributed to wildfire, crop damage and low Great

Lakes levels. The 1988 drought / heat wave in the Central and Eastern U.S. (an event that greatly impacted Michigan) caused an estimated $40 billion in damages from agricultural losses, disruption of river transportation, water supply shortages, wildfires, and related economic impacts. In response to the 1988 drought, Michigan communities instituted temporary water use restrictions. To stem the potential for wildfire in Michigan, the Governor issued (in June, 1988) a statewide outdoor burning ban. The summer of 1998 drought / heat wave from Texas to the Carolinas caused an estimated $6-9 billion in damage. The summer of 1999 drought / heat wave caused over $1 billion in damage – mainly to agricultural crops in the Eastern U.S. The summer of 2000 drought / heat wave in the South-Central and Southeastern U.S. resulted in over $4 billion in damages and costs. The drought / heat wave that struck Michigan during the summer of 2001 damaged or destroyed approximately one-third of the state's fruit, vegetable and field crops, resulting in a U.S. Department of Agriculture Disaster Declaration for 82 of the state's counties. In addition, the drought / heat wave caused water shortages in many areas in Southeast Michigan, forcing local officials to issue periodic water usage restrictions. In Oscoda County, impacts from extended drought are increased potential for wildfires, reduction in farm products, reduction in timber production, and loss of tourism.

Subsidence

Depressions, cracks, and sinkholes in the ground surface, which can threaten people and property. Subsidence depressions, which normally occur over many days to a few years, may damage structures with low strain tolerances, such as dams, nuclear reactors, and utility infrastructure. The sudden collapse of the ground surface to form sinkholes poses an immediate threat to life and property. Such ground movements may continue for several days, weeks, months or even years, until the walls stabilize. The population most at risk would be in areas where industrial or residential development has occurred above active or abandoned mines where underground cavities are present near the surface, as well as areas where an extensive amount of groundwater has been withdrawn. There have been no recorded incidents of subsidence in Oscoda County.

Earthquakes

A sudden motion or trembling in the earth caused by an abrupt release of slowly accumulating strain, which results in ground shaking, surface faulting, or ground failures. Most areas of the United States are subject to earthquakes including parts of Michigan, and they occur literally thousands of times per year. Northeastern Michigan to date has been out of known earthquakes impact areas. Most earthquake occurrences result in little or no damage. However, when moderate or severe earthquakes occur, the results can be devastating in terms of loss of life, property and essential services. One of the most dangerous characteristics of earthquakes is their ability to cause severe and sudden loss. Within 1 to 2 minutes, an earthquake can devastate an area through ground shaking, surface fault ruptures, and ground failures. Most deaths and injuries are not directly caused by the earthquake itself, but rather indirectly through the collapse of structures.

Earthquakes are measured by their magnitude and intensity. Magnitude is a measure of the amount of energy released at the epicenter or origin of the event. The Richter Magnitude Scale is commonly used to determine earthquake magnitude. An earthquake of 5.0 is a moderate event, 6.0 characterize a strong event, 7.0 is a major earthquake, and 8.0 is a catastrophic earthquake. Earthquake intensity is the measure of damage done at a given location. In the U.S., the most commonly used intensity scale is the Modified Mercalli Intensity Scale, which describes 12 increasing levels of intensity ranging from imperceptible to catastrophic.

Michigan is not located in an area subject to major earthquake activity. No severely destructive earthquake has ever been documented in Michigan. However, several mildly damaging earthquakes have been felt since the early 1800s. The exact number is difficult to determine, as scientific opinion on the matter varies. Although there are fault lines in the bedrock of Michigan, they are now considered relatively stable. However, these fault lines are poorly mapped. According to the U.S. Geological Survey, although Michigan is in an area in which there is a low probability of earthquake occurrences, the area may be affected by distant earthquakes that occur in the New Madrid Seismic Zone and upstate New York. The New Madrid Seismic Zone poses the most significant threat. Based on recent scientific studies, portions of southern Michigan could be expected to receive minor damage were such an earthquake to occur (see map below). The greatest impact on the state would probably come from damage to natural gas and petroleum pipelines. If the earthquake occurs in the winter, many areas of the state could be severely impacted by fuel shortages. Damage would probably be negligible in well-designed and constructed buildings. However, poorly designed and constructed buildings could suffer considerable damage under the right circumstances. There have been no recorded incidences of significant earthquakes in Oscoda County.

Technological Hazards

Hazardous Material Incident - Fixed Site

An uncontrolled release of hazardous materials from a fixed site, capable of posing a risk to health, safety, property and the environment. Hazardous materials are present in quantities of concern in business and industry, agriculture, universities, hospitals, utilities, and other community facilities. Hazardous materials are materials or substances, which, because of their chemical, physical, or biological nature, pose a potential threat to life, health, property and the environment if they are released. Examples of hazardous materials include corrosives, explosives, flammable materials, radioactive materials, poisons, oxidizers, and dangerous gases. There is one 302 site in Oscoda County. Plans are on file with the County LEPC.

Hazardous materials are highly regulated by the government to reduce risk to the general public, property and the environment. Despite precautions taken to ensure careful handling during the manufacture, transport, storage, use and disposal of these materials, accidental releases are bound to occur. Areas at most risks are within a 1-5 mile radius of identified hazardous material sites. Many communities have detailed plans and procedures in place for responding to incidents at these sites, but releases can still cause severe harm to people, property and the environment if proper mitigative action is not taken in a timely manner.

Hazardous Material Incident – Transportation

An uncontrolled release of hazardous materials during transport, capable of posing a risk to health, safety, property or the environment. All modes of transportation - highway, railroad, seaway, airway, and pipeline - are carrying thousands of hazardous material shipments on a daily basis through local communities. A transportation accident involving any one of those hazardous material shipments could cause a local emergency affecting many people. The U.S. Department of Transportation regulates the transportation and shipping of over 18,000 different materials. Areas most at risk are within a 1-5 mile radius of a major transportation route along which hazardous material shipments move. All areas in Michigan are potentially vulnerable to a hazardous material transportation incident, although the heavily urbanized and industrialized areas in southern Michigan are particularly vulnerable due to the highly concentrated population. M-72 and M-33 traverse Oscoda County, intersecting in the community of Mio.

Hazardous materials are shipped through the county making communities like Mio, Fairview and Comins vulnerable hazardous materials incidents.

Oil and Gas Pipeline Accidents

An uncontrolled release of oil or gas, or the poisonous by-product hydrogen sulfide, from a pipeline. As a major oil and gas consumer in the United States, vast quantities of oil and natural gas are transported through and stored in Michigan. Though often overlooked as a threat because much of the oil and gas infrastructure in the state is located underground, oil and gas pipelines can leak, erupt or explode, causing property damage, environmental contamination, injuries and loss of life. In addition to these hazards, there is also a danger of hydrogen sulfide release. Hydrogen sulfide is an extremely poisonous gas that is also explosive when mixed with air temperatures of 500 degrees or above. In addition to pipelines, these dangers can be found around oil and gas wells, pipeline terminals, storage facilities, and transportation facilities where the gas or oil has a high sulfur content.

One major high pressure gas line runs through Oscoda County. Smaller lines from a delivery network that supplies natural gas to homes and businesses. Another network of extractive lines is associated with the 1000 oil and gas wells in the county. Lines connect each well to a small processing/compressor facility. Brine and moisture is removed from the natural gas, and then the gas is transmitted through high pressure lines to major processing and storage facilities. There are no documented major incidents, however, with the miles of pipelines associated with extractive and delivery systems the potential of hazardous incidents does exist.

Oil and Gas Well Accidents

Oil and natural gas are produced from fields scattered across 63 counties in the Lower Peninsula. Since 1925, over 44,000 oil and natural gas wells have been drilled in Michigan, of which roughly half have produced oil and gas. To date, Michigan wells have produced approximately 1.4 billion barrels of crude oil and 4 trillion cubic feet of gas. The petroleum and natural gas industry is highly regulated and has a fine safety record, but the threat of accidental releases, fires and explosions still exists. According to information provided by the MDEQ, there are 370 oil and gas wells in Oscoda. In addition, there are small gas processing facilities for separating natural gas and brine in the well fields. Numerous small, low pressure gas lines connect wells to the small processing facilities.

In addition to these hazards, many of Michigan's oil and gas wells contain extremely poisonous hydrogen sulfide (H2S) gas. Hydrogen sulfide is a naturally occurring gas mixed with natural gas or dissolved in the oil or brine and released upon exposure to atmospheric conditions. Over 1,300 wells in Michigan have been identified as having H2S levels exceeding 300 parts per million (ppm). At concentrations of 700 ppm, as little as one breath of hydrogen sulfide can kill. Although hydrogen sulfide can be detected by a "rotten egg" odor in concentrations from .03 ppm to 150 ppm, larger concentrations paralyze a person's olfactory nerves so that odor is no longer an indicator of the hazard. Within humans, small concentrations can cause coughing, nausea, severe headaches, irritation of mucous membranes, vertigo, and loss of consciousness. Hydrogen sulfide forms explosive mixtures with air at temperatures of 500 degrees Fahrenheit or above, and is dangerously reactive with powerful oxidizing materials. Hydrogen sulfide can also cause the failure of high-strength steels and other metals. This requires that all company and government responders be familiar not only with emergency procedures for the well site, but also with the kinds of materials that are safe for use in **sour gas well** response.

Infrastructure Failures

A failure of critical public or private utility infrastructure resulting in a temporary loss of essential functions and/or services. Such interruptions could last for periods of a few minutes to several days or more. Public and private utility infrastructure provides essential life supporting services such as electric power, heating and air conditioning, water, sewage disposal and treatment, storm drainage, communications, and transportation. When one or more of these independent, yet inter-related systems fails due to disaster or other cause - even for a short period of time - it can have devastating consequences. For example, when power is lost during periods of extreme heat or cold, people can literally die in their homes.

When the water or wastewater treatment systems in a community are inoperable, serious public health problems arise that must be addressed immediately to prevent outbreaks of disease. When storm drainage systems fail due to damage or an overload of capacity, serious flooding can occur. All of these situations can lead to disastrous public health and safety consequences if immediate mitigation steps are not taken. Typically, it is the most vulnerable segments of society - the elderly, children, ill or frail individuals, etc., that are most heavily impacted by an infrastructure failure. If the failure involves more than one system, or is large enough in scope and magnitude, whole communities and even regions can be negatively impacted.

Air, Land and Water Transportation Accidents

A crash or accident involving an air, land or water-based commercial passenger carrier resulting in death or serious injury. Vulnerable areas would include: 1) communities with, or near, an airport offering commercial passenger service; 2) communities with railroad tracks on which commercial rail passenger service is provided; 3) communities in which commercial intercity passenger bus or local transit bus service is provided; 4) communities with school bus service; and 5) communities in which commercial marine passenger ferry service is provided. A serious accident involving any of the above modes of passenger transportation could result in a mass casualty incident, requiring immediate life-saving community response. In addition, a marine transportation accident would require a water rescue operation, possibly under dangerous conditions on the Great Lakes.

In terms of commercial passenger transportation service, Michigan has: 1) approximately 19 airports that offer commercial air passenger service; 2) 130 certified intercity passenger bus carriers providing service to 220 communities; 3) 72 local bus transit systems serving 85 million passengers; 4) 19 marine passenger ferry services; and 5) 3 intercity rail passenger routes operating on 568 miles of track, along 3 corridors, serving 22 communities. Oscoda County does not have a commercial airport, passenger rail service, commercial marine passenger service or intercity bus service. School bus transportation and specialized public transit service does exist in the county. Accidents on either system could result in injuries and loss of life.

Societal Hazards

Public Health Emergencies

A widespread and/or severe epidemic, incident of contamination, or other situation that presents a danger to or otherwise negatively impacts the general health and well-being of the public. Public health emergencies can take many forms: 1) disease epidemics; 2) large-scale incidents of food or water contamination; 3) extended periods without adequate water and sewer services; 4) harmful exposure to chemical, radiological or biological agents; or 5) large-scale infestations of disease-carrying insects or rodents. Public health emergencies can occur as primary events by themselves, or they may be secondary events from another disaster or

emergency, such as a flood, tornado, or hazardous material incident. The common characteristic of most public health emergencies is that they adversely impact, or have the potential to adversely impact, a large number of people. Public health emergencies can be statewide, regional, or localized in scope and magnitude.

Perhaps the greatest emerging public health threat would be the intentional release of a radiological, chemical or biological agent with the potential to adversely impact a large number of people. Such a release would most likely be an act of sabotage aimed at the government or a specific organization or segment of the population. Fortunately, to date Michigan has not experienced such a release aimed at mass destruction. However, Michigan has experienced hoaxes and it is probably only a matter of time before an actual incident of that nature and magnitude does occur. If and when it does, the public health implications – under the right set of circumstances – could be staggering.

Civil Disturbances

A public demonstration or gathering (such as a sports event), or a prison uprising, that results in a disruption of essential functions, rioting, looting, arson or other unlawful behavior. Large-scale civil disturbances rarely occur, but when they do they are usually an offshoot or result of one or more of the following events: 1) labor disputes where there is a high degree of animosity between the two dissenting parties; 2) high profile/controversial judicial proceedings; 3) the implementation of controversial laws or other governmental actions; 4) resource shortages caused by a catastrophic event; 5) disagreements between special interest groups over a particular issue or cause; or 6) a perceived unjust death or injury to a person held in high esteem or regard by a particular segment of society.

Areas subject to civil disturbances may encompass large portions of a community. Types of facilities that may be subject to or adversely impacted by civil disturbances may include government buildings, military bases, Community College, businesses, and critical service facilities such as our hospital, police and fire facilities. Civil disturbances (including jail uprisings) often require the involvement of multiple community agencies in responding to and recovering from the incident. There have been no recorded incidences of civil disturbances in recent history.

Nuclear Attack

Any hostile attack against the United States, using nuclear weapons, which results in destruction of military and/or civilian targets. All areas of the United States are conceivably subject to the threat of nuclear attack. However, the strategic importance of military bases, population centers and certain types of industries place these areas at greater risk than others. The nature of the nuclear attack threat against the U.S. has changed dramatically with the end of the “Cold War” and the conversion of previous adversaries to more democratic forms of government. Even so, the threat still exists for a nuclear attack against this country. Despite the dismantling of thousands of nuclear warheads aimed at U.S. targets, there still exist in the world a large number of nuclear weapons capable of destroying multiple locations simultaneously. In addition, controls on nuclear weapons and weapon components are sporadic at best in the former Soviet Union, and the number of countries capable of developing nuclear weapons continues to grow despite the ratification of an international nuclear non-proliferation treaty. It seems highly plausible that the threat of nuclear attack will continue to be a hazard in this country for some time in the future.

At this point, attack-planning guidance prepared by the Federal government in the late 1980s still provides the best basis for a population protection strategy for Michigan. That guidance has

identified 25 potential target areas in Michigan, and 4 in Ohio and Indiana that would impact Michigan communities, classified as follows: 1) commercial power plants; 2) chemical facilities; 3) counterforce military installations; 4) other military bases; 5) military support industries; 6) refineries; and 7) political targets. For each of these target areas, detailed plans have been developed for evacuating and sheltering the impacted population, protecting critical resources, and resuming vital governmental functions in the post-attack environment.

Nuclear Power Plant Accidents

An actual or potential release of radioactive material at a commercial nuclear power plant or other nuclear facility, in sufficient quantity to constitute a threat to the health and safety of the off-site population. Such an occurrence, though not probable, could affect the short and long-term health and safety of the public living near the nuclear power plant, and cause long-term environmental contamination around the plant. As a result, the construction and operation of nuclear power plants are closely monitored and regulated by the Federal government. Communities with a nuclear power plant must develop detailed plans for responding to and recovering from such an incident, focusing on the 10 mile Emergency Planning Zone (EPZ) around the plant, and a 50 mile Secondary EPZ that exists to prevent the introduction of radioactive contamination into the food chain. Michigan has 3 active and 1 in-active commercial nuclear power plants, in addition to 4 small nuclear testing/research facilities located at 3 state universities and within the City of Midland. Oscoda County does not have a Nuclear power plant.

Sabotage/Terrorism

An intentional, unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political, social, or religious objectives. Sabotage/terrorism can take many forms or have many vehicles for delivery, including: 1) bombings; 2) assassinations; 3) organized extortion; 4) use of nuclear, chemical and/or biological weapons; 5) information warfare; 6) ethnic/religious/gender intimidation (hate crimes); 7) state and local militia groups that advocate overthrow of the U.S. Government; 8) eco-fanaticism, designed to destroy or disrupt specific research or resource-related activities; and 9) widespread and organized narcotics smuggling and distribution organizations. Because sabotage/terrorism objectives are so widely varied, so too are the potential targets of such actions. Virtually any public facility or infrastructure, or place of public assembly, can be considered a potential target. In addition, certain types of businesses engaged in controversial activities are also potential targets, as are large computer systems operated by government agencies, banks, financial institutions, large businesses, health care facilities, and colleges/universities.

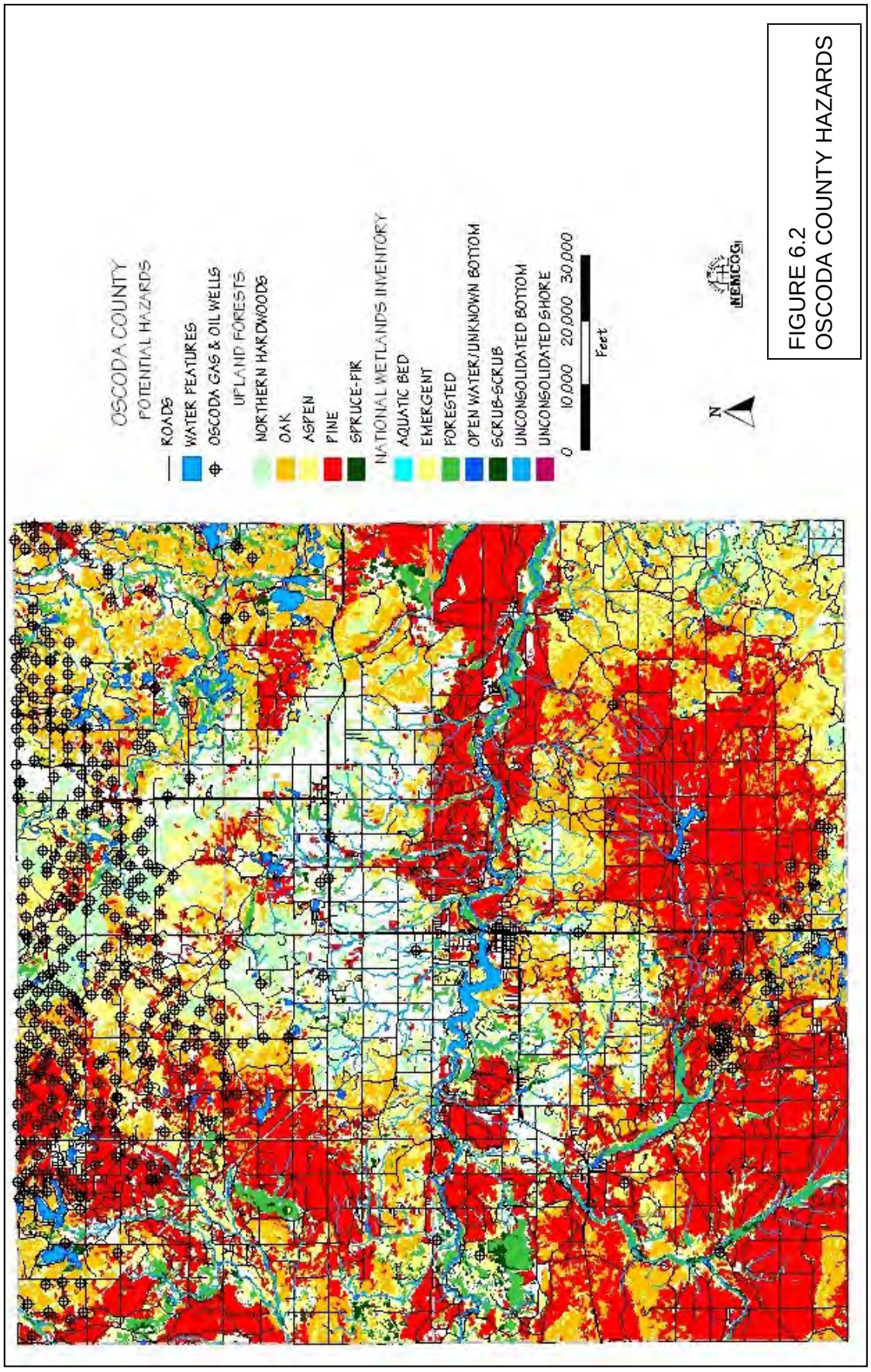


FIGURE 6.2
OSCODA COUNTY HAZARDS

Local Jurisdictions

Overview

Oscoda County is located in the northeastern portion of the Lower Peninsula and covers an area of 568 square miles. The county is composed of six townships: Big Creek, Clinton, Comins, Elmer, Greenwood and Mentor. There are several unincorporated communities, which include Luzerne, Fairview, Comins, Mio and McKinley. The community of Mio is the county seat and is located near the geographic center of the county.

Upland forest is the predominate land cover in the County, with much of that being pine and oak. These drought tolerant species prefer and thrive on the mostly sandy soils. Farming is limited with Oscoda County and tends to be concentrated in southeastern Elmer Township and western Comins Township. The Au Sable and Thunder Bay Rivers, with their interconnected network of smaller streams and creeks, and the many lakes and impoundments provide an abundant source of high quality surface water features.

The greatest attraction for the residents and visitors of Oscoda County is the area's environment and rural nature. Recreational activities such as hunting, fishing, golfing, snowmobiling, boating and a multitude of other outdoor activities attract people from urban areas of Michigan, as well as from other states. Many long time visitors decide to move to the area upon retirement. Because of the abundant outdoor recreation opportunities, the natural environment is a major economic base and income generator.

At the same time, the environment places constraints upon human activities. Certain critical and sensitive parts of the natural landscape cannot be altered without creating problems that are not easily corrected. Increased flooding and soil erosion due to the indiscriminate filling of wetlands and clearing of land are but two examples. Therefore, it is essential that any future development respect the different characteristics of the natural environment. This is important in preserving the attractiveness of this part of the State, preventing potential hazards related to undue alteration of the land, and maximizing the economic benefits of the tourist and recreation industry.

Big Creek Township – Luzerne and Mio

Big Creek Township is located in the southwestern part of the Oscoda County. It covers one quarter of the county and is made up of four congressionally surveyed townships. A vast majority of the Township is forested with extensive areas of jack pine. This is prime Kirtland's Warbler habitat. The Au Sable river flows through the northern half of Big Creek Township. There is a large impoundment of the Au Sable River called the Mio Pond. Western portions of Mio, an unincorporated community and the County seat, are located in Big Creek Township. Residential, commercial and public facilities (Mio Community Schools) are located in this part of Mio. Luzerne, another unincorporated community, is located in central part of the Township. This scenic, rural community is located on Big Creek within the Huron National Forest, and is adjacent to the Kirtland's Warbler management area. It contains a couple of restaurants, stores and nearby resorts. Big Creek Township Hall is located on Deeter Rd. in the community of Luzerne.

2010 year round population 2,827
3,140 housing units: 1,289 occupied; 1,625 seasonal, recreation or occasional use

Predominant land cover is jack pine forests. Built-up areas include the communities of Mio and Luzerne. Residential development is scattered throughout the Township. Approximately 60,640 acres or 66 percent of the Township is in public ownership, with the U.S. Forest Service being the major land owner. The Au Sable River flows across the northern part of the Township. Ownership of properties along the river is mixed with private and public. Mio Pond, a water impoundment of the Au Sable River, is entirely within Big Creek Township and is the largest water body in the county. The dam is owned by Consumers Power Company. Ownership around the pond is predominately Consumers Power and USFS. Annual average 24-hour traffic in 2010: M-72, west of Mio 1,900 vehicles per day; M-33, south – 2,200 to 2,500 vehicles per day; and M-33 north 6,700 vehicles per day.

Potential Hazards
Natural: Wildfire, riverine flooding, wind and thunder storms and winter storms
Technological: Infrastructure failure, transportation accidents, oil and gas wells and transmission, hazardous material spills, dam failure.
Societal: Terrorism/sabotage, public health emergencies and Bovine TB

Clinton Township is located in the far northeast corner of Oscoda County. It is bisected by M-33, which runs north/south through the unincorporated community of Comins. There are over a dozen small lakes in this township. A small park is located on Bass Lake. The western third of the township is a unique part of the Oscoda State Forest, situated in relatively isolated high country, with quite a view from "Mt. Tom" at the junction of Tom and Hill Roads, right on the township's western border. The eastern half of the Township is covered with large tracts of private lands, mostly hunting clubs. Clinton Township Hall is located at 4232 Abbe Road in the community of Comins.

- 2010 year round population 441;
- 568 housing units: 210 occupied; and 321 seasonal, recreation or occasional use
- Annual average 24-hour traffic in 2010 on M-33 was 2,700 vehicles per day.

Predominant land cover is upland forest, which include oak, aspen and northern hardwood forests. Approximately 8,368 acres or 18 percent of the Township is in DNR ownership, which is primarily in the western quarter. There are numerous small lakes in Clinton Township; most are located on large tracts of private land. The eastern half of the Township is predominately large hunt clubs, some owning several sections of land. The rest of Clinton Township consists of ownership 10 acres or more.

Potential Hazards
Natural: Wildfire, riverine flooding, wind and thunder storms and winter storms
Technological: Infrastructure failure, oil and gas wells and transmission, and transportation accidents.
Societal: Terrorism/sabotage, public health emergencies and Bovine TB

Comins Township is located in the near-northeast corner of Oscoda County. It consists of a mixture of hilly, fertile farmland to the west and the Huron National Forest to the east, and includes a few private lakes, camps and ranches. Its largest community is Fairview, situated at the north junction of M-33 and M-72, about nine miles northeast of Mio. The Oscoda County Fairgrounds are located here, north of 72 on Caldwell Road, just past the township park on

beautiful Smith Lake, a great place to swim and picnic. Comins Township Hall is located at 1651 North Abbe Road in the community of Fairview.

- 2010 year round population 2,017;
- 1,302 housing units: 788 occupied; and 385 seasonal, recreation or occasional use.

Predominant land cover is upland forest, which includes pine, oak, aspen and northern hardwood forests. Approximately 8,760 acres or 19 percent of the Township is in public ownership with most owned by the US Forest Service. There are numerous small lakes in Comins Township; many are located on large tracts of private land. The eastern half of the Township is predominately large hunt clubs, some owning several sections of land. The rest of Comins Township typically consists of ownership 10 acres or more. Annual average 24-hour traffic for 2010; M-72 – 1,400 vehicles per day; and M-33 – 2,700 vehicles per day.

Potential Hazards
Natural: Wildfire, riverine flooding, wind and thunder storms and winter storms
Technological: Infrastructure failure, transportation accidents
Societal: Terrorism/sabotage, public health emergencies and Bovine TB

Elmer Township, like three other townships, consists of two congressionally surveyed townships, measuring 6 by 12 miles, It is situated in the near northwest section of Oscoda County. Over one half of the Township is publicly owned and part of the Oscoda State Forest. This is one of the more isolated areas in the northern lower peninsula of Michigan. It includes several ATV/snowmobile trails and a public camp site at Muskrat Lake. There are also some marshy areas to the north, including the Rush Creek Fisheries Research Area. The township hall is located at 863 West Kittle Road in community of Kittle, high on a hill, surrounded by a traditional farming community.

- 2010 year round population 1,138;
- 990 housing units: 419 occupied; 521 seasonal, recreation or occasional use.
- Annual average 24-hour traffic in 1998 for M-72/M-33 was 2,200 vehicles per day.

Land Use Comments: Predominant land cover is upland forest, which includes pine, oak and aspen forest types. Approximately 21,800 acres or 48 percent of the Township is in public ownership with the bulk being owned by the State of Michigan, which is primarily in the western quarter. Much of the private land is divided into tracts ten acres or larger.

Potential Hazards
Natural: Wildfire, riverine flooding, wind and thunder storms and winter storms
Technological: Infrastructure failure, transportation accidents, oil and gas wells and transmission, hazardous material spills, dam failure.
Societal: Terrorism/sabotage, public health emergencies and Bovine TB

Greenwood Township is located in the northwestern corner of Oscoda County. Over half of it is part of the Oscoda State Forest. This is a highly scenic area, consisting of many hills, lakes, cottages and resorts. The beautiful Garland Golf Course is also located here, at the junction of County Roads 489, (Red Oak Road), and 605. This is also Kirtland's Warbler Country, with several regions of low scrub pine, the preferred nesting ground of this rare species. There are

also some good fishing streams and fresh water marshes towards the south which are part of the Au Sable River watershed. The Greenwood Township Hall is located in the community of Red Oak at the corner of Red Oak Rd. and Kneeland Road.

- 2010 year round population was 1,121;
- 1,701 housing units, 520 occupied, 1,054 seasonal, recreation or occasional use
- Annual average 24-hour traffic in 2010; M-72/M-33 – 2,200 vehicles per day.

Predominant land cover is upland forest, which include pine, oak, and aspen forests. Approximately 21,980 acres or 48 percent of the Township is in public ownership with most owned by the State of Michigan. Shorelines of lakes in Greenwood Township are developed with small lots. Large tracts of private land are typically hunt clubs. Most of the private lands consist of ownership 10 acres or more in size.

Potential Hazards
Natural: Wildfire, riverine flooding, wind and thunder storms and winter storms
Technological: Infrastructure failure, transportation accidents, oil and gas wells and transmission, hazardous material spills, dam failure.
Societal: Terrorism/sabotage, public health emergencies and Bovine TB

Mentor Township consists of the southeast quarter of Oscoda County. This township has 144 square miles, four times the size of a typical township. Over 95 % of the Township is publicly owned and part of the Huron National Forest. Like its neighbor to the west, much of the Township is forested and the predominate forest type is jack pine. The young jack pine forests, regenerated by fires or clear-cutting provide critical nesting/rearing habitat for the globally rare Kirtland's Warbler. The Au Sable River flows along the northern border, with many access points for fishing and canoeing. The unincorporated communities of McKinley and Mio are located in Mentor Township. The county seat and associated facilities, including the main courthouse, courthouse annex and sheriff department, are located in the Township. Mentor Township Hall is located at 216 E. 10th St., in Mio.

- 2010 population was 1,143;
- 1,417 housing units with 546 occupied and 798 seasonal, recreation or occasional use
- Annual average 24-hour traffic in 2010 for M-33 was 2,200 vehicles per day.

Predominant land cover is upland forest, which include pine, oak, and aspen forests. Approximately 81,600 acres or 89 percent of the Township is in public ownership with most owned by the US Forest Service. The Au Sable River flows through the northern part of the Township. Most of the river flows through public lands, although there are several subs located midway along its course through Mentor Township.

Potential Hazards
Natural: Wildfire, riverine flooding, wind and thunder storms and winter storms
Technological: Infrastructure failure, transportation accidents, hazardous material spills, dam failure.
Societal: Terrorism/sabotage, public health emergencies and Bovine TB

Mio is an unincorporated community governed by Big Creek and Mentor Townships in Oscoda County. Located in the geographic center of the County, it serves as the county seat. The community is proud of the historic courthouse, which is over 100 years old. Slightly over 20 percent of the County's population lives in the community of Mio. Public facilities, commerce and manufacturing are concentrated within the community. Mio was named for M-10, the main highway that divided the center of the town.

2010 Census information was gathered for the Mio Census Designated Planning (CDP) area. Note the following demographics are also reported in the townships census data since Mio is not an incorporated city or village.

- 2010 population was 1,826
- 1,211 housing units with 804 occupied and 286 seasonal, recreation or occasional use
- Annual average 24-hour traffic in 2010 for M-33, north was 6,700 vehicles per day; M-33, south was 2,500 vehicles per day; and M-72, west was 1,900 vehicles per day. .

Potential Hazards
Natural: Wildfire, riverine flooding, wind and thunderstorms and winter storms
Technological: Infrastructure failure, transportation accidents, hazardous material spills, oil and gas wells' and dam failure.
Societal: Terrorism/sabotage, and public health emergencies

Below is the legend for the community infrastructure and hazards maps that follow on subsequent pages. The map at the top of each page shows infrastructure, community facilities and public lands. The map at the bottom of each page shows hazards.

MAP LEGEND FOR COMMUNITY MAPS COMMUNITY SERVICES AND FACILITIES			
1 Fire Stations	5 WWTP	9 Health Dept. Buildings	13 DNR Offices
2 Schools	6 Municipal Water Supplies	10 Bus Stations	14 Campgrounds
3 Government Buildings	7 Police Stations	11 Ports/Harbors	15 Industrial Parks
4 Solid Waste Facilities	8 Medical Facilities	12 Colleges/Universities	16 Chambers of Commerce

Figure 6.3

Big Creek Township Base Map

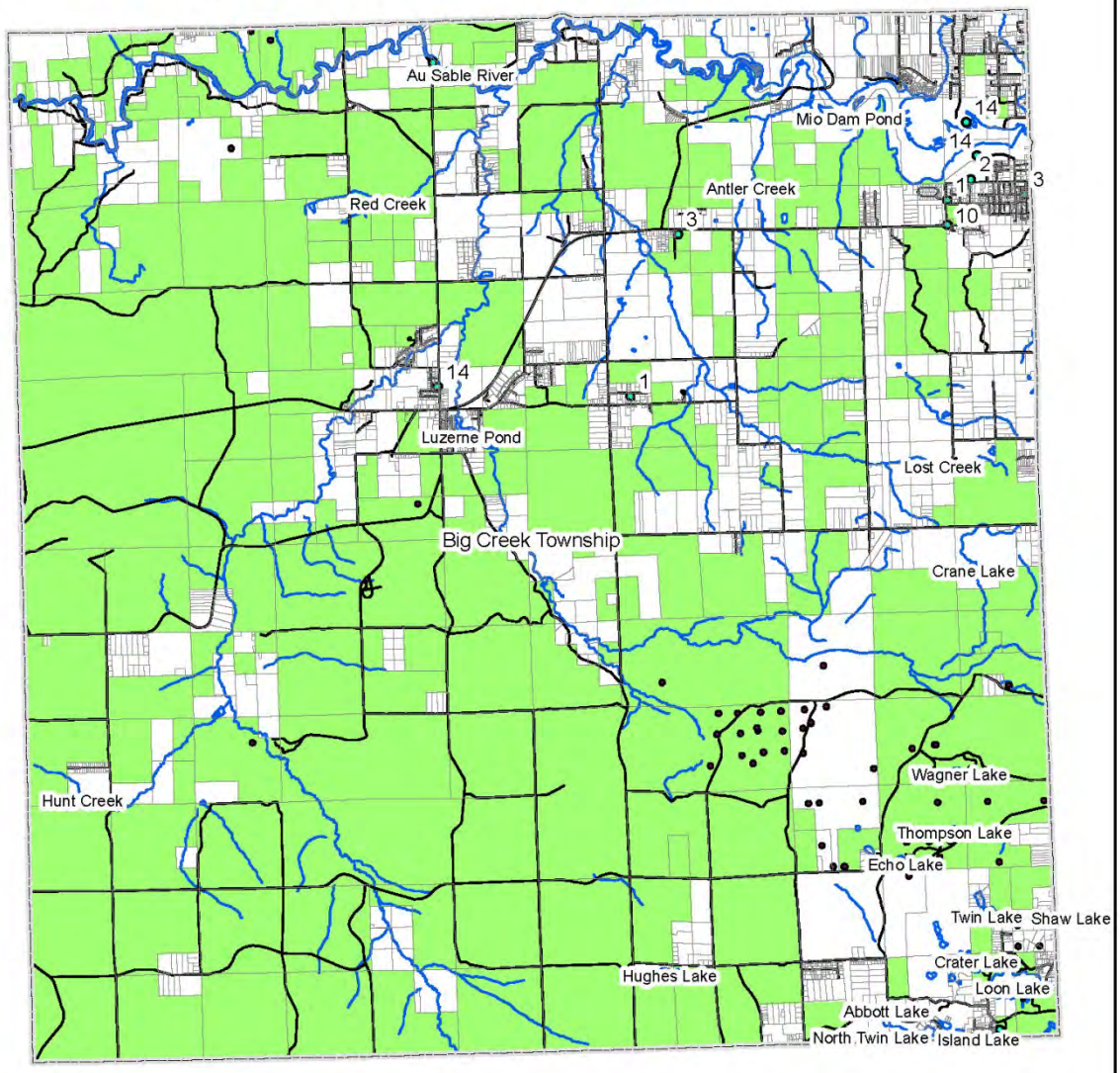
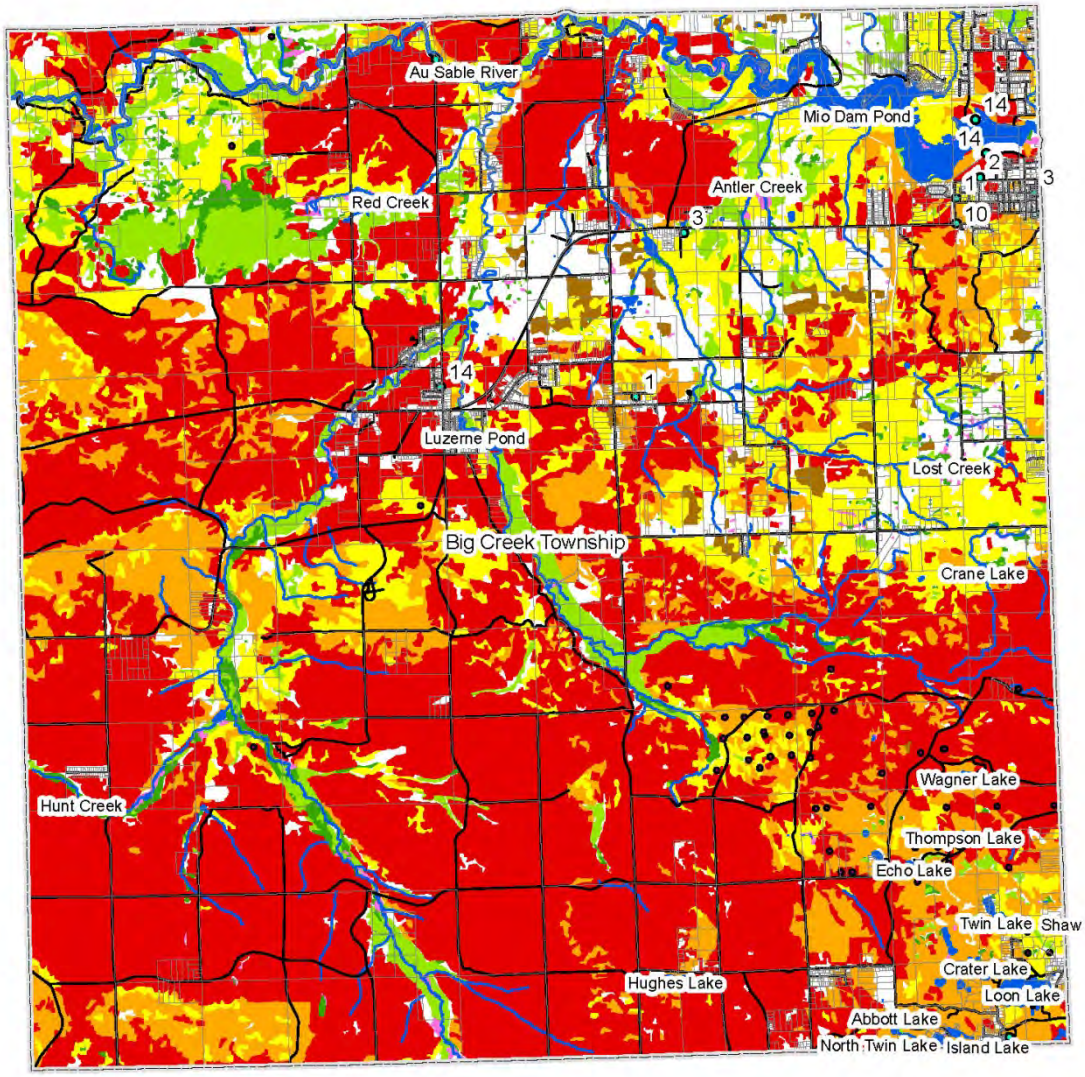


Figure 6.4

Big Creek Township Hazards Map



Infrastructure
Oil & Gas Wells
Big Creek Township
Parcels
County Roads
Cherry Creek
Mount Tom
Rivers

Forest Types
Northern Hardwoods
Aspen-Birch
Oak
Pine

Wetland Types
Emergent
Forested
Open Water
Scrub-Shrub

NEMCOG
MAP PRODUCTION

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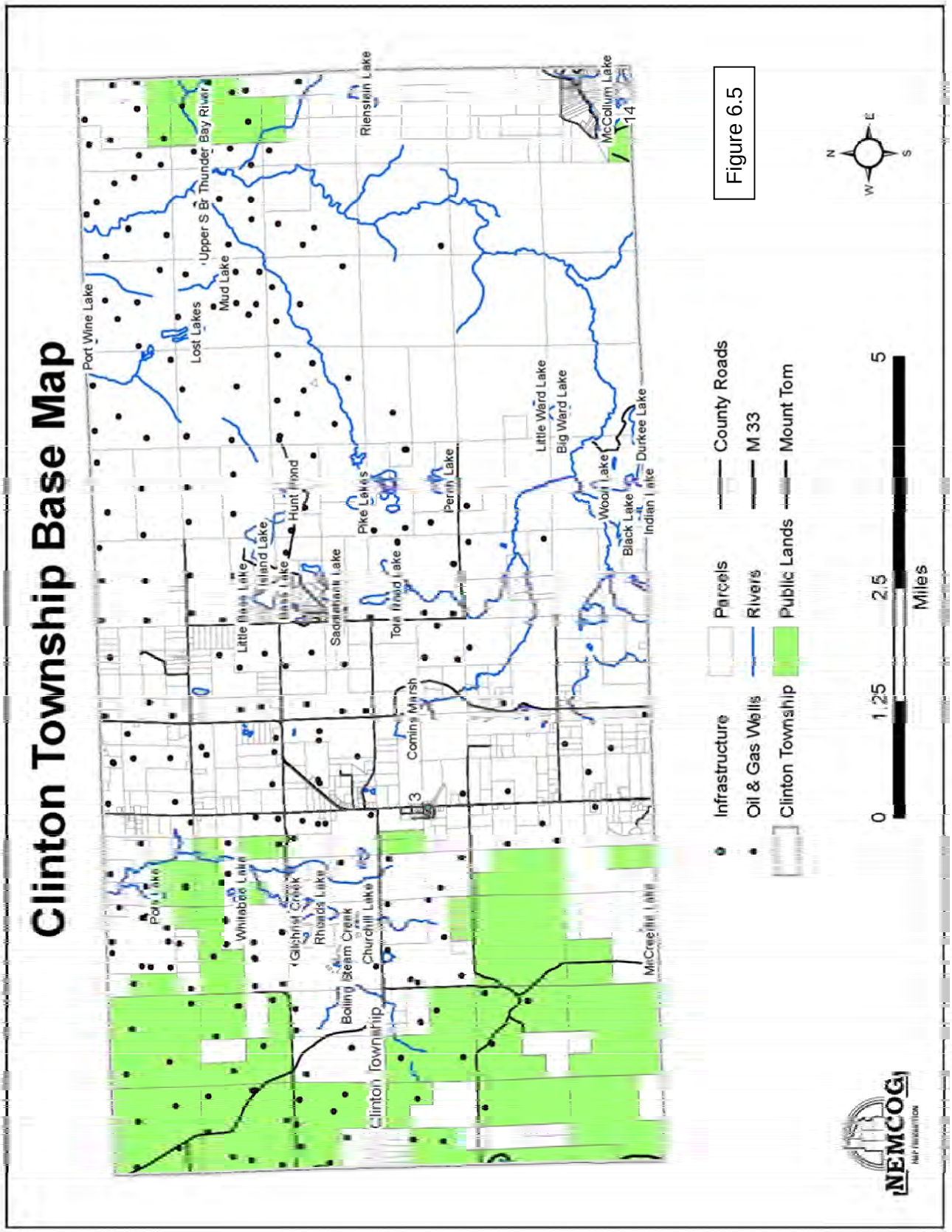
Clinton Township Base Map
Port Wine Lake
Lost Lakes
Upper S Br Thunder Bay River
Mud Lake
Riensteln Lake
McCollum Lake
14
Hunt Pond
Pike Lakes
Perrin Lake
Little Ward Lake
Big Ward Lake
Durkee Lake
Wood Lake
Black Lake
Indian Lake
Little Bass Lake
Island Lake
Bass Lake
Sagmaw Lake
Tom Pond Lake
Coming Marsh
3
Port Lake
Whitaker Lake
Galchrist Creek
Rhoads Lake
Beam Creek
Churchill Lake
Boling
Clinton Township
McCreelie Lake
Infrastructure
Oil & Gas Wells
Clinton Township
Parcels
Rivers
Public Lands
County Roads
M 33
Mount Tom
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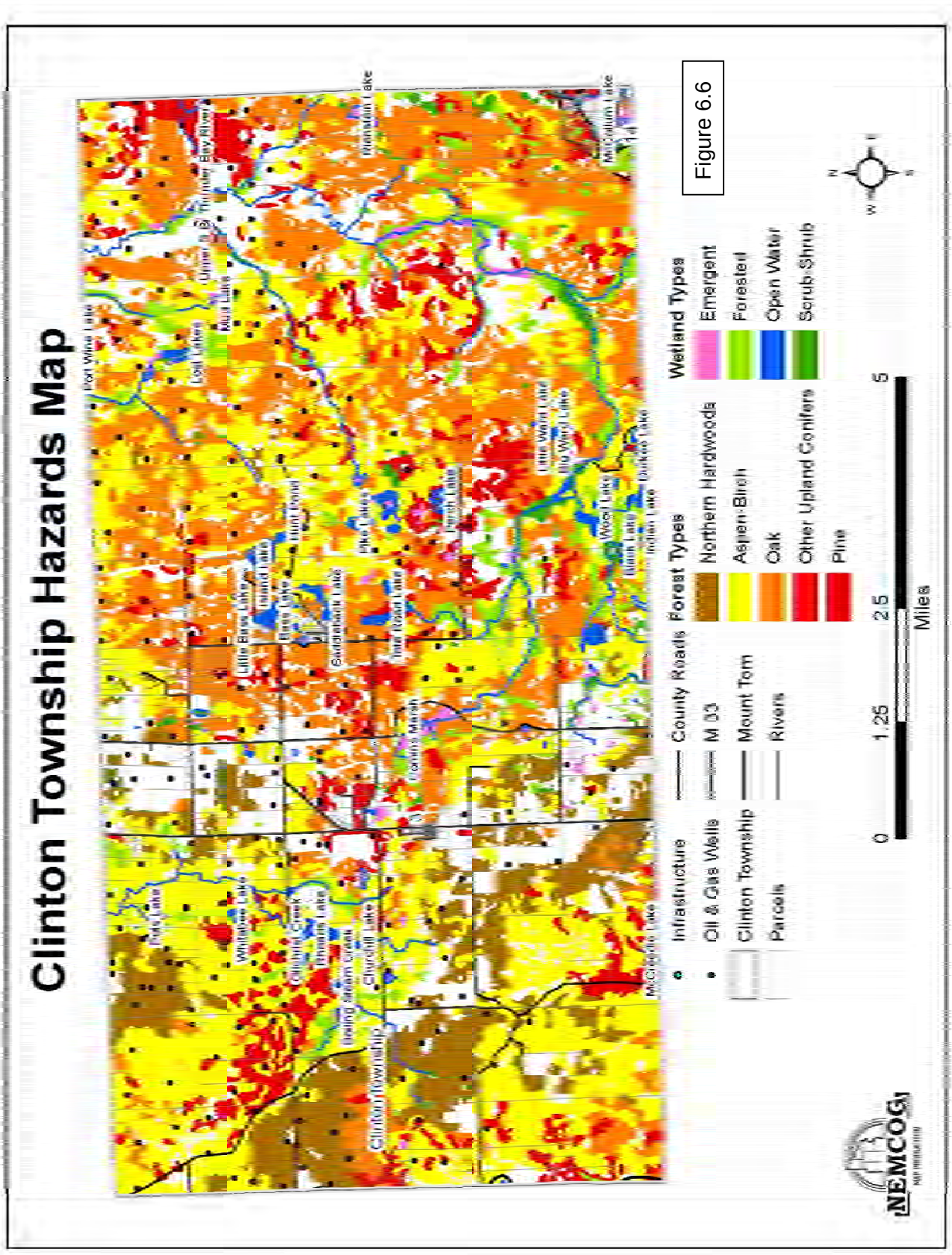
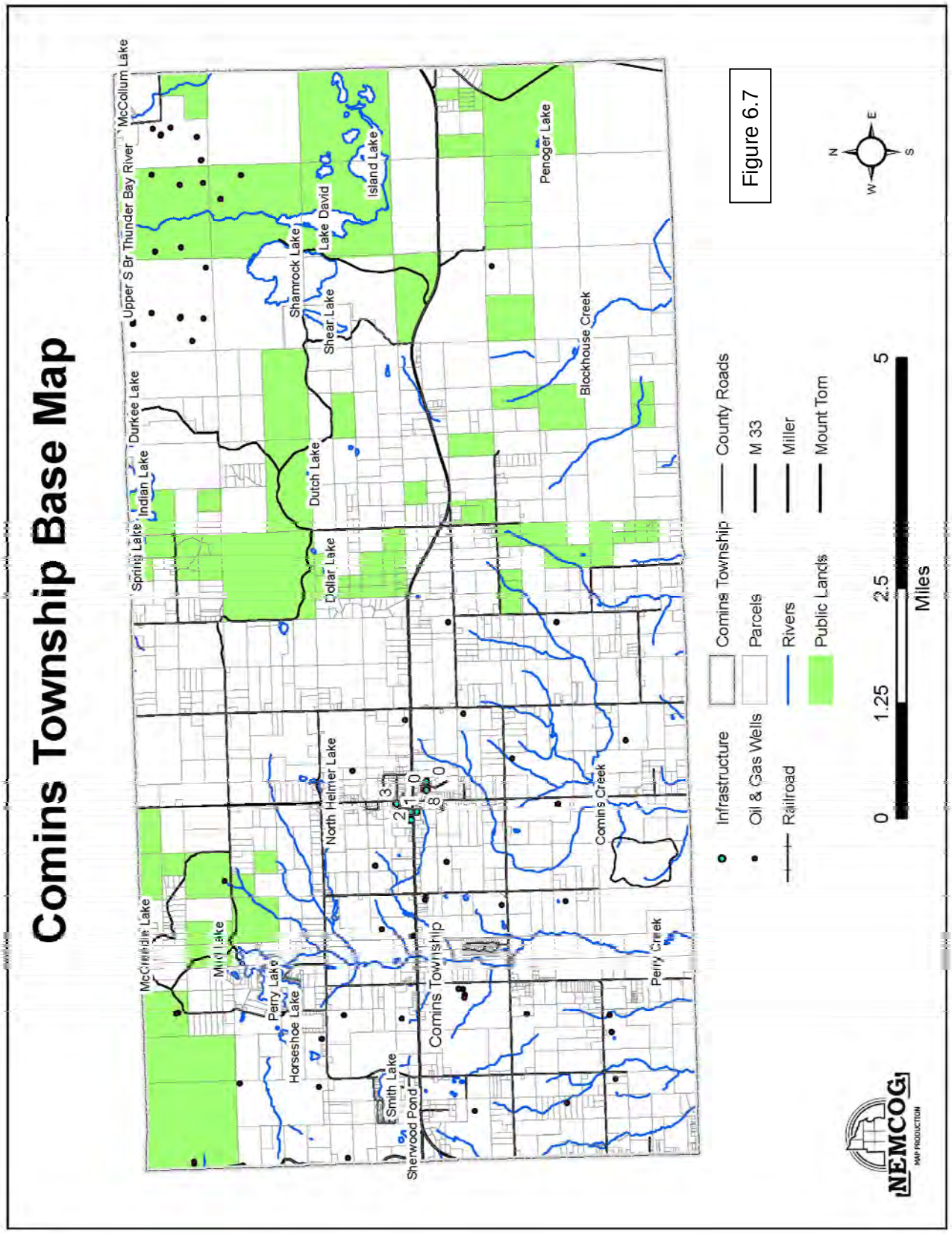
Figure 6.5


Clinton Township Hazards Map
Figure 6.6
Infrastructure
Oil & Gas Wells
Clinton Township
Parcels
County Roads
M 33
Mount Tom
Rivers
Forest Types
Northern Hardwoods
Aspen-Birch
Oak
Other Upland Conifers
Pine
Wetland Types
Emergent
Forested
Open Water
Scrub-Shrub
0
1.25
2.5
5
Miles
NEMCOG


Comins Township Base Map
McCollum Lake
Upper S Br Thunder Bay River
Durkee Lake
Indian Lake
Spring Lake
Shamrock Lake
Lake David
Island Lake
Shear Lake
Dutch Lake
Dollar Lake
Penoger Lake
Blockhouse Creek
North Helmer Lake
Comins Creek
McCollum Lake
Mud Lake
Perry Lake
Horseshoe Lake
Smith Lake
Sherwood Pond
Comins Township
Perry Creek
Comins Township
County Roads
Infrastructure
Parcels
M 33
Oil & Gas Wells
Rivers
Miller
Railroad
Public Lands
Mount Tom
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Miles
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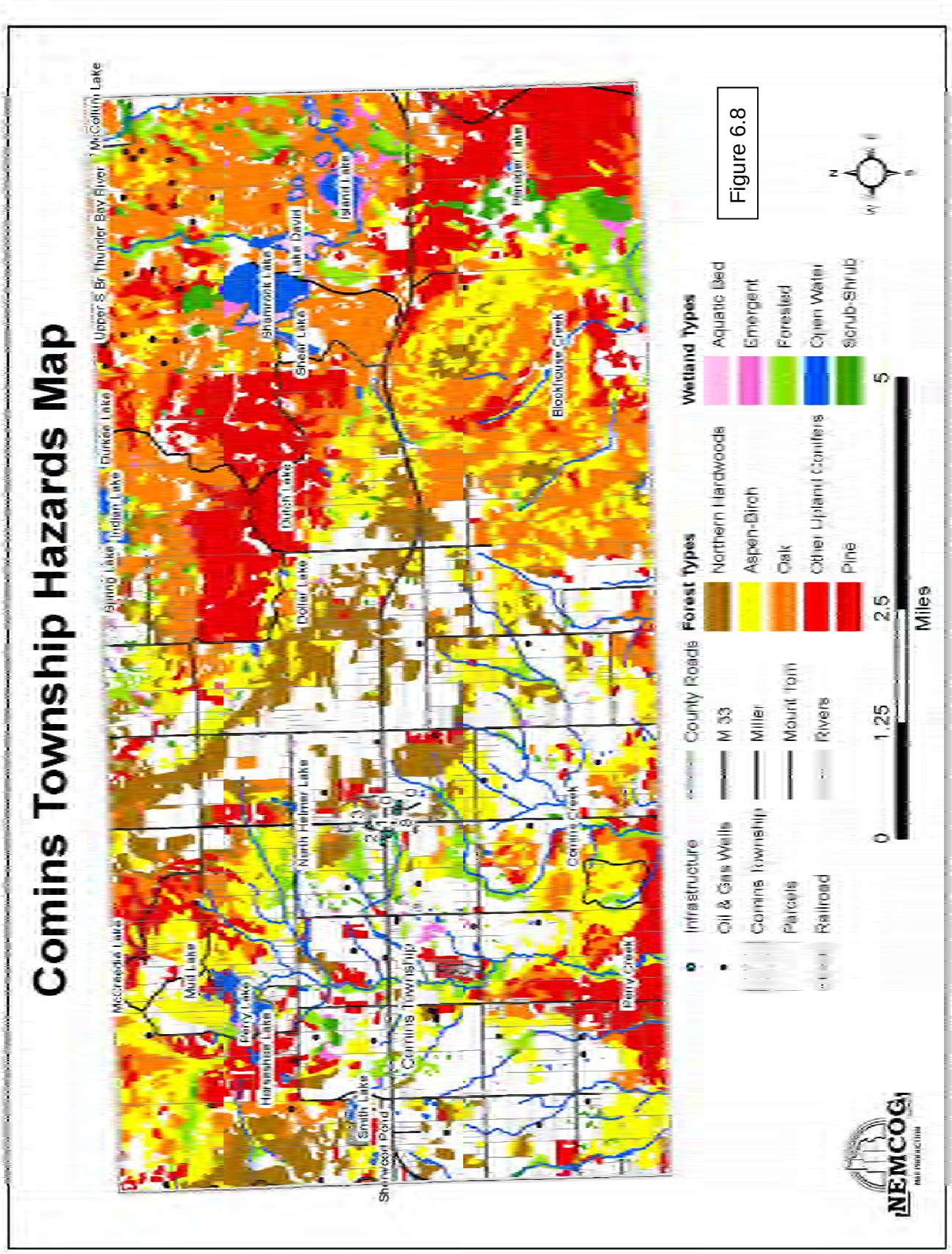
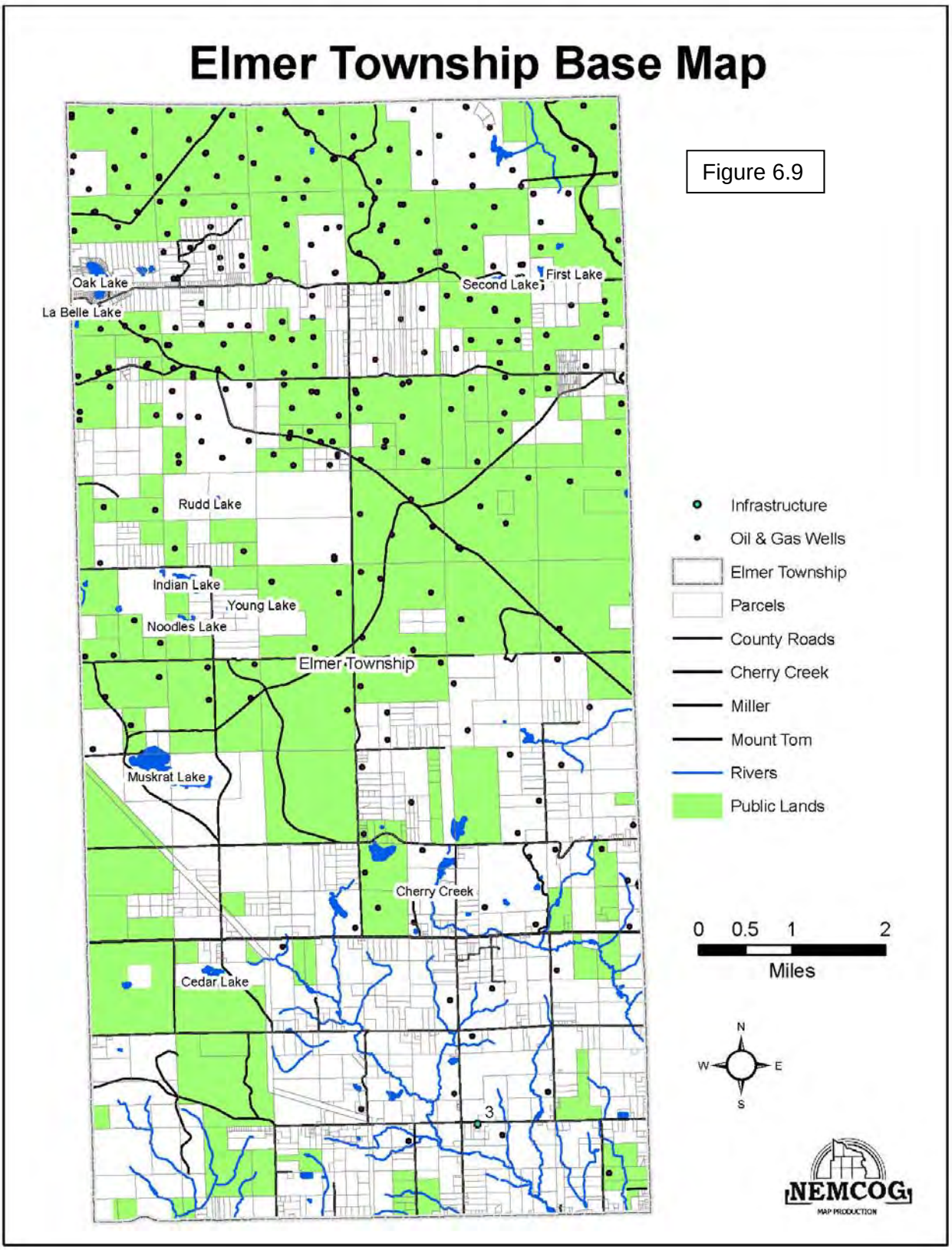
MAP PRODUCTION

Figure 6.7


Comins Township Hazards Map
Figure 6.8
Wetland Types
Aquatic Bed
Emergent
Forested
Open Water
Scrub-Shrub
Forest Types
Northern Hardwoods
Aspen-Birch
Oak
Other Upland Conifers
Pine
Infrastructure
Oil & Gas Wells
Comins Township
Parcels
Railroad
County Roads
M 33
Miller
Mount Tom
Rivers
0
1.25
2.5
5
Miles
N
W
E
S
NEMCOG
Upper S Br Thunder Bay River
McCollum Lake
Burke Lake
Indian Lake
Island Lake
Shamrock Lake
Lake David
Shear Lake
Dutch Lake
Doller Lake
Thunder Lake
Blockhouse Creek
McCreedie Lake
Mud Lake
Perry Lake
Horseshoe Lake
Smith Lake
Sherwood Pond
North Helmer Lake
Comins Township
Comins Creek
Perry Creek

Elmer Township Base Map



Elmer Township Hazards Map

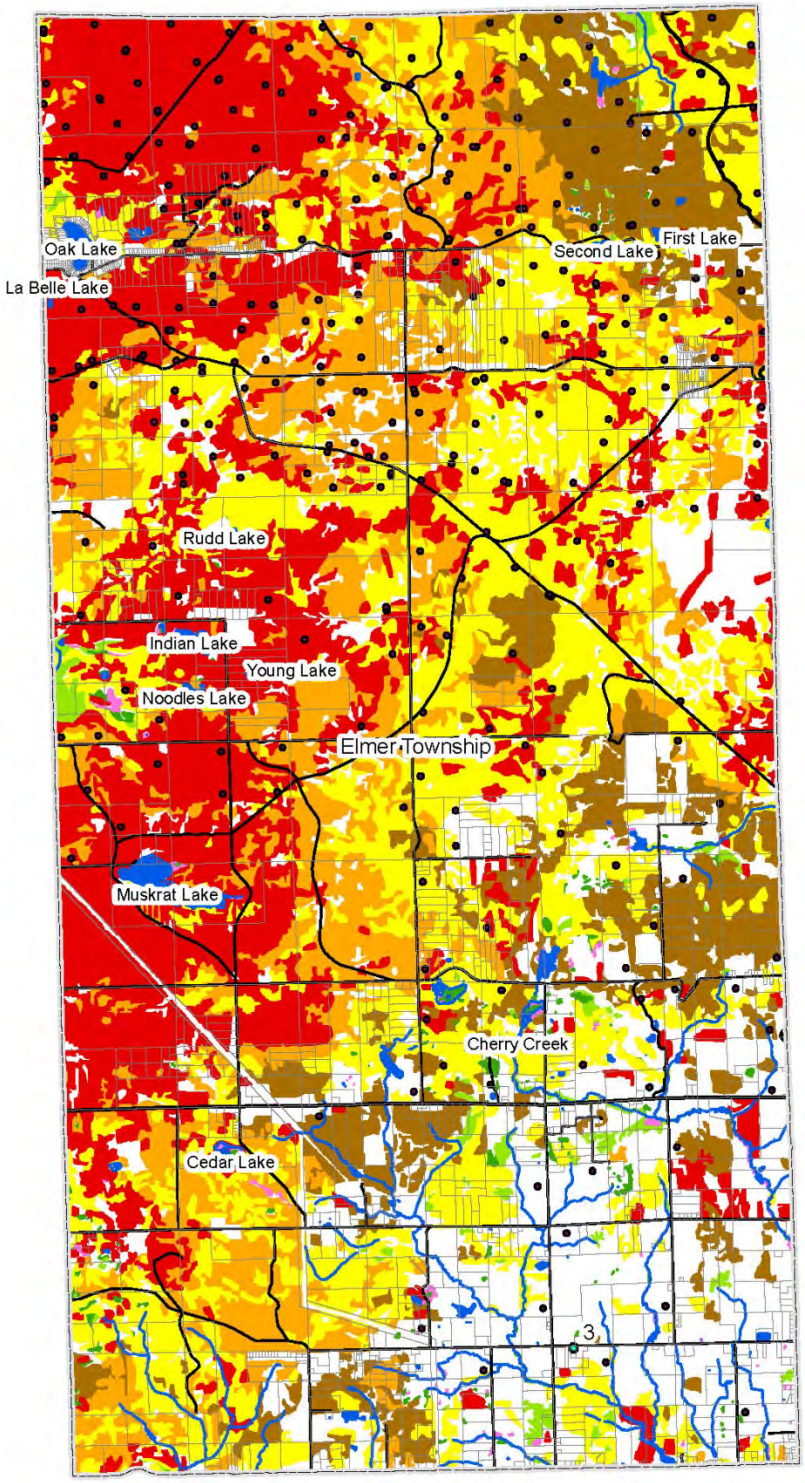


Figure 6.10

- Infrastructure
- Oil & Gas Wells
- Elmer Township
- Parcels
- County Roads
- Cherry Creek
- Miller
- Mount Tom
- Rivers

Forest Types

- Northern Hardwoods
- Aspen-Birch
- Oak
- Pine

Wetland Types

- Emergent
- Forested
- Open Water
- Scrub-Shrub

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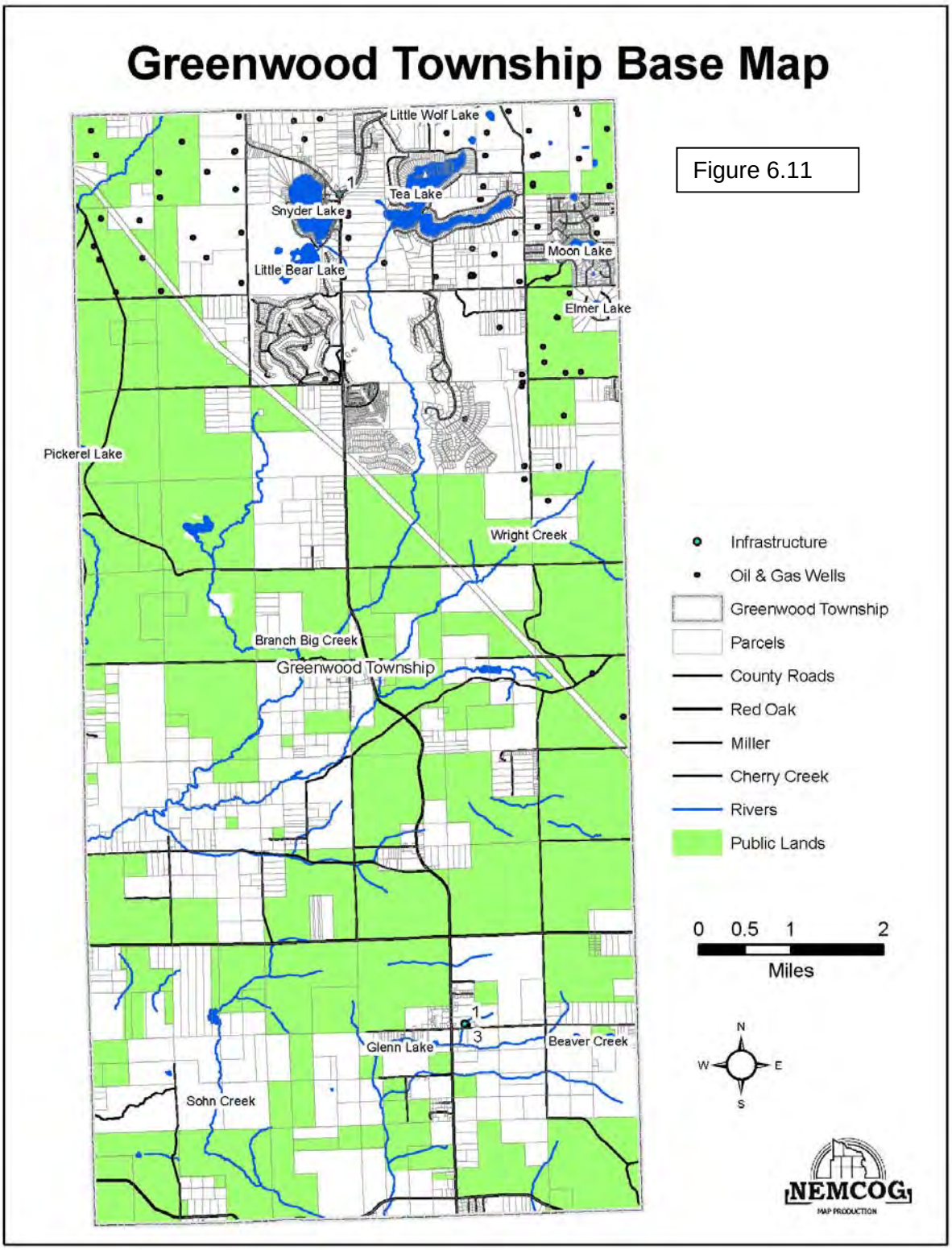
MAP PRODUCTION


Greenwood Township Base Map
Figure 6.11
Little Wolf Lake
Tea Lake
Snyder Lake
Moon Lake
Little Bear Lake
Elmer Lake
Pickerel Lake
Wright Creek
Branch Big Creek
Greenwood Township
Glenn Lake
Beaver Creek
Sohn Creek
Infrastructure
Oil & Gas Wells
Greenwood Township
Parcels
County Roads
Red Oak
Miller
Cherry Creek
Rivers
Public Lands
0 0.5 1 2
Miles
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MAP PRODUCTION

Greenwood Township Hazards Map

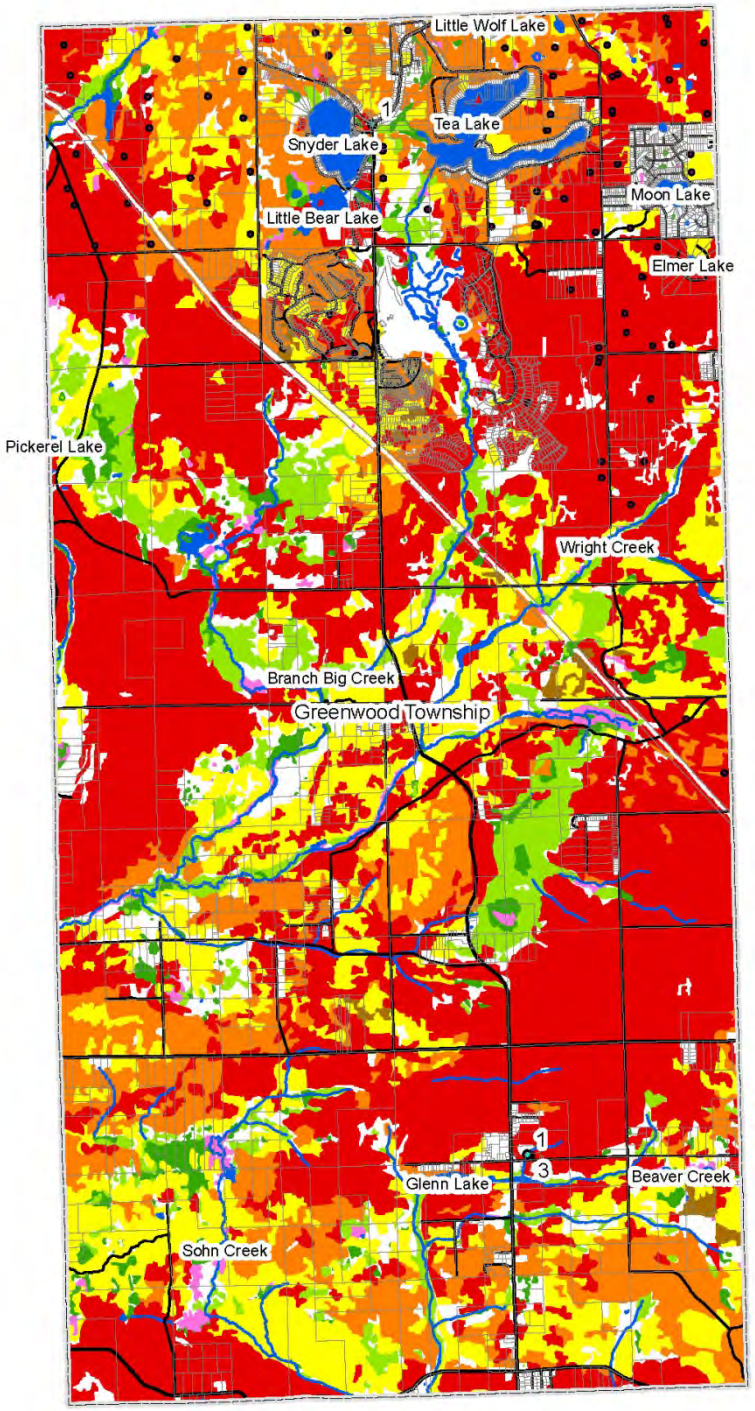

Figure 6.12

- Infrastructure
- Oil & Gas Wells
- Greenwood Township
- Parcels
- County Roads
- Red Oak
- Miller
- Cherry Creek
- Rivers

Forest Types

- Northern Hardwoods
- Aspen-Birch
- Oak
- Other Upland Conifers
- Pine

Wetland Types

- Emergent
- Forested
- Open Water
- Scrub-Shrub

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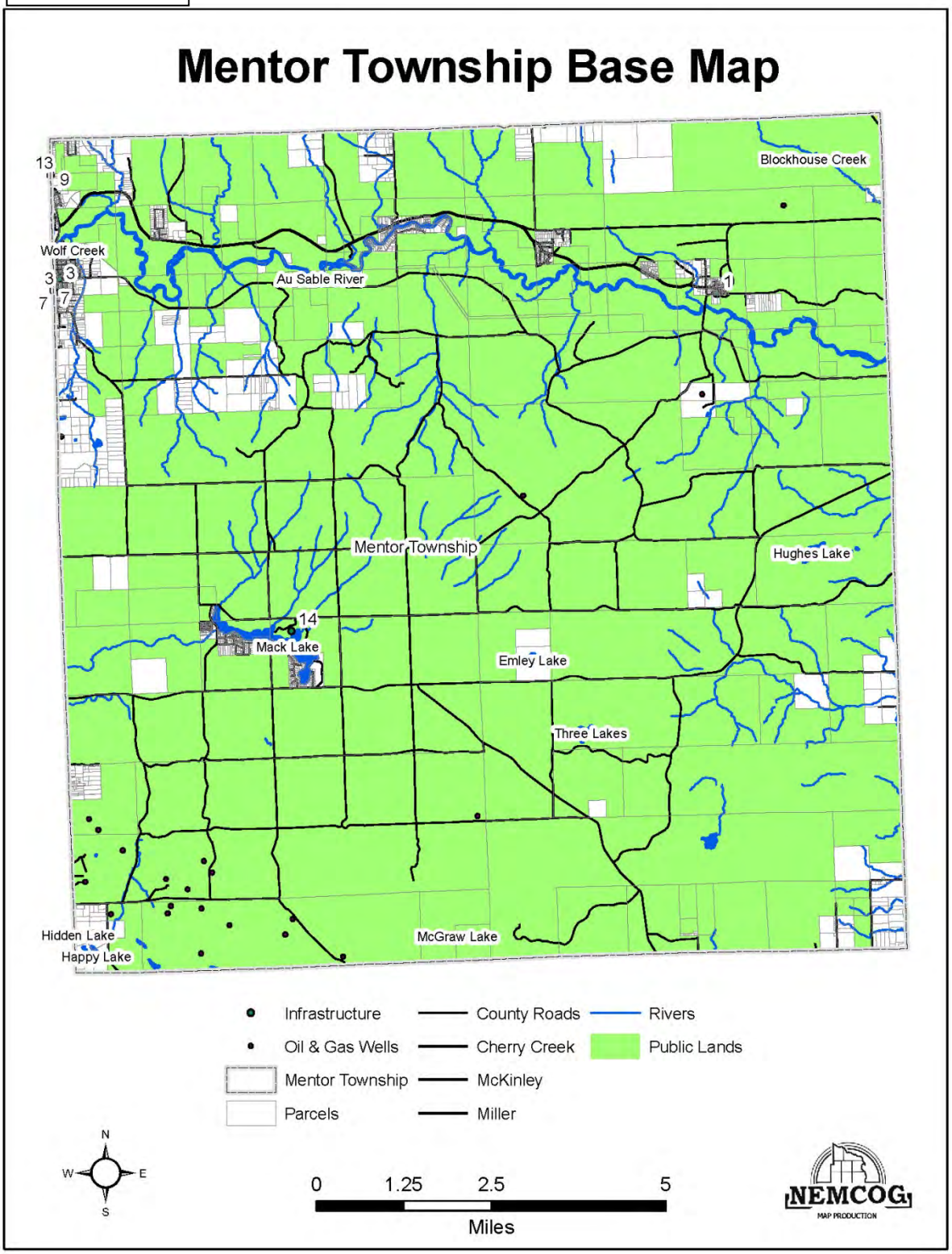
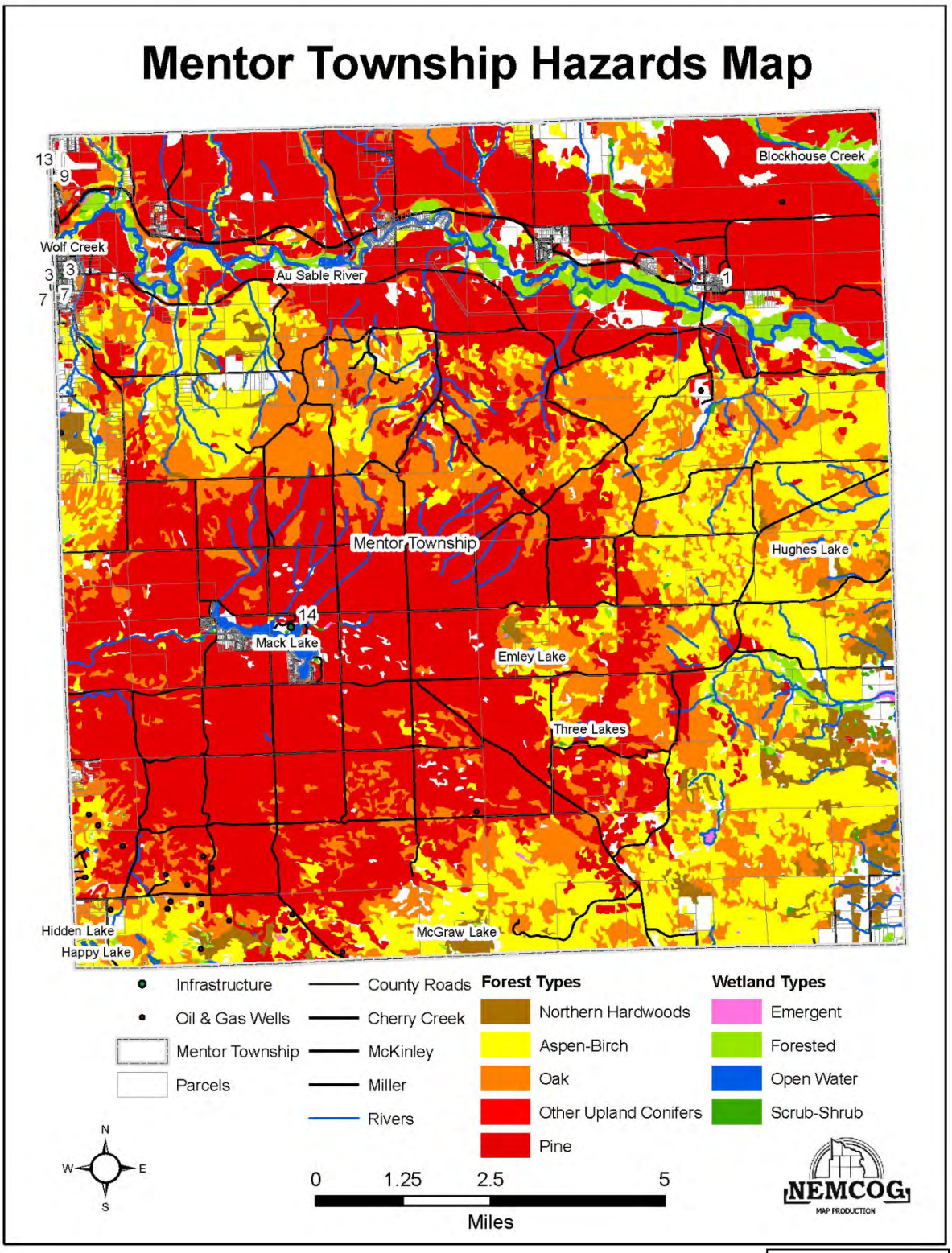
Figure 6.13


Mentor Township Base Map
Blockhouse Creek
Wolf Creek
Au Sable River
Mentor Township
Hughes Lake
Mack Lake
Emley Lake
Three Lakes
McGraw Lake
Hidden Lake
Happy Lake
13
9
3
7
14
1
Infrastructure
Oil & Gas Wells
Mentor Township
Parcels
County Roads
Cherry Creek
McKinley
Miller
Rivers
Public Lands
N
W
E
S
0
1.25
2.5
5
Miles
NEMCOG
MAP PRODUCTION


Mentor Township Hazards Map
Blockhouse Creek
Wolf Creek
Au Sable River
Mentor Township
Hughes Lake
Mack Lake
Emley Lake
Three Lakes
Hidden Lake
Happy Lake
McGraw Lake
Infrastructure
Oil & Gas Wells
Mentor Township
Parcels
County Roads
Cherry Creek
McKinley
Miller
Rivers
Forest Types
Northern Hardwoods
Aspen-Birch
Oak
Other Upland Conifers
Pine
Wetland Types
Emergent
Forested
Open Water
Scrub-Shrub
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Miles
NEMCOG
MAP PRODUCTION

Figure 6.14

Chapter 7 - Hazard Risk and Vulnerability Assessment

Hazard Ranking Methodology

After a thorough review of the community profile, a county hazard ranking was completed using a three step process. The first step was the selection of evaluation criteria, the second step was assigning relative weights to each of the rating criteria and the third step was assigning point values in each of the selected criteria for each of the hazards.

The selection of the evaluation criteria was done by determining what aspects of the hazards were of most concern to the community. This process was completed by assigning level of importance ranging from “Always Important” to “Not Worth Considering” to each hazard aspect. **Table 7.1** shows the complete lists of all the aspects considered and the level of importance assigned by the committee.

Each of the evaluation criteria was then assigned a “weight” to express the level of importance each of the criteria will have in ranking hazards. The sum of the weights of all of the evaluation criteria must equal 100%. Each of the individual criteria was assigned a percentage value based on the relative importance that specific criteria would have in ranking the various hazards. Point values of 1-10 were assigned using the scoring parameters as outlined in the Evaluation Measure Benchmark Factors shown on page 7-2. Using a spread sheet, values were input and calculated to provide a hazard ranking as shown in **Table 7.2.**

Hazard Analysis Evaluation Measures

The following is a list of six evaluation measures and corresponding benchmark factors that were used to evaluate each hazard facing the community. Those measures are: 1) likelihood of occurrence; 2) capacity to cause physical damage; 3) population impact (casualties); 4) ability to mitigate; 5) availability of warning systems; 6) economic impacts. Based on each individual factor’s relative severity and negative impacts a corresponding benchmark factor has been assigned (10, 7, 4 or 1 point).

<u>Likelihood of Occurrence</u>
Likelihood of occurrence measures the frequency with which a particular hazard occurs. The more frequently a hazard event occurs, the more potential there is for damage and negative impact on a community.

<u>Capacity to Cause Physical Damages</u>
The capacity to cause physical damages refers to the destructive capacity of the hazard. While the destructive capacity of some hazard events, such as floods and tornadoes, is often immediate and readily apparent, some hazards may have significant destructive capacity that is less obvious as it may occur over an extended period of time such as extreme temperatures or drought.

<u>Potential for Causing Casualties</u>
Potential for causing casualties refers to the number of casualties (deaths and injuries) that can be expected if a particular hazard event occurs.

Ability to Mitigate
Ability to mitigate refers to the relative ease with which a particular hazard event can be mitigated through the application of structural or non-structural (or both) mitigation measures. Generally, the easier a hazard event is to mitigate against, the less of a future threat it may pose to a community in terms of loss of life and property.

Availability of Warning Systems
Availability of warnings indicates the ease with which the public can be warned of a hazard. This measure does not address the availability of warning systems in a community, per se. Rather, it looks at the overall availability of warning in general for a particular hazard event. For example, a community might receive warning that a flood will occur within 24 hours, but receive no warning when a large structural fire occurs. Generally, hazards that have little or no availability of warning tend to be more problematic for a community from a population protection and response standpoint.

Economic Impacts
Economic effects are the monetary damages incurred from a hazard event, and include both public and private damage. Direct physical damage costs, as well as indirect impact costs such as lost business and tax revenue, are included as part of the total monetary damages.

Evaluation Measure Benchmark Factors

Likelihood of Occurrence	
Excessive Occurrence	10 pts
High Occurrence	7 pts
Medium Occurrence	4 pts
Low Occurrence	1 pt.

Potential for Causalities	
Significant Potential	10 pts
High Potential	7 pts
Medium Potential	4 pts
Low Potential	1 pt.

Potential For Damage	
Significant Potential	10 pts
High Potential	7 pts
Medium Potential	4 pts
Low Potential	1 pt.

Ability to Mitigate	
Impossible to Mitigate	10 pts
Difficult to Mitigate	7 pts
Possible to Mitigate	4 pts
Easy to Mitigate	1 pt.

Economic Impacts	
Significant Impacts	10 pts
Medium Impacts	7 pts
Low Impacts	4 pts
Minimal Impacts	1 pt.

Availability of Warnings	
Warnings Unavailable	10 pts
Generally Not Avail.	7 pts
Sometimes Available	4 pts
Warnings Available	1 pt.

Table 7.1 Oscoda Hazard Evaluation Criteria					
Hazard Aspect	Always Very Important	Usually Important	Sometimes Important	Rarely of Importance	Not worth Considering
Likelihood of Occurrence	X				
Capacity to Cause Damage	X				
Size of Affected Area	X				
Speed of Onset			X		
Percent of Population Affected					
Potential for casualties	X				
Potential for Negative Economic effects		X			
Duration of Threat		X			
Seasonal Risk Pattern			X		
Environmental Impact			X		
Predictability of Hazard		X			
Ability to Mitigate	X				
Availability of Warning System	X				
Public Awareness			X		
Corollary Effects			X		

Table 7.2: OSCODA COUNTY HAZARD RATINGS								
Evaluation Criteria								
	Likelihood of Occurrence	**Potential for Damage**	**Potential for Casualties**	**Ability to Mitigate**	**warning system**	**Economic Impact**	**Total Weight Must = 100%**	
WEIGHT =========>	**20%**	**20%**	**20%**	**20%**	**10%**	**10%**	**100%**	
Hazard							**Score**	**Rank**
Wildfire	10	7	4	7	5	7	6.80	1
Severe Winds	10	5	2	4	3	2	4.70	2
Winter Weather Hazard	10	3	1	2	4	4	4.00	3
Infrastructure Failure	6	5	1	4	4	3	3.90	4
Tornados	9	3	2	3	2	2	3.80	5
Public Health	4	1	8	4	1	3	3.80	5
Riverine Flooding	6	3	1	5	5	2	3.70	7
Structural Fire	9	1	1	5	3	2	3.70	8
Extreme Temperature	5	5	1	5	1	4	3.70	8
Drought	5	5	1	4	1	5	3.60	10
Lightning	8	2	1	5	2	1	3.50	11
Pipeline Accident	5	4	2	4	2	3	3.50	12
Transportation Hazmat	5	2	2	5	5	2	3.50	12
Hail	5	5	1	3	2	2	3.20	14
Dam Failure	2	4	1	2	2	10	3.00	15
Nuclear Attack	1	2	5	4	1	5	3.00	15
Terrorism/Sabotage/WMD	2	2	4	3	3	2	2.70	17
Transportation Accident	5	1	1	3	5	2	2.70	17
Oil/Gas Well Incident	2	2	1	2	2	1	1.70	19
Fixed Site Hazmat	1	1	1	1	1	1	1.00	20
Civil Disturbance	1	1	1	1	1	1	1.00	20
Scrap Tire Fire	1	1	1	1	1	1	1.00	20
Shoreline Flooding	1	1	1	1	1	1	1.00	20
Earthquake	1	1	1	1	1	1	1.00	20
Subsidence	1	1	1	1	1	1	1.00	20

Table 7.3
Oscoda County Hazard Ranking Summary

Hazard	History of Occurrence	Chance of Occurrence	Local Capability	Population/ Property Affected	Economic Impact	Hazard Ranking	Page No. Oscoda Hazard Analysis 2002
Wildfires	**4**	**4**	**2**	**3**	**3**	**16**	**16**
Infrastructure Failures	**4**	**4**	**2**	**2**	**1**	**13**	**28**
Severe Winds	**4**	**3**	**2**	**2**	**1**	**12**	**41**
Tornado	**4**	**2**	**2**	**1**	**3**	**12**	**51**
Severe Winter Storm Hazards	**1**	**2**	**0**	**5**	**2**	**10**	**68**
Riverine Flooding	**3**	**2**	**1**	**0**	**1**	**7**	**60**
Oil & Gas Well Accidents	**0**	**2**	**3**	**1**	**1**	**7**	**59**
Dam Failure	**4**	**1**	**1**	**0**	**1**	**7**	**62**
Pipeline Accidents	**0**	**2**	**2**	**1**	**1**	**6**	**65**
Public Health Emergencies	**0**	**2**	**2**	**1**	**1**	**6**	**67**

Source: Oscoda County Hazard Analysis, 1st Edition, January 2002

Risk Assessment and Vulnerability Assessment Summary

Risk Assessment

Based on the weighted hazard ranking process recommended in the Michigan Hazard Analysis workbook, the 2002 Oscoda County Hazard Analysis and community input, a composite of hazards and their relative risk and vulnerability are presented in Table 7.4. This list will be used as the foundation for developing hazard mitigation goals and strategies in subsequent chapters.

Vulnerability Assessment

This step looks at such points as population concentrations, age-specific populations, development pressures, types of housing (older homes, mobile homes), presence of agriculture, sprawl (spreading resources too thin), and other issues that may make Oscoda County more vulnerable to specific hazards. Following criteria were used to rank vulnerability as low, medium or high for each hazard. Further, analysis of hazards ranked as high risk, relies on information presented in earlier chapters.

High Vulnerability: If an event occurred it would have severe impacts over large geographic areas or more densely populated areas and have a serious financial impact on County residents and businesses.

Medium Vulnerability: If an event occurred it would have confined impacts on the safety of residents but would have a financial impact on County residents and businesses.

Low Vulnerability: If an event occurred it would have very minimal impact on the safety of County residents and minimal financial impact on County residents and businesses.

<u>Wildfire Hazard</u>
According to the 1978 Michigan Resource Information System Land Cover/use Inventory, over 80 percent of the County is forested. The most prevalent forest type is jack pine, covering over 34 percent of the county. The draughty, low fertility sandy soils, found in outwash plains and channels, supported pre-settlement jack pine forests that for thousands of years were perpetuated by wildfires. Today, residential development has occurred within these wildfire prone areas. Maps on pages 2-7 and 2-8 show the extent of current forest types and pre-settlement forest types. With the exception of the north central part of the county, all of the communities and developed areas of the county are considered highly vulnerable to wildfires. The Oscoda County Hazards Map (**Figure 6.2**) and individual community maps at the end of the chapter show areas of highest wildfire risk, pine forests are red, oak-pine forest are orange and aspen-birch forests are yellow. Wildfires can occur in all cover types; however, these three forest types have the highest risk.

As part of a nationwide effort to identify communities at high risk the following federal agencies developed a list of urban wildland interface communities in the vicinity of Federal lands that are at high risk from wildfire: Forest Service, Department of Agriculture; Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, and National Park Service, Department of the Interior. This was published in the **Federal Register** / Vol. 66, No. 160 / Friday, August 17, 2001; Urban Wildland Interface Communities within the Vicinity of Federal Lands that are at High Risk from Wildfire. Below is a list of communities identified in the document. State of

Michigan, along with many other states, felt the urban wildland interface is not limited to communities in the vicinity of Federal land and developed a comprehensive state list of communities at risk.

Oscoda County Communities at High Risk from Wildfires, Federal Register
Big Creek Township
Clinton Township
Comins Township
Greenwood Township
Luzerne
Mack Lake
Mentor Township
Mio

Community centers and dispersed rural residential development interfaces with these high risk forest types of pine, oak and aspen. Therefore, the entire county is highly vulnerable to wildfire hazards.

According to the 2000 US Census, there are 7,850 housing units in the eight identified communities that could potentially be at risk from wildfires. The median house value in Alcona County is $67,300. It is impossible to accurately predict potential loss of property if a wildfire were to occur in Oscoda County. Historical regional data shows in May of 1980, a wildfire in Oscoda County (known as the Mack Lake fire) destroyed 44 homes and buildings, forced the evacuation of 1,500 people, and killed one firefighter. A total of 24,000 acres were burned, resulting in a total property and timber loss of $2 million. In May 1990, a wildfire near Grayling in Crawford County (known as the Stephan Bridge Road fire) burned 76 homes and 125 other structures, 37 vehicles and boats, and over 5,900 acres of forestland, resulting in property losses of $5.5 million. The timber losses totaled another $700,000. The last twenty years have seen an increase in the number of second homes/cabins in the rural, forested parts of the county. As a result, a higher number of structures are considered vulnerable to wildfires. At the same time, local communities and state and federal agencies have improved their capacity to fight wildfires.

Summer Weather Hazard
Summer weather hazards include: thunderstorms, tornados, lightening, and hail. Strong winds and thunderstorm winds are common severe weather that affects Oscoda County. Annually, thunderstorms will occur on an average of 25 days per year and on average one or two thunderstorms per year will have severe winds. Since 1982 there have been 33 severe wind events recorded in the County. Over the past 15 years, five tornadoes have been recorded in Oscoda County. The most destructive tornado to touch down in Oscoda County was an F2 tornado that occurred on July 3, 1999 causing $1.5 million in damages. Of the five tornadoes that have been recorded in Oscoda County, one was an F2, three were an F1 and one was an F0.

According to the US Census there were 8,690 housing units in Oscoda County. Some 48 percent or 4,174 housing units are listed as seasonal, recreational or occasional use homes. Therefore, it can be assumed that the County's resident population can significantly increase during peak periods in the summer months. Furthermore, 17 percent of the housing stock is mobile homes, and 32 percent of the housing stock is 40 or more years old. Mobile homes and older homes tend to sustain the greatest amount of damage from severe wind events. Overall, all structures across the county are vulnerable to severe summer storm events and therefore, the county is considered highly vulnerable to these hazards.

Winter Weather Hazards

Winter weather hazards consisting of heavy snow, freezing rain and blizzards are prevalent natural hazard that occurs in Oscoda County. Since 1993, 29 heavy snowstorms and three blizzards have been recorded in Oscoda County. Over the past 10 years the county has averaged 3.3 severe winter weather hazards each year. The number and intensity of winter weather hazards can fluctuate dramatically from year to year. In 1993 heavy snowstorms, freezing rain and or blizzards occurred 8 times while in 1995 only one heavy snow storm was recorded.

While winter weather hazards are widespread and impact the entire county, elderly, disabled and homebound persons are most vulnerable. Of greatest concern are freezing rain events that can indirectly cause infrastructure failure through power outages from trees falling on power lines. Loss of power during cold weather will disable most furnaces. Twenty-eight percent of the housing units are heated with natural gas, 44 percent heat with bottled, tank or LP gas four percent use electricity and seven use fuel oil. In conclusion, most of the residences and businesses are highly vulnerable to winter storm events.

Infrastructure Failure

The greatest concern for infrastructure failure is power outages. This can be caused by local events such as high winds, freezing rain and wildfires. Events far from the county can also cause power outages. As stated above, power outages during winter months are most critical. With the exception of the downtown business district of Mio, the electrical delivery system consists of above ground power transmission lines. The network traverses a heavily forested landscape and is very vulnerable to impacts from falling branches and trees. Other concerns are phone service, as much of the area is not covered by cell phone service. An event in 2004 resulted in temporary loss of phone service over a large area of northeast Michigan. The event was attributed to a beaver cutting through a fiber optic line. While there is no history of failure from the natural gas delivery system, such an event would severely impact 28 percent of the housing units that use natural gas as well as most businesses in Mio and Fairview. The county is considered highly vulnerable to infrastructure failure.

Public Health

There is no hospital located in the county. For emergency medical services; people must travel to Alpena, Gaylord, West Branch, Tawas or Grayling to seek medical assistance. Elderly and low income populations are most vulnerable to public health emergencies. Twenty percent of the county population is 65 years and older. Ten percent of the families live below the poverty level while nearly 15 percent of the overall population lives below poverty level. Both of these figures are a few percentage points higher than Michigan as a whole. There is a growing Amish community in Oscoda County. Due to customs these families do not participate in immunization programs. Therefore, this population may be very vulnerable to certain public health emergencies. Given the lack of access to a hospital within the county and the above stated demographics, the county is highly vulnerable to public health emergencies.

Table 7.4
Oscoda County Risk and Vulnerability Assessment Summary

Hazards in Oscoda County	**Risk Assessment**	**Vulnerability Assessment**
Wildfire	High	High
Severe Summer Storm Hazards Severe Winds, Tornados, Lightening & Hail	High	High
Severe Winter Storm Hazards	High	High
Infrastructure Failure	High	High
Public Health	High	High
Extreme Temperatures	Medium	Medium
Riverine Flooding	Medium	Medium
Terrorism/Sabotage/WMD	Medium	Medium
Drought	Medium	High
Transportation of Hazardous Materials	Medium	Medium
Dam Failures	Medium	Medium
Oil and Gas Wells Accidents	Medium	Low
Transportation Accidents	Medium	Low
Petroleum and Natural Gas Pipeline Accidents	Medium	Medium
Structural Fires	Medium	Medium
Nuclear Attack	Low	High
Hazardous Materials Fixed Site	Low	Low
Civil Disturbance	Low	Low
Scrap Tire Fire	Low	Low
Shoreline Flooding	Low	Low
Earthquakes	Low	Low
Subsidence	Low	Low

Chapter 8 - Goals and Objectives

The purpose of this chapter is to establish the goals and objectives that will guide hazard mitigation efforts in Oscoda. In developing community goals and objectives, it is important to analyze existing community characteristics such as social and economic conditions, services and facilities, environmental conditions, and existing land use. Furthermore, hazard analysis and vulnerability assessment must be considered. Preceding chapters of this hazard mitigation plan have documented the above items.

Community Workshop

NEMCOG and the Oscoda County Emergency Management Director both sent meeting notices to townships, cities, villages, county board of commissioners and LEPC members. A meeting notice and article about hazard mitigation planning were published in a local newspaper. Ten people attended the workshop to help develop draft goals. These draft goals were sent to all communities and LEPC members in addition to being posted on NEMCOG's and Oscoda County's web sites.

Goals and Objectives

Goals are general guidelines that explain what a community wants to accomplish. Goals are often long term and represent broad visions. Objectives define strategies or implementation steps to attain the identified goals. They are specific, measurable and may have completion dates. Local communities are encouraged to incorporate these goals and objectives into their other planning activities, such as master plans and capital improvement plans.

GOAL 1: Protect Public Health and Safety

OBJECTIVES

- Provide community wide hazard warning systems (natural, health and terrorism)
- Provide information and resources to increase hazard awareness and education
- Maintain existing resources and provide necessary training
- Identify and obtain necessary resources and equipment to prevent or minimize hazard effects

GOAL 2: Minimize Damage to Public and Private Property

OBJECTIVES

- Adopt policies to make property less vulnerable
- Apply proactive mitigation measures to prevent hazard damage
- Obtain necessary equipment, resources and training to protect property if hazard occurs
- Conduct training sessions and exercises to prepare for possible hazards

GOAL 3: Maintain Essential Services

OBJECTIVES

- Identify, inspect and maintain all critical infrastructure and facilities
- Repair or replace critical infrastructure and facilities that are damaged or degraded
- Protect critical infrastructure and facilities from hazard damage
- Obtain necessary resources and equipment to insure essential services are maintained in the event of a hazard

GOAL 4: Guide Growth/Development

OBJECTIVES

- Protect and conserve natural resources
- Develop hazard resistant growth policies
- Discourage development in high hazard areas
- Integrate hazard mitigation planning into land use planning
- Encourage sustainable development

GOAL 5: Build partnerships to support emergency response services and hazard mitigation activities on a regional basis.

OBJECTIVES:

- Continue to work cooperatively with agencies and communities in Alcona County.
- Continue to work cooperatively with agencies and communities in northern Michigan.
- Develop regional grant applications for hazard mitigation implementation.
- Continue to participate in the Region 3 Homeland Security Board.

Chapter 9 - Mitigation Strategies and Priorities

The next step in the hazard mitigation planning process is to identify mitigation actions suitable to the community, evaluate the effect the action will have on the specified mitigation objective and prioritize actions to decide what sequence or order these actions should be pursued.

Mitigation actions can be grouped into six broad categories:

1. Prevention. Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.

2. Property Protection. Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.

3. Public Education and Awareness. Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

4. Natural Resource Protection. Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

5. Emergency Services. Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities.

6. Structural Projects. Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

Identification of Mitigation Actions

Members of the LEPC met on June 26, 2012 to review hazard analysis and update mitigation actions. The following tables provide a prioritized list of the mitigation actions identified at the meeting.

Evaluation and Prioritization of Mitigation Actions

Members of the LEPC met on June 26, 2012 to re-evaluate and prioritize the list of mitigation actions. The committee identified level of government, agencies and organizations that would be responsible for completing the prioritize projects, as well as identifying possible funding sources. This information is included in the tables of Chapter 9. In addition, during the prioritization process each project was evaluated with regard to its: social impact, technical feasibility, administrative potential, political impact, legal ramification, environmental impact, overall benefit and cost effectiveness. A prioritized listing of mitigation projects and actions for significant hazards follows.

The first listing covers mitigation actions that can apply to more than one hazard. The remaining lists are presented as the hazards were ranked for Oscoda County.

Review and Updating Hazard Mitigation Action Items

The Committee reviewed the 2006 Mitigation Strategies and made necessary changes. Several action items were eliminated or combined. Actions that have been completed were eliminated. Time lines were altered on mitigation strategies. The 2006 mitigation strategies list is attached to show changes in the document.

Changes in local land development have been negligible given the 2007 nationwide recession. The committee did not identify areas with significant land development since the last plan was completed and therefore made no changes to the plan in relation to new development.

Most activities in the hazard mitigation plan that the community has worked on are related to on-going mitigation actions.

The committee made minor changes in priorities in the Public Health by elevating its risk and adding strategies.

Capability Assessment

Presently, staff and financial resources are limited in the communities. For example, none of the communities have planners, foresters, floodplain managers, public works engineers, transportation engineers, and civil engineers on staff. The community has an active and strong Emergency Management Office. Oscoda County has no zoning enforced at the county level. Three of the county's six townships, Comins, Greenwood and Mentor Township, have their own zoning ordinances. These four entities have planning commissions, but do note have planners on staff. The Northeast Michigan Council of Governments (NEMCOG) provides planning assistance to local communities on a project by project basis. U.S. Forest Service and the Michigan Department of Natural Resources have foresters on staff to conduct forest and fuels management on public lands. Forest management assistance on private land is limited to forestry consultants and the county conservation district. Agencies and local units of government have fire suppression crews. All entities provide some level of prevention and education activities. However, additional staff and financial resources would be needed to implement this comprehensive hazard mitigation plan.

<u>Potential Local Partnerships for Hazard Mitigation Activities</u>
County Emergency Management Coordinator
County Board of Commissioners
Township Boards
County Road Commission
County Sheriff Department
Township Fire Department
Building Department
Planning Commissions
Zoning Administrators
Conservation District
Housing Commission
Northeast Michigan Council of Governments

Michigan State Police
US Forest Service
Michigan Department of Natural Resources
Huron Pines RC&D
Natural Resource Conservation Service
NEMSCA
Health Department
Federal Emergency Management Administration

Mitigation Actions & Implementation Strategies **A. Multi-Hazard Actions, #1**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Enhance and expand a public education program for all natural hazards that threaten the community.	High	A. J. O.	B. C. T	Countywide	Distribution of information at county fair and other events. Weather Service weather watcher programs each year	Ongoing	Ongoing
2. Conduct workshops at community gatherings to encourage residents to develop a Family Disaster Plan which includes the preparation of a Disaster Supplies Kit.	High	A. I. J. K. N.	B. C. H. I. N. T	Countywide	Weather Service weather watcher programs each year. Distribution of information at county fair and other events. Raffled kits.	2006	Ongoing
3. Continue to develop Emergency Response Team program to help prepare for all hazard events in the county.	High	A. D. E. H. I. J.	A. H. T	Countywide	Active Local Emergency Planning Committee, Local Planning Team, Incident Management Team and Regional Response Team.	Ongoing	Ongoing
4. Work with power companies to inventory condition of power line right-of-ways, and identify priority sections to clear branches and trees from power lines. The end goal is to create and maintain a disaster-resistant landscape in public rights-of-way.	Med	A. E. P. U.	M. T	Countywide	Progress made	2007	Ongoing
5. Enhance and expand an all hazards education and awareness program in schools, which includes classroom presentations and incorporating wildfire and weather hazard preparedness into school curriculums.	Med	A. D. J. O. R.	B. C. T	Countywide	Progress made, yearly presentations, FFA and science classes provide information	2006	Ongoing
6. Distribute family emergency preparedness information relating to all natural hazards affecting the County.	Med	A. D. H. I. J. N.	B. C..H. T	Countywide	Information provided at county fair, schools, and National Weather Service weather watchers workshops.	Ongoing	Ongoing
7. Organize outreach program to vulnerable populations during and after hazard events, including wildfires, extreme winter and summer weather events, periods of extreme temperatures, public health emergencies, and other hazards that can impact the community.	Med	A. D. H. I. J. N. O. V.	B. C. I	Countywide	Progress made, Council on Aging maintains a list of elderly, USFS, MDNR and Fire Departments do presentations to schools	2007	Ongoing
9. Build the capabilities of the county GIS program to function as a tool to address multiple hazards. This effort would require the creation/updating of datasets such as parcels/ownership, location of all structures, driveways with ingress/egress conditions, roads, forest types, ownership types, floodplains, utilities (power lines, gas lines and water lines), wetlands, water features, bridges and culverts, (SARA III sites)	Med	A. B. C. E. F. H. J. V.	B. C. Q. T	Countywide	Completed parcel mapping, no other progress made	Ongoing	Ongoing

A. County Emergency Management Office	**G.** MSU Extension	**M.** Local Businesses	**S.** Medical
B. County	**H.** District Health Dept.	**N.** Civic Gr.& Churches	**T.** Federal Government
C. Local Units of Gov.	**I.** American Red Cross	**O.** National Weather Service	**U.** landowners
D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **A. Multi-Hazard Actions, #2**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
10. Increase usage of NOAA Weather Radio by subsidizing purchase and distribution of radios to county residents, organizations and businesses. Use NOAA radios as a community emergency alert system to information on hazard events.	Med	A.	T	Countywide	Progress made- received grant to distribute radios to critical sites such as senior's centers, and campground. Radios given to individuals and special events	Ongoing	Ongoing
11. Ensure that the County and individual communities have adequate equipment, staff, and training to respond to transportation-related accidents specific to their needs.	Low	B. C. D. E. V.	N/A	Countywide	Progress made	2010	Ongoing
12. Enforce a balanced system of ordinances that protect the community as-a-whole while respecting the rights of individuals.	Low	C	N/A	Local jurisdictions	Progress made	2012	Ongoing
13. identify optimal staffing levels for County and community needs – seek funding to meet optimal levels	Low	B. C.	N/A	Countywide	Ongoing	2012	Ongoing
14. Acquire portable/changeable message signs to direct crowds and provide information.	Low	A. E.	N/A	Countywide	No activity	2007	2014
15. Individual communities should prepare future land use plans and capital improvement programs to plan for their future needs.	Low	B. C.	N/A	All Townships	Communities are updating master plans per state statutes	Ongoing	Ongoing
16. Communities will acquire and maintain an adequate level of emergency power generators to supply emergency water needs, wastewater processing, emergency communications, emergency health care, and shelters.	Med	A. B. C.	B. C. T	Countywide	Purchased portable generator, generators purchased for critical facilities	2015	2015
17. Communities will work with the Federal Emergency Management Agency (FEMA) to identify flood plains.	Low	A. B. C. E. T.	N/A	Countywide	No activity	2015	2015
18. Encourage key gasoline stations have the capacity to pump gasoline during power outages.	Low	A. C. E. M. V.	N/A	Countywide	Minor progress	2010	2015
19. Develop plans to identify and inform persons of "Safe Areas" during festivals/events. (include signs and directions to shelters)	Low	A. B. C. D. E. M. N. V.	N/A	Mio and Fairview	Progress made, working on effort	2015	2015
20. Where feasible and cost effective (more densely populated areas) bury and protect power and utility lines.	Low	A. C. P.	N/A	Countywide	Phone lines are being upgraded and buried	2015	2015

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D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **B. Wildfire Actions, #1**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Coordinate countywide wildfire education program: distribution of materials via direct mailings, school presentations, demonstration projects, displays at community events, displays and education materials at community libraries.	High	A. B. C. D. I. J. G. R.	B. C. Q. T	Countywide	Information distributed at county fair, other events and schools	Ongoing	Ongoing
2. Develop and implement strategy to introduce "Firewise" program in at-risk communities.	High	A. B. C. D. I. J. G.	Q. T	Countywide	Information distributed at county fair, other events and schools	Ongoing	Ongoing
3. Identify communities or neighborhoods to develop "Firewise" demonstration projects.	High	A. B. C. D. I. J. G.	Q. T	Countywide	Major progress made, USFS constructed fuelbreaks adjacent to vulnerable communities	Ongoing	Ongoing
4. Distribute wildfire education materials to homeowners and businesses through tax bill receipts.	High	A. C. D. J. K. P.	D. Q. T	Countywide	No activity	2007	Ongoing
5. Develop Community Wildfire Protection Plan	Med			Countywide	No progress will consider this cycle	New	2015
6. Promote creation of defensible space around structures in fire-prone wildland areas.	Med	A. C. D. I. J. K.	T	Countywide	Information distributed and county fair and other events	2007	Ongoing
7. Community Chipper Days – Organize a program to provide a chipper for properly disposing of woody debris, in conjunction with composting programs and spring clean-up days.	Med	A. B. C. D. K. M. N. P.	B. C. T	Countywide	USFS opens old barrow pits for residents to use as disposal sites for woody debris	2010	2016
8. Implement community wildland fire education program utilizing the Student Conservation Association – Fire Education Corps, to provide land managers and communities with tools and information designed to reduce the negative impact of wildland fires on individuals living in the wildland urban interface.	Med	A. B. C. D. I. J. G.	D. Q. T	Countywide	Removed	2010	2015

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D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **B. Wildfire Actions, #2**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
9. Conduct multi-agency, inter-county emergency management response exercises for fire suppression.	Med	A. D. I. J. V.	T	Countywide	Conducted	2008	Ongoing
10. Develop a program to instruct residents on proper procedures for wildfire evacuation	Med	A. B. C. D. J. N. I.	B. C. D. Q. T	Countywide	Progress made	2008	Ongoing
11. Promote and implement fuel management by thinning of flammable vegetation, creation of fuel breaks, use of fire-retardant materials/vegetation and selective thinning....	Med	J. U.	Q. T	Countywide	Through stimulus funding the USFS created fuelbreaks adjacent to high risk communities on public lands	2007	Ongoing
12. Promote and implement solutions for keeping roads and driveways accessible to vehicles and fire equipment.	Med	A. C. D. E. U.	Q. T	Local Jurisdictions	Minor Progress	2007	Ongoing
13. Promote media broadcasts of fire weather and fire warnings	Low	A. O. J.	N/A	Countywide	MDNR and USFS media announcements	2010	Ongoing
14. Identify adequate water supplies for emergency firefighting, areas lacking adequate water supplies and develop strategy to construct dry hydrants.	Low	D. E. J.	N/A	Countywide	Progress made and ongoing	Ongoing	Ongoing
15. Work with insurance companies to provide wildfire safety information to area residents.	Low	K.	N/A	Countywide	No progress	2015	2015
16. Enforcement of open burning regulations	Low	B. C. D. J. V.	N/A	Countywide	Ongoing progress	2011	Ongoing

A. County Emergency Management Office	**G.** MSU Extension	**M.** Local Businesses	**S.** Medical
B. County	**H.** District Health Dept.	**N.** Civic Gr.& Churches	**T.** Federal Government
C. Local Units of Gov.	**I.** American Red Cross	**O.** National Weather Service	**U.** landowners
D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **C. Summer Weather Hazards Actions**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Increase usage of NOAA Weather Radio by subsidizing purchase and distribution of radios to county residents, organizations and businesses	High	A. O.	T	Countywide	Progress made- received grant to distribute radios to critical sites such as senior's centers, schools and campgrounds. Radios given to individuals and special events	Ongoing	Ongoing
2. Continue training and increased use of weather spotters.	High	A. C. O. V.	O	Countywide	National Weather Service sponsors weather watchers workshops	Ongoing	Ongoing
3. Maintain a listing of homes and facilities with vulnerable residents such as elderly, infirmed and disabled individuals. Establish outreach procedures for assisting residents after severe summer storm events	High	A. C. H. N. Q. S.	B. C. H. T	Countywide	Progress made	Ongoing	Ongoing
4. Develop or update emergency response plans for schools, campgrounds, fairgrounds, parks, community events and marinas	High	A. N. R. V.	A. T	Countywide	Updates ongoing	Ongoing	Ongoing
5. Identify campgrounds, fairgrounds, parks, and outdoor recreational facilities that lack and need "Safe Areas." Where necessary construct safe areas and storm shelters.	Med	A. B. C. J. M. R.	A. T	Countywide	Progress made sites identified at county fairgrounds. Other sites will be reviewed periodically	2010	2015
6. Amend building codes to require installation of weather radios in new structures, similar to smoke detectors	Low	Q.	N/A	Countywide	No activity	2015	2015
7. Require new mobile home parks to have tornado/wind shelters	Low	Q.	N/A	Countywide	No mobile home parks have been developed since 2005	2015	2015
8. Continue pre-planning efforts for debris management staging and storage areas	Low	A. B. C. E.	N/A	Countywide	No activity	2015	2015
9. Amend building codes to require anchoring of manufactured homes and exterior structures such as carports and porches	Low	Q.	N/A	Countywide	Progress made	2015	2015
10. Include safety strategies for severe weather events in driver education classes and materials	Low	M. Q. R.	N/A	Countywide	Information provided	2015	2015

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B. County	**H.** District Health Dept.	**N.** Civic Gr.& Churches	**T.** Federal Government
C. Local Units of Gov.	**I.** American Red Cross	**O.** National Weather Service	**U.** landowners
D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **D. Winter Weather Hazards**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Establish heating centers/shelters for vulnerable populations	High	A. B. C. I. N. V.	B, C, H, T	Countywide	Sites identified and being reviewed periodically	Ongoing	Ongoing
2. Compile a listing of homes and facilities with vulnerable residents such as elderly, infirmed and disabled individuals; and establish outreach procedures for assisting residents after severe winter storm events	High	A. C. H. N. Q. V.	A, H, T	Countywide	Minor progress made	2008	2015
3. Prearrange for shelters for stranded motorists/travelers.	Low	A. N. Q. V.	B, C, I, N	Countywide	Minor progress	2015	2015
4. Complete and inventory problem sections of roads. Place snow fences or "living snow fences" (rows of trees or vegetation) to limit blowing and drifting of snow over critical roadway segments	Low	E. V.	N/A	Countywide	Ongoing, progress made	2015	2015

Mitigation Actions & Implementation Strategies **E. Infrastructure Failures**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Establish redundancies in utility and communications systems, especially "lifeline" systems	High	A. B. C. D. P. V.	M.T	Countywide	Progress made and ongoing	Ongoing	Ongoing
2. Identify sites, obtain support and seek funding to improve critical road/stream crossings	Med	C. E. F. Q.	B. C. Q. T	Countywide	Progress made and ongoing	2010	Ongoing
3. Purchase and/or maintain generators for backup power at critical facilities	Med	A, B, C, R. S. T. V.	B. C. T	Countywide	Purchased generators for facilities and portable generator	2010	Ongoing
4. Establish and improve programs/networks for contacting elderly or homebound persons during periods of infrastructure failure, to assess whether they have unmet needs	Med	A. B. I. N. V.	N. T	Countywide	Progress made	2010	2016
5. Protect electrical and communications systems from lightning strikes by completing an inventory of protection systems and where necessary upgrade systems.	Med	A. B. C. F.	B. C. T	Countywide	Progress made	2012	Ongoing

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B. County	**H.** District Health Dept.	**N.** Civic Gr.& Churches	**T.** Federal Government
C. Local Units of Gov.	**I.** American Red Cross	**O.** National Weather Service	**U.** landowners
D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **F. Public Health Emergencies**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Encourage residents to receive immunizations against communicable diseases	High	H. I. N. Q. S.	H. T	Countywide	Progress made and ongoing	Ongoing	Ongoing
2. Maintain a community public health system with sufficient disease monitoring and surveillance capabilities to adequately protect the population from large-scale outbreaks	High	H. Q. S. T.	H. T	Countywide	In place	2007	Ongoing
3. Increase public awareness of the causes, symptoms, and protective actions for disease outbreaks and other potential public health emergencies	High	H. N. R. S.	H. T	Countywide	Progress made and continue to work on activity	2007	Ongoing
4. Inform public and support pollution control, enforcement and cleanup; proper disposal of chemicals and scrap materials	Med	A. B. H. M. Q. R. T.	H. T	Countywide	In place and ongoing	2010	Ongoing
5. Expand community support of free or reduced-expense clinics and school health services	Med	B. C. H. N. Q. S.	H	Countywide	Continuing to expand programs	2010	Ongoing
6. Increase public awareness of radon dangers and the prevention efforts that can be taken to reduce concentrations of radon in homes and buildings	Low	H. Q.	A, H	Countywide	In place and ongoing	2012	Ongoing
7. Demolish and clear vacant condemned structures in populated areas to prevent rodent infestations	Low	C. B. H.	B, C	Countywide	Progress made and Ongoing	2015	Ongoing
8. Coordinate with health department and local communities to assure proper location, installation, cleaning, monitoring, and maintenance of septic tanks	Low	C. H.	C, H	Countywide	Progress made and Ongoing	2015	Ongoing
9. Seek support and funding to clean up sites of environmental contamination	Low	B. M. Q. T.	Q, T	Countywide	Progress made and Ongoing	2012	Ongoing
~~Install chemical spill containment system for Mio stormwater conveyance system~~	~~High~~	~~C. B.~~	~~B. C. H. Q~~	~~Mio~~	~~Completed~~	~~2007~~	~~Completed~~

A. County Emergency Management Office	**G.** MSU Extension	**M.** Local Businesses	**S.** Medical
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D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **G. Dam Failures**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Ensure consistency of dam Emergency Action Plan (EAP) with the local Emergency Operations Plan (EOP) by conducting annual reviews.	High	A. B. P. V.	T	Countywide	Yearly and ongoing	Ongoing	Ongoing
2. Maintain and improve public awareness and warning systems	Med	A. P. V.	B, C, T, U	Countywide	In place and ongoing	2010	Ongoing
3. Regulate development in the dam's hydraulic shadow (where flooding would occur if there was a severe dam failure).	Low	C	C	Countywide	No activity	2015	Ongoing
4. Real estate disclosure laws that identify a home's location within a dam's hydraulic shadow	Low	L. Q.	Q	Countywide	No progress	2015	2015

Mitigation Actions & Implementation Strategies **H. Hazardous Material Transportation Incidents**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Provide for trained, equipped, and prepared search and rescue teams	High	A. B. C. D. V.	B, C, T	Countywide	Major progress and ongoing	NEW	Ongoing
2. Maintain and enhance trained, equipped and prepared local hazardous materials emergency response teams	High	A. B. C. D. V.	B, C, T	Countywide	Progress and ongoing	NEW	Ongoing
3. Increase coverage and use of NOAA Weather Radio (which can provide notification to the community during any period of emergency, including large scale hazardous material incidents)	Med	A.	T	Countywide	Major progress and ongoing	NEW	Ongoing
4. Develop evacuation plans and community awareness of them	Med	A. V.	A. T	Countywide	Progress and ongoing	NEW	2017
5. Improve capability of agencies to carry-out road closures and to provide traffic control in accident areas	Med	E. V.	E. T	Countywide	Completed and ongoing	NEW	Ongoing

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D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **J. Transportation Accident**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Review and/or develop Regional EMS response plan to assist county's mass casualty plan.	High	A,S	T	Countywide	Ongoing	NEW	A.S.A.P.
2. Provide more training for fireman, police and first responders to school bus and commercial bus accidents.	High	A.B.C.D.E.R	T	Countywide	Progress made and ongoing	NEW	A.S.A.P.
4. Meet with local industries from surrounding counties to determine type of products transported over county highways, and provide local HAZMAT team and fire agencies with this information.	Medium	A,C,D,Q,S,T,V	T	Regional	Minor Progress	NEW	Mid-term
5. Provide training, planning, and preparedness for mass-casualty incidents involving all modes of public transportation.	Medium	A,B,C,D	T	Countywide	Ongoing	NEW	Short-term
6. Exercise a 60-person accident involving a passenger bus.	Medium	A,B,C,D,R,O,V	T	Countywide	Completed in multi-county training	NEW	Mid-term
7. Provide exercise for pipeline or propane accidents.	Medium	Q	T	Countywide	Completed in 2012	NEW	Ongoing
8. Encourage strict enforcement of trucking industry highway speed	Low	W	T	Countywide	Ongoing	NEW	Short-term
9. Continue upgrade protocols in Central Dispatch.	High	A,D,S,W	T	Countywide	Ongoing	NEW	Ongoing
10. Provide more training for airfield emergencies involving all county fire departments.	High	A,B,C,D,Q,S,V	T	Countywide	Training to be held in 2014	NEW	Ongoing
11. Research and develop medical airlift plans.	High	A.B.Q.S	T	Countywide	Major progress	NEW	Mid-term
12. Inventory current heavy equipment, wreckers and jaws units within 30 minutes of county locations.	Low	A	T	Countywide	Completed and ongoing	NEW	Ongoing
13. Encourage strict highway speed enforcement during school transport times.	Medium	A,W,	T	Countywide	Ongoing	NEW	Ongoing
14. Promote and conduct annual review of school buses and emergency exits, plus new features.	Medium	R,Q	T	Countywide	Ongoing	NEW	Ongoing

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F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Chapter 10 - Adoption and Implementation

Adoption Process

Public Review and Comment
Several avenues were used to disseminate the draft plan for public review and comment. First of all, CD copies of the plan were distributed to each local municipality. A printed version was placed at each library in the County and in the County Clerk's office. The draft plan was posted on NEMCOG's web site. A newspaper article and notice informed county residents of the completed draft plan, where it could be reviewed and when the County Board of Commissioners would be considering approval.

Adoption
The Oscoda County Hazard Mitigation Plan was presented to the Oscoda County Board of Commissioners at their regular monthly meeting on November 5, 2013. A notice of the presentation and proposed actions was published in the local newspaper. The purpose of the presentation was to describe the planning process, conclusions and recommended actions. The Oscoda County Board of Commissioners adopted the Hazard Mitigation Plan. A copy of the resolution is reproduced at the end of this chapter.

A presentation was made to the Oscoda County Chapter of the Michigan Township Association. Local officials from all of the townships were present at the meeting. The purpose of the presentation was to describe the hazard mitigation planning process, conclusions and recommended actions. After the plan has been reviewed by the State of Michigan and FEMA, an updated copy will be sent to the county board and each township requesting them to formally adopt the plan at their next township board meeting.

Community Capabilities

Oscoda County Planning Commission completed a master plan in 2005. Oscoda County has no zoning enforced at the county level. Three of the county's six townships have exercised their authority under state statutes to administer their own planning and zoning. They are Comins, Greenwood and Mentor Townships. These three communities have a zoning administrator, planning commission and zoning board of appeals that administer their zoning. The planning commissions are responsible for overseeing the master plan, recreation plan and zoning ordinance. The Township Boards and County Board are the governing bodies responsible for managing finances and making policy decisions. None of the communities have planning and zoning staff and rely on planning commissions to oversee planning and zoning activities. Townships do not have staff, but rely on elected officials to conduct township business.

All townships provide fire and rescue services either on their own or under a cooperative arrangement. Oscoda County has an office of emergency services. The County operates a countywide 911 system. The Oscoda County Sheriff Department operates under the county board of commissioners. Oscoda County has an appointed drain commissioner who works with communities and landowners on drainage and flooding issues. The County Road Commission manages the local road network in conjunction with townships. The Michigan Department of Transportation is responsible for State and Federal highways.

The communities have limited capability of implementing action items in the plan and will use a combination of staff, elected officials, appointed officials (planning commissions) and contractual services. Given current budget constraints it is not likely communities will be “staffing up” in the near future. Instead they will use contractual and temporary if necessary to complete hazard mitigation strategies.

Plan Implementation

Roles and Responsibilities

The primary entities responsible for implementing the Hazard Mitigation Plan are the Oscoda County Board of Commissioners and the Oscoda County Emergency Management Coordinator. The Local Emergency Management Committee (LEPC) is organized under Michigan SARA Title III Program and meets on a regular basis to carry out its duties. This plan recommends the committee expand its role to function as the County Hazard Mitigation Committee to oversee implementation of the plan. This may require the LEPC to amend its bylaws. Roles will need to be defined by the committee but may include establishing an annual work plan, supporting grant writing to seek funding to complete projects, monitoring mitigations activities, evaluating the need for new projects, amending the plan to add new projects and functioning as a clearing house for mitigation grant applications.

It is understood that current resources, both staff and financial, will not accommodate the expanded role of the Oscoda LEPC and Oscoda Emergency Management Office. The County Board of Commissioners will need to evaluate funding and staffing required to implement the Oscoda Hazard Mitigation Plan.

Working partnerships with the following agencies and organizations will strengthen the County’s hazard mitigation program.

County Emergency Management Coordinator
County Board of Commissioners
Oscoda County Departments
County Sheriff Department
Townships in Oscoda County
Township Fire Departments
Oscoda County Conservation District
Oscoda County Road Commission
Northeast Michigan Council of Governments
Michigan Department of Natural Resources
Michigan Department of Environmental Quality
U.S. Forest Service
Michigan State University Cooperative Extension Service
Michigan Department of Agricultural
Natural Resource Conservation Service
District Health Department #2
Huron Pines RC&D
American Red Cross
Insurance Companies
Real Estate Companies

Local Businesses
Civic Groups and Churches
Federal Emergency Management Administration
Michigan State Police

Process for Monitoring, Evaluating and Updating

Monitor – The Oscoda County Hazard Mitigation Committee and the Oscoda County Emergency Management Coordinator will be responsible for monitoring the implementation of the Mitigation Plan. This may include reviewing reports from agencies involved in implementing projects or activities; having a staff person, who is responsible for overseeing the plan, conduct site visits and meetings concerning mitigation project activities; preparing an annual mitigation activity report for the County Board of Commissioners. This will be done during the five year update or more often if deemed necessary.

Evaluate – The Oscoda County Hazard Mitigation Committee and the Oscoda County Emergency Management Office will be responsible for evaluating the effectiveness of the plan. This will be done during the five year update or more often if deemed necessary.

The evaluation should assess whether:

- The goals and objectives address current and expected conditions;
- The nature, magnitude and/or type of risks have changed.
- The current resources are appropriate for implementing the plan.
- There are any problems with implementation.
- There have been favorable outcomes
- Agencies and other partners participated as originally expected.

The Disaster Mitigation Act (DMA) of 2000 requires the Oscoda County Hazard Mitigation Plan be updated every five years. This may include updating community profiles, examining goals, redoing the hazard analysis and revisiting the project list. *In order to properly update the plan, Oscoda County will need to seek funding from appropriate state and federal agencies.* It may be necessary to examine the project each year and as projects are completed and new mitigation projects are identified, the list would be updated. Local units of government, county departments, and local, state and federal agencies will have the ability to propose and sponsor projects from the hazard mitigation plan. Coordinating with the HMC will support plan implementation and allow the committee to monitor progress and determine timing and scope of plan revisions. Any update would require public comment, county approval, local jurisdictional approval if projects are located or proposed in a particular township, and approval by the State of Michigan and FEMA.

Process to Incorporate into Local Planning Activities

Oscoda County, townships, as well as, local and state agencies will consider integrating information from the Hazard Mitigation as their perspective comprehensive and operations plans. The county is in the process of updating their master plan and will consider incorporating appropriate hazard mitigation information into the master plan. Three of the six townships administer zoning. As a part of the education and outreach aspect of the hazard mitigation effort, communities will be encouraged to adopt zoning regulations that will minimize effects of hazards.

Ongoing Public Participation

Oscoda County is committed to involving the public in the implementing and updating of the Hazard Mitigation Plan. Copies of the plan will be available at county libraries, county clerk's office and all township offices. The plan contains the address and phone number of the Emergency Management Office, which will be responsible for keeping a record of public comments on the plan.

Copies of the plan will be posted on a community web site or regional planning agency web site. The web page will contain the mailing address, phone number and email address of the appropriate contact person.

During the update process of the Hazard Mitigation Plan, the committee will advertise and facilitate a public meeting to obtain input and guidance from the general public, businesses, townships and agencies. A notice will be posted to advertise any meeting of the Hazard Mitigation Committee where the committee is reviewing and/or updating the mitigation plan.

COUNTY OF OSCODA

Board of Commissioners
Telephone (989) 826-1130
Fax Line (989) 826-1173

Oscoda County Courthouse Annex 105 S. Court Street, P.O. Box 399, Mio, MI 48647

OFFICAL MINUTES
NOVEMBER 05, 2013

OSCODA COUNTY BOARD OF COMMISSIONERS
SPECIAL BUDGET BOARD MEETING 9:00 A.M. SESSION HELD ON
TUESDAY, NOVEMBER 05,, 2013 IN THE COMMISSIONER'S
ROOM, COURTHOUSE ANNEX MIO, MICHIGAN

Members Present: Commissioners Kischnick, Christenbery, Wilson, Boerner, and Grantner.
Members Excused:
Others Present: County Clerk, Jeri Winton, County Treasurer, William Kendall, and two other attendees.
Chairman Kischnick called the meeting to order at 9:00 a.m.
Roll Call, followed by the Pledge to the Flag.

The Board approved the Agenda for the Special Budget Board Meeting, **November 05, 2013, as presented.

Christenbery/Wilson a motion to accept the **Agenda** for **November 05, 2013;** as presented.
2013-289

5 ayes: 0 nays: **Motion Carried.**

Public Comments (Regarding Agenda):

APPOINTMENTS:

The following 2014 General & Special Fund Budgets were reviewed.

**District Court- Ms. Jennifer Huebel, District Court Administrator.
**Department of Veterans Affairs, Sailor & Soldiers, and Veterans Trust – Ms. Elizebeth Cuddington, Veterans Counselor.
**Family Division, DHS, Basic Grant, and Child Care – Mr. Brian Watros, Juvenile Officer, and Ms. Cristy Slocum, Circuit Court Administrator.
**Prosecuting Attorney Office- Ms. Casandra Morris Bills, Prosecuting Attorney.

**Commissioner Kischnick called for a lunch recess.

Wilson/Boerner a motion to recess for lunch (12:24 p.m.).
2013-290

5 ayes: 0 nays: **Motion Carried.**

Wilson/Boerner a motion to return to the Special Budget Meeting (1:15 p.m.)
2013-291

5 ayes: 0 nays: **Motion Carried.**

**Oscoda County Library- Ms. Judy Olson, Library Board Chairperson.
**Board of Commissioners, Executive B.O.C Secretary, Animal Control, Ins./Bonds/Fringes, Contingency, Health/ Welfare, Appropriations, Historical Commission, Gypsy Moth, Public Improvement, Park Board, Hazmat, Housing, Council on Aging, Social Services, and Airport- Ms. Brenda Moore, Executive B.O.C Secretary.
**Contracts up for renewal were reviewed, including: Park Manager, Airport Manager, Animal Shelter, Emergency Management Coordinator, Plumbing Inspector, Mechanical Inspector, Electrical Inspector, Chief County Medical Examiner, Medical Examiner Investigator, O'CATS & Soldiers & Sailors, Economic Development Corporation (EDC) & Economic Development Alliance (EDA), First Step Drug Screening, and the Department of Veterans Affairs & O'CATS.
**Economic Development Corporation (EDC) & Brownfield and the Planning Commission Budgets - Ms. Gail Farley, Chairperson and Mr. Tim Jenks, Vice Chair.

Public Comments & Matters:

**Commissioner Kischnick called for a motion to adjourn.

Boerner/Christenbery a motion to adjourn today's meeting, **November 05, 2013,** (5:10 p.m.).
2013-292 5 ayes: 0 nays: **Motion Carried.**

****The next Regular B.O.C Meeting is scheduled for Tuesday, November 12, 2013 at 10:00 a.m.**

John A. Kischnick, Oscoda County Board of Commissioners, Chairman

Jeri Winton, Oscoda County Clerk & Register of Deeds

COUNTY OF OSCODA

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OFFICAL MINUTES
NOVEMBER 26, 2013

A REGULAR MEETING OF THE OSCODA COUNTY BOARD OF COMMISSIONERS WAS HELD ON TUESDAY **NOVEMBER 26, 2013 AT 10:00 A.M.** IN THE COMMISSIONER'S ROOM, COURTHOUSE ANNEX MIO, MICHIGAN

Members Present: Commissioners Kischnick, Christenbery, Wilson, Boerner, and Grantner.
Members Excused:
Others Present: 17 members of the public were in attendance.
Chairman Kischnick called the meeting to order at 10:00 a.m.
Roll Call, followed by the Pledge to the Flag.

The Board approved the Agenda for today's meeting, **November 26, 2013, with one addition.

Appointment: Ambulance Service Department - Jason Beck, Ambulance EMS Director.

Christenbery/Grantner a motion to accept the **Agenda** for **November 26, 2013**, with one item
2013-316 added.

5 ayes: 0 nays: **Motion Carried.**

The Board reviewed & approved the **Unofficial Minutes and the **Closed Session Minutes** from the **November 12, 2013,** Board of Commissioners Meeting, as they were presented.

Grantner/Boerner a motion to approve the **Unofficial Minutes,** from the **November 12, 2013**
2013-317 B.O.C Meeting, as presented.

5 ayes: 0 nays: **Motion Carried.**

Christenbery/Boerner a motion to approve the **Closed Session Minutes,** from the **November 12, 2013**
2013-318 B.O.C Meeting, as presented.

5 ayes: 0 nays: **Motion Carried.**

Public Comments (Regarding Agenda):

**Chairman Kischnick asked Mr. Doug Davis, sitting in the audience, who he was recording the Board Meeting for. Mr. Davis stated he was recording on behalf of the "Tea Party". Chairman Kischnick stated the Board has received complaints from the public that the recordings have been put on U-Tube and asked that he not record anyone who does not wish to be recording and not to display it on U-Tube.

Appointments:

**Mr. Cy Wakeley, Housing Director, Crawford County Housing Commission, asked the Board to adopt a Resolution for "2013 Fair Housing".

Wilson/Christenbery a motion to adopt **Resolution 2013-011**"Oscoda County 2013 Fair Housing"
2013-319 as presented.

5 ayes: 0 nays: **Motion Carried.**

** Mr. Rob McSwain, Member Relations Manager, Merit Networks Inc. presented a power point on the Fiber Optic Network Extension contracted with the County, back in June, the status on the Homeland Security Grant for the set-up of the Internet Service and discussed future phone services Merit could offer. After the PowerPoint and some discussion, Chairman Kischnick offered Mr. Glen Wilson from M-33 Access to address the Board; it was suggested Mr. Wilson make an appointment to address the Board at a future meeting.

** Jason Beck, Ambulance EMS Director, Ambulance Service Department, presented the Board with documentation along with a request to purchase (2) new Ambulances and to remount (2) two others. After a lot of discussion, Commissioner Wilson asked the Board to table, until the next Board meeting, to allow the Board time to review the documentation and get some questions they have answered.

Wilson/Christenbery a motion to table a decision on the purchase of (2) Ambulances and to remount (2)
2013-320 Ambulances, until the B.O.C December 10, 2013 Board Meeting.

5 ayes: 0 nays: **Motion Carried.**

Boerner/Wilson a motion to take a five minute recess (11:16 a.m.).
2013-321

5 ayes: 0 nays: **Motion Carried**

Old Business:

**The Board amended Motion 2013-322 to reflect the three year DHS Board terms.

Grantner/Wilson a motion to amend motion 2013-309 and change the terms to reflect November 1, 2013
2013-322 through October 31, 2016.

5 ayes: 0 nays: **Motion Carried.**

**The Board approved the premium proposed by Municipal Underwriters of Michigan, Inc. (M.U.M) for the County Liability Coverage.

Boerner/Wilson a motion to accept the summary and premium proposed, and continue with Municipal
2013-323 Underwrites of Michigan (M.U.M), in the amount of $61,380.00 for Oscoda County's Liability Coverage, effective January 1, 2014 through January 1, 2015.

Roll Call Vote: Boerner, yes; Christenbery, yes; Grantner, yes; Wilson, yes; Kischnick, yes. **Motion Carried.**

**The Board of Commissioners approved the request to dissolve the Common Board membership between the Planning Commission and the EDC & Brownfield Board and to advertise separately for new Board Members. The Board of Commissioners will send out letters of intent to those current Board Members serving on those two Boards.

Wilson/Boerner a motion to dissolve the Common Board Membership between the Economic
2013-324 Development Corporation (EDC) & Brownfield Board and Planning Commission Boards.

5 ayes: 0 nays: **Motion Carried.**

Wilson/Boerner a motion to advertise separately for new members, as of 2014, for the Planning
2013-325 Commission Board and for the Economic Development Corporation (EDC) & Brownfield Boards.

5 ayes: 0 nays: **Motion Carried.**

New Business:

**The Board approved the request to appoint a new member who replaced Nancy Crane, from the Library Board.

Grantner/Christenbery a motion to approve the appointment of Aric Brenner to the Oscoda County
2013-326 Library Board, as of October 16, 2013 for a term ending December 31, 2018, as requested.

5 ayes: 0 nays: **Motion Carried.**

The Board approved **Resolution 2013- 012 "Oscoda County Health Insurance for Calendar Year 2014".

Boerner/Grantner a motion to adopt **Resolution 2013-012** the "Oscoda County Health Insurance for
2013-327 Calendar Year of 2014", as presented.

5 ayes: 0 nays: **Motion Carried.**

**The following "Contract Agreements" were approved:

Boerner/Wilson a motion to accept the Oscoda County Parks & Recreations Commission and the Park
2013-328 Manager, Daniel Money, "Memorandum of Understanding, as of January 1, 2014 through January 1, 2015, and authorize the Chairman to sign on behalf of the County.

5 ayes: 0 nays: **Motion Carried.**

Christenbery/Boerner a motion to accept the Contract Agreement, for the "Oscoda County
2013-329 Dennis Kauffman Memorial Airport", with David Kauffman, Airport Manager, as of January 1, 2014 through December 31, 2014, and authorize the Chairman to sign on behalf of the County.

5 ayes: 0 nays: **Motion Carried.**

Wilson/Grantner a motion to accept the Contract Agreement, with the "Brian Stutesman's Animal
2013-330 Control Shelter", to provide Animal Control Shelter for Oscoda County, as of January 1, 2014 through December 31, 2014, and authorize the Chairman to sign on behalf of the County.

5 ayes: 0 nays: **Motion Carried.**

Boerner/Grantner a motion to accept the Independent Contractor Agreement, with Elizabeth Carr, under
2013-331 the Oscoda County Emergency Management Performance Grant, to perform duties of the Emergency Management Coordinator, as of January 1, 2014 through December 31, 2014, and authorize the Chairman to sign on behalf of the County.

5 ayes: 0 nays: **Motion Carried.**

Christenbery/Grantner a motion to accept the "Memorandum of Understanding" with First
2013-332 Screening, Michelle Bennett, to rent space, to perform Court ordered drug and alcohol screenings, as of November 1, 2013 through December 31, 2014, and authorize the Chairman to sign on behalf of the County.

5 ayes: 0 nays: **Motion Carried.**

Boerner/Wilson a motion to accept the Plumbing and Mechanical Inspector Contract Agreements with
2013-333 Gerald Abbe and the Electrical Inspector Contract Agreement with Joe Seifert, as of January 1, 2014 through December 31, 2015, and authorize the Chairman to sign on behalf of the County.

5 ayes: 0 nays: **Motion Carried.**

Grantner/Boerner a motion to accept the Chief County Medical Examiner Contract Agreements with
2013-334 Dr. Wayne Wahl and the Medical Examiner Investigator Contract Agreement with Rosie Ross, as of January 1, 2014 through December 31, 2015, and authorize the Chairman to sign on behalf of the County.

5 ayes: 0 nays: **Motion Carried.**

Financial:

**During the Budget process the B.O.C reviewed the purpose of the "Citizens Ambulance Advisory Board" and decided to dissolve as of the New Year. Commissioner Wilson stated that he was told that the "Citizens Ambulance Advisory Board" was a state mandated Board. After some discussion, Commissioner Christenbery made a motion to dissolve the "Citizens Ambulance Advisory Board. Commissioner Kischnick asked the County Prosecutor, Cassie Morris-Bills if she would look into it for the Board.

Christenbery/Grantner a motion to dissolve the "Citizens Ambulance Advisory Board" as of
2013-335 December 31, 2013, and to send a letter of notification and appreciation to each Board member.

Roll Call Vote: Kischnick, yes; Boerner, no; Christenbery, yes; Grantner, yes Wilson, no. **Motion Carried.**

**During the Budget process the B.O.C agreed with the request from the Circuit Court and Probate Court with an employee job classification change & wage.

Grantner/Christenbery a motion to approve the new "Job Classification" as described in the job
2013-336 description for Peggy Wysocki, from Deputy Probate Register & Circuit Court Assignment Clerk to Trial Court Specialist and increase her wage to $13.84 as of January 01, 2014, moved from the Probate Court Budget (148) to Circuit Court Budget (131).

5 ayes: 0 nays: **Motion Carried.**

**During the Budget process the Board agreed to increase the fees out at the Fairgrounds in 2014.

Fairground Rates for 2014

• Fairgrounds- Top or Bottom Section	$75.00 per day.
• Fairgrounds -Buildings	$40.00 per day/per building.
• Fairgrounds- Kitchen	$75.00 per day
• Fairgrounds Arena	$75.00 per day
• Fairgrounds Arena/Barn	$25.00 per day/per barn.
• Entire Fairgrounds 4-7 days	$925.00 Flat Rate
• Motorized Events	$200.00 per day.
• Camping (Selected Dates)	$5.00 per campsite
• Dust Control	$300.00 per application.

Winter Storage

• $7.00 per foot on Cement	$6.00 per foot on Dirt

Wilson/Boerner a motion to advertise in the Herald the increased Fairground Fee's in January 2014 and
2013-337 again in April of 2014 and to place them on the County Website.
5 ayes: 0 nays: **Motion Carried.**

**The B.O.C approved the "Proposed 2014 Budgets" after holding three Budget Workshops, October 29, 2013, and November 5, 2013 & November 12, 2013. A "Public Hearing" is scheduled at the December 10th B.O.C Meeting. The 2014 General & Special Fund Budgets will be available for review at the County Treasurer's Office and at the B.O.C Office.

Boerner/Granter a motion made to approve the **"Proposed 2014 General Budget,** in the amount of
2013-338 **$4,473,341.14,** as presented, along with the approved 2014 Appropriations and the 2014 Special Fund Budgets.
5 ayes: 0 nays: **Motion Carried.**

Christenbery/Boerner a motion to hold a "Public Hearing" at the Regular scheduled Board of
2013-339 Commissioners Meeting on December 10, 2013, to adopt the **2014 County Proposed Budget.**
5 ayes: 0 nays: **Motion Carried.**

Wilson/Boerner a motion to advertise in the County Herald and on the County Website to hold a "Public
2013-340 Hearing" to adopt the 2014 Oscoda County Budgets.
5 ayes: 0 nays: **Motion Carried.**

*The Board approved the **Expenditures** for the month of **October 2013** as received from the County Clerk's Office, in the amount of **$**

		PAYROLL	EXPENSES	TOTAL
101	General Fund	$127,700.98	$266,338.93	$394,039.91
102	Ambulance Equip		$9,174.00	$9,174.00
103	Sheriff Equip		$5,350.58	$5,350.58

104	911 Emergency	$5,536.80	$9,936.90	$15,473.70
205	Officer Training			$0.00
208	Park Fund	$2,997.14	$8,240.88	$11,238.02
209	D.A.R.E.			$0.00
210	Ambulance Fund	$37,568.57	$58,870.73	$96,439.30
215	Friend/Court	$4,375.00	$6,321.61	$10,696.61
216	Public Guardian	$952.40	$1,190.25	$2,142.65
217	Fairgrounds'	$0.00	$173.41	$173.41
218	Smith Lake			$0.00
230	Hazmat			$0.00
232	Historical Comm.	$458.80	$639.07	$1,097.87
239	Gypsy Moth		$2.27	$2.27
245	Public Improvement			$0.00
249	Building Dept.	$3,317.32	$4,517.50	$7,834.82
256	R.O.D. Automation		$3,408.85	$3,408.85
265	Drug Law Enforcement	$2,924.80	$6,691.47	$9,616.27
269	Law Library		$463.32	$463.32
271	Library	$4,864.75	$11,454.92	$16,319.67
274	Council/Aging		$24,000.00	$24,000.00
281	EDC Revolving Loan			$0.00
282	BRYNE JAG GRANT			$0.00
285	RSRF			$0.00
290	Social Services		$4,491.00	$4,491.00
292	Child Care		$8,812.99	$8,812.99
293	Soldiers & Sailors		$698.00	$698.00
294	Veterans Trust		$1,572.64	$1,572.64
295	Airport		$160.86	$160.86
296	Basic Grant			$0.00
297	Smile/Counseling			$0.00
598	Community Service			$0.00
616	Tax Revolving		$1,295.39	$1,295.39
	SUB TOTALS	$190,696.56	$433,805.57	**$624,502.13**
201	Road Commission			$316,934.63
	Grand Total		$941,436.76	

Christenbery/Wilson a motion to approve the **Expenditures for the Month of October 2013**, as
2013-341 received by the County Clerk's Office, in the amount of **$624, 502.13.**
5 ayes: 0 nays: **Motion Carried.**

The Board of Commissioners approved the **Claims & Audit Docket for November 26, 2013, as presented by the County Clerk's Office; total Claims & Audit **$46,713.64.**

Grantner/Christenbery a motion to accept the **Claims & Audit Docket**, for **November 26, 2013**, as
2013-342 received by the County Clerk's Office, in the amount of **$46,713.64.**
Roll Call Vote: Christenbery, yes; Grantner, yes; Wilson, yes; Kischnick, yes; Boerner, yes. **Motion Carried.**

Correspondence, Reports, Resolutions (acknowledge receipt):
**The Board received notification from Northern Michigan Substance Abuse Services' Board of Directors regarding Board Membership.

Committee Reports:
Commissioner Boerner:
**Participate in a "Phone Conference Call" from Cadillac Insurance.
**Participated along with Commissioner Kischnick in the 3rd P.O.L.C Union Negotiations Meeting.
**Participated in a Labor Meeting with Representatives from the Steelworkers Union, along with Commissioner Kischnick.
**Participated along with Commissioner Kischnick in the 2nd and 3rd Steelworkers Union Negotiation Meetings.
**Attended the Citizens Ambulance Advisory Board Meeting.
**Attended the Human Service Council Committee (HSCC) Meeting.

Commissioner Wilson:
**Attended the Local Planning Team (LPT) & Local Emergency Planning Committee (LEPC) Board Meetings.
**Attended a couple EDC & Brownfield & Planning Commission Board Meetings.
**Attended the Landfill Board Meeting.
**Attended the Albert Township Board Meeting.
**Reviewed the County Claims & Audit, Finance Committee, along with Commissioner Christenbery.

Commissioner Kischnick:
**Participate in a "Phone Conference Call" from Cadillac Insurance.
**Participated along with Commissioner Boerner in the 3rd P.O.L.C Union Negotiations Meeting.
**Attended the Landfill Board Meeting.
**Met with the Labor Attorney, Ellen Crane, regarding Union Negotiations.
**Participated in a Labor Meeting with Representatives from the Steelworkers Union, along with Commissioner Boerner.
**Participated along with Commissioner Boerner in the 2nd and 3rd Steelworkers Union Negotiation Meetings.
**Attended the Landfill Claims & Audit Committee Meeting.
**Participated in a Labor Meeting with Representatives from the Steelworkers Union, along with Commissioner Christenbery.
**Attended the Road Commission Board Meeting.
**Attended the Big Creek Township Board Meeting.

Commissioner Christenbery:
**Attended the Housing Commission Board Meeting.
**Participated in a Labor Meeting with Representatives from the Steelworkers Union, along with Commissioner Kischnick.
**Reviewed the County Claims & Audit, Finance Committee, along with Commissioner Wilson.

Commissioner Grantner:
**Attended the AuSable Valley Community Mental Health Financial Committee Meeting.
**Attended the AuSable Valley Community Mental Health Building Committee Meeting.
**Attended the Library Board Meeting.
**Attended the Department of Human Services (DHS) Board Meeting.
**Attended the District Health Department #2 Board Meeting.

Public Comments & Matters:
**Comments received:

1. Sandy Handrich announced upcoming 2014 Project: Steiner Museum (Big Foot), Youth Council Board –Act ivies and Heritage Days out at the Fairgrounds.
2. Buffy Carr, spoke on behalf of the Fiber-Optic Project and what is needed for the Homeland Security Grant.
3. Brian Watros, Juvenile Officer, Family Division announced that today, November 26, 2013, was "Michigan Adoption Day", he also asked the B.O.C to consider adopting a Resolution in support.
4. Doug Davis- addressed the OPEN MEETINGS ACT MCL 15.263 Section-3. Chairman Kischnick asked again that he not record anyone that does not wish to be recorded.
5. Jason Beck, Ambulance Director, stated the 911 Signs are being distributed through the Ambulance EMS Department.
6. Sheriff Grace wished everyone "Safe Travels and "Happy Thanksgiving".

Commissioner Kischnick called for a **CLOSED SESSION for "Union Negotiations" in accordance with the "Open Meetings" (1976 PA267 MCL 15.261 et seq.) (Section 8-C); Strategy with the Negotiations of a Collective Bargaining Agreement.

Boerner/Wilson a motion to go into Closed Session for "Union Negotiations" (12:05 pm).
2013-343

5 ayes: 0 nays: **Motion Carried.**

Wilson/Christenbery a motion to return to the Regular B.O.C Meeting (12:56 p.m.).
2013-344

5 ayes: 0 nays: **Motion Carried.**

**Upon returning to the Regular B.O.C Meeting, Commissioner Boerner made the following motion:

Boerner/Grantner a motion to accept the "Tentative Contract Agreement" as agreed upon, between the
2013-345 Oscoda County Board of Commissioners and the United Steelworkers Union Negotiating Parties, effective January 1, 2014 through December 31, 2016.

5 ayes: 0 nays: **Motion Carried.**

**Commissioner Kischnick called for a motion to adjourn.

Wilson/Christenbery a motion to adjourn today's meeting, **November 26, 2014** (1:00 p.m.).
2013-346

5 ayes: 0 nays: **Motion Carried.**

****The next Regular B.O.C Meeting is scheduled for Tuesday, December 10, 2013 at 10:00 a.m.**

Resolution 2014-06

OSCODA COUNTY 2014 HAZARD MITIGATION PLAN ADOPTION

WHEREAS, Big Creek Township, Oscoda County Michigan has experienced risks that may damage commercial, residential and public properties, displace citizens and businesses, close streets and impair infrastructure, and present general public health and safety concerns; and

WHEREAS, Oscoda County has updated its Hazard Mitigation Plan that outlines the County's options to reduce overall damage and impact from natural hazards; and

WHEREAS, the Hazard Mitigation Plan has been reviewed by County residents, business owners, and federal, state and local agencies, and has been revised to reflect their concerns;

WHEREAS, the County Local Emergency Planning Committee (LEPC) functions as the Hazard Mitigation Committee. The Committee's duties are designated in the Hazard Mitigation Plan.

WHEREAS, the Emergency Manager and Hazard Mitigation Committee is charged with supervising the implementation of the Plan's recommendations within the funding limitations as provided by the Oscoda County Board of Commissioners or other sources. The Committee shall monitor implementation of the plan and shall provide a progress report to the County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED THAT,

The Hazard Mitigation Plan is hereby adopted as an official plan of Big Creek Township, Oscoda County. The content of this document, together with all maps attached to and contained herein are hereby adopted by Big Creek Township as the Oscoda County Hazard Mitigation Plan on this 18th day of February, 2014.

Moved by McGregor, Second by Booth.

Ayes: 5
Nays: 0
Absent: 0

Randy Booth, Supervisor
Big Creek Township

Rhonda Mundt, Clerk
Big Creek Township

OscodaCounty 2014 Hazard Mitigation Plan Adoption

WHEREAS, *Clinton Township, Oscoda County*, Michigan has experienced risks that may damage commercial, residential and public properties, displace citizens and businesses, close streets and impair infrastructure, and present general public health and safety concerns; and

WHEREAS,OscodaCounty has updated its*Hazard Mitigation Plan* that outlines the County's options to reduce overall damage and impact from natural hazards; and

WHEREAS, the *Hazard Mitigation Plan* has been reviewed by County residents, business owners, and federal state, and local agencies, and has been revised to reflect their concerns;

WHEREAS, The County Local Emergency Planning Committee (LEPC) functions as the Hazard Mitigation Committee. The Committee's duties are designated in the *Hazard Mitigation Plan*.

WHEREAS, The Emergency Manager and Hazard Mitigation Committee is charged with supervising the implementation of the Plan's recommendations within the funding limitations as provided by the OscodaCounty Board of Commissioners or other sources. The Committee shall monitor implementation of the plan and shall provide a progress report to the County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED THAT,

The *Hazard Mitigation Plan* is hereby adopted as an official plan of *Clinton Township, Oscoda County, Michigan*. The content of this document, together with all maps attached to and contained herein are hereby adopted by the *Clinton Township Board* as the Oscoda County Hazard Mitigation Plan on this 7th day of April, 2014.

Motion: Ken Troyer Second: Chris Neff

Ayes: Neff, Troyer, Sanderson, Larrison

Nays: none

Absent:

_____, Supervisor
Clinton Township

_____, Clerk
Clinton Township

2014-17

Oscoda County 2014 Hazard Mitigation Plan Adoption

WHEREAS, Comins Twp, Fairview, Michigan has experienced risks that may damage commercial, residential and public properties, displace citizens and businesses, close streets and impair infrastructure, and present general public health and safety concerns; and

WHEREAS, Oscoda County has updated its *Hazard Mitigation Plan* that outlines the County's options to reduce overall damage and impact from natural hazards; and

WHEREAS, the *Hazard Mitigation Plan* has been reviewed by County residents, business owners, and federal state, and local agencies, and has been revised to reflect their concerns;

WHEREAS, The County Local Emergency Planning Committee (LEPC) functions as the Hazard Mitigation Committee. The Committee's duties are designated in the *Hazard Mitigation Plan*.

WHEREAS, The Emergency Manager and Hazard Mitigation Committee is charged with supervising the implementation of the Plan's recommendations within the funding limitations as provided by the Oscoda County Board of Commissioners or other sources. The Committee shall monitor implementation of the plan and shall provide a progress report to the County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED THAT,

The *Hazard Mitigation Plan* is hereby adopted as an official plan of
The content of this document, together with all maps attached to and contained herein are hereby adopted by the Comins Twp. Board as the Oscoda County Hazard Mitigation Plan on this 27 day of May, 2014.

Motion: LEE Second: Stevens

Ayes: 5

Nays: Ø

Absent: Ø

Duncan Lee
_____, Chair

Kelly Longfellow
_____, Clerk

Oscoda County 2014 Hazard Mitigation Plan Adoption

WHEREAS, Elmer Twp. Michigan has experienced risks that may damage commercial, residential and public properties, displace citizens and businesses, close streets and impair infrastructure, and present general public health and safety concerns; and

WHEREAS, Oscoda County has updated its *Hazard Mitigation Plan* that outlines the County's options to reduce overall damage and impact from natural hazards; and

WHEREAS, the *Hazard Mitigation Plan* has been reviewed by County residents, business owners, and federal state, and local agencies, and has been revised to reflect their concerns;

WHEREAS, The County Local Emergency Planning Committee (LEPC) functions as the Hazard Mitigation Committee. The Committee's duties are designated in the *Hazard Mitigation Plan*.

WHEREAS, The Emergency Manager and Hazard Mitigation Committee is charged with supervising the implementation of the Plan's recommendations within the funding limitations as provided by the Oscoda County Board of Commissioners or other sources. The Committee shall monitor implementation of the plan and shall provide a progress report to the County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED THAT,

The *Hazard Mitigation Plan* is hereby adopted as an official plan of Elmer Twp. The content of this document, together with all maps attached to and contained herein are hereby adopted by the *(insert governing body's name)* as the Oscoda County Hazard Mitigation Plan on this 17 day of March 2014.

Motion: Sue S. Second: Richard E.

Ayes: 5

Nays: 0

Absent:

[signature], Chair
(insert governing body's name)

[signature], Clerk
(insert governing body's name)

Greenwood Township Resolution 01-2014

Oscoda County 2014 Hazard Mitigation Plan Adoption

WHEREAS, Greenwood Township, Michigan has experienced risks that may damage commercial, residential and pubic properties, displace citizens and businesses, close streets and impair infrastructure, and present general public health and safety concerns; and

WHEREAS, Oscoda County has updated its *Hazard Mitigation* Plan that outlines the County's options to reduce overall damage and impact from natural hazards; and

WHEREAS, the *Hazard Mitigation* Plan has been reviewed by County residents, business owners, and federal state, and local agencies, and has been revised to reflect their concerns;

WHEREAS, The County Local Emergency Planning Committee (LEPC) functions as the Hazard Mitigation Committee. The Committee's duties are designated in the *Hazard Mitigation* Plan.

WHEREAS, The Emergency Manager and Hazard Mitigation Committee is charged with supervising the implementation of the Plan's recommendations within the funding limitations as provided by the Oscoda County Board of Commissioners or other sources. The Committee shall monitor implementation of the plan and shall provide a progress report to the County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED THAT,

The *Hazard Mitigation* Plan is hereby adopted as an official plan to Greenwood Township. The content of this document, together with all maps attached to and contained herein are herby adopted by the Greenwood Township as the Oscoda County Hazard Mitigation Plan on this 11th day of February 2014.

Motion: Patricia Kubitskey Second: Loretta H. Kischnick

Ayes: 5

Nays: 0

Absent: 0

Fred Lindsey, Supervisor
Greenwood Township

Loretta H. Kischnick, Clerk
Greenwood Township

Oscoda County 2014 Hazard Mitigation Plan Adoption

WHEREAS, *MENTOR TOWNSHIP, OSCODA COUNTY* Michigan has experienced risks that may damage commercial, residential and public properties, displace citizens and businesses, close streets and impair infrastructure, and present general public health and safety concerns; and

WHEREAS, Oscoda County has updated its *Hazard Mitigation Plan* that outlines the County's options to reduce overall damage and impact from natural hazards; and

WHEREAS, the *Hazard Mitigation Plan* has been reviewed by County residents, business owners, and federal state, and local agencies, and has been revised to reflect their concerns;

WHEREAS, The County Local Emergency Planning Committee (LEPC) functions as the Hazard Mitigation Committee. The Committee's duties are designated in the *Hazard Mitigation Plan.*

WHEREAS, The Emergency Manager and Hazard Mitigation Committee is charged with supervising the implementation of the Plan's recommendations within the funding limitations as provided by the Oscoda County Board of Commissioners or other sources. The Committee shall monitor implementation of the plan and shall provide a progress report to the County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED THAT,

The *Hazard Mitigation Plan* is hereby adopted as an official plan of MENTOR TOWNSHIP The content of this document, together with all maps attached to and contained herein are hereby adopted by the *MENTOR TOWNSHIP* as the Oscoda County Hazard Mitigation Plan on this 17th day of FEB, 2014.

Motion: Trim Second: Galbraith

Ayes: 4 Galbraith, Trim, Mattz, Wyckoff

Nays: ϕ

Absent: 1 Hoffman

Gary Wyckoff Supervisor

Gary Wyckoff
MENTOR TOWNSHIP

Clerk

Thomas Galbraith
MENTOR TOWNSHIP