

APPENDIX A

GENERAL INFORMATION AND STATISTICS FOR:

Delta County

Baldwin Township

Bark River Township

Bay de Noc Township

Brampton Township

Cornell Township

Ensign Township

City of Escanaba

Escanaba Township

Fairbanks Township

Ford River Township

Garden Township

Village of Garden

City of Gladstone

Maple Ridge Township

Masonville Township

Nahma Township

Wells Township

Delta County

Office Location	Courthouse 310 Ludington Street Escanaba, MI 49829
Total Area*	1,991.58 square miles (1,170.03 land) 1,274,291.2 acres (748,819.2 land)
2010 Population	37,069
Housing Units	20,214 (2,872 for seasonal, recreational or occasional use)
Total Households	15,992
Average Household Size	2.28 persons
2012 State Equalized Valuation (residential)	\$966,910,172

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

County History

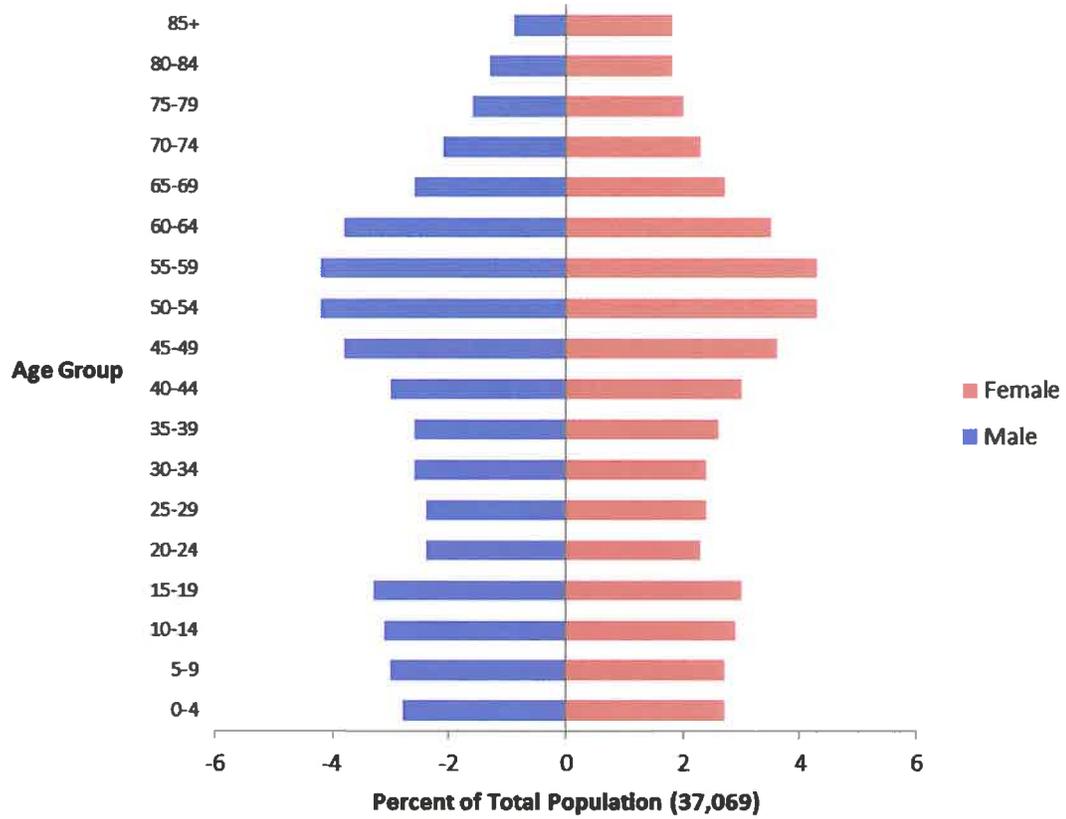
French missionaries arrived in the area in the mid-1600s marking perhaps the earliest exchange between indigenous inhabitants (Noquet Indians) and Europeans. The first settler of European descent was a fur trader on the Escanaba River. Lumbering activity attracted many others to the area as sawmills were built and settlements grew.

Delta County split from Mackinac County in 1843 and formally organized in 1861. It originally included all of what is now Menominee County and parts of present-day Dickinson, Iron and Marquette counties. Because of the triangular shape of the county, it was given the name Delta after the Greek letter.

Masonville (originally known as Gena) was the first organized “village” in the county and the first county seat. The county seat was moved to Escanaba in 1864. Escanaba was incorporated as a village in 1866 and became a city in 1883. Gladstone was settled in 1877, incorporated as a village in 1887, and became a city in 1889.

Lumbering fueled the local economy as multiple sawmills were built near river mouths and navigable natural harbors. As timber resources dwindled, the economy diversified. Agricultural settlements were encouraged by an abundance of inexpensive land. Manufacturing and shipping industries were established which furthered the diversification. Through it all though, the forest products industry has remained vital to the county economy.

Delta County Population by Age and Sex (2010)



2010 Median Age: 45.6
2000 Median Age: 40.4

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

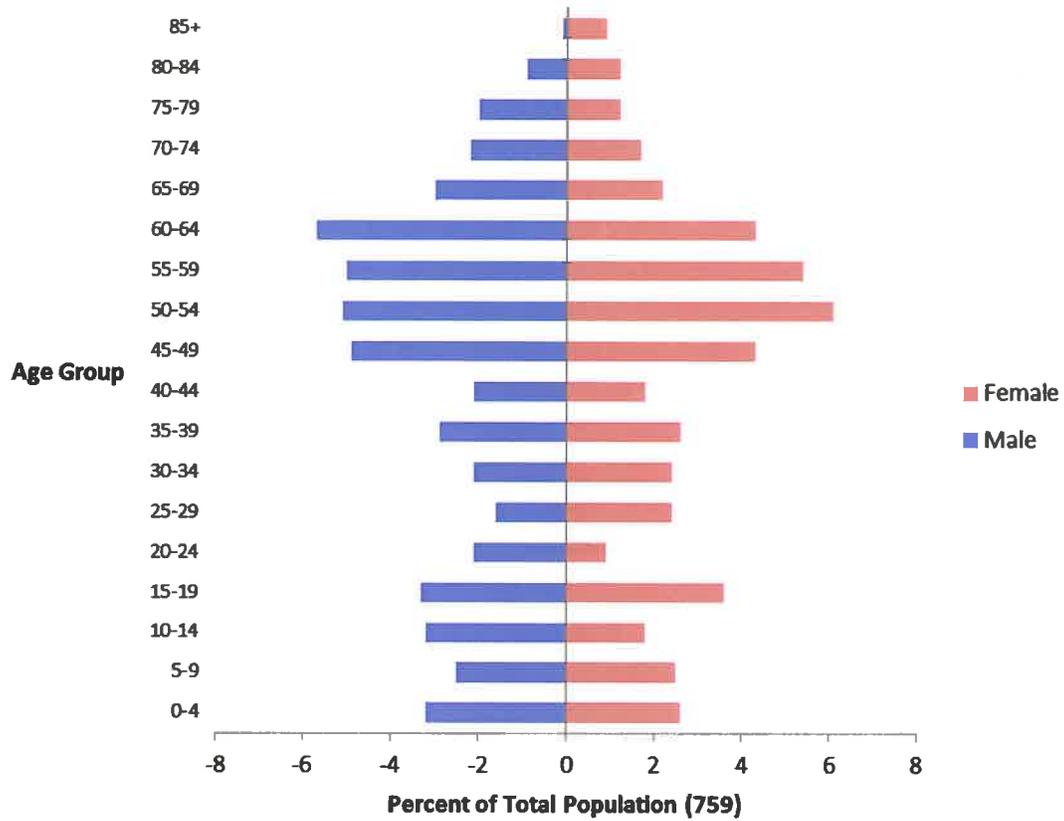
Baldwin Township: T41N & 42N - R22W, 23W & 24W

Office Location	Township Hall 5901 Perkins 30.5 Road Perkins, MI 49878
Mailing Address	P.O. Box 173 Perkins, MI 49878
Phone	906.359.4228
Fax	906.359.4051
E-mail	-
Total Area*	84.2 square miles (83.77 land) 53,888.0 acres (53,612.8 land)
Population (2010)	759
Housing Units (2010)	520 (166 for seasonal, recreational or occasional use)
Total Households (2010)	324
Average Household Size (2010)	2.34 persons
Primary Fire Department	Baldwin Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Mid Peninsula School District
2012 State Equalized Valuation	\$33,134,629

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Baldwin Township is just over 13 miles at its widest point. The Escanaba River forms its southwestern boundary. Approximately 7,500 acres within the township are in state ownership. Predominate land cover is forest (80 percent) and agriculture (10 percent). Township offices and fire hall, along with several commercial and a furniture/cabinet manufacturer, are found in the community of Perkins. A small number of homes are found in Perkins, but mostly residences are scattered. About a quarter of the housing units are for seasonal or recreational use. State trunkline M-35 and CR428 are the most significant roadways in the township. Large diameter petroleum transmission pipelines, the Canadian National Railroad, and electric power transmission lines all pass through the township.

Baldwin Township Population by Age and Sex (2010)



2010 Median Age: 48.6
2000 Median Age: 41.3

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

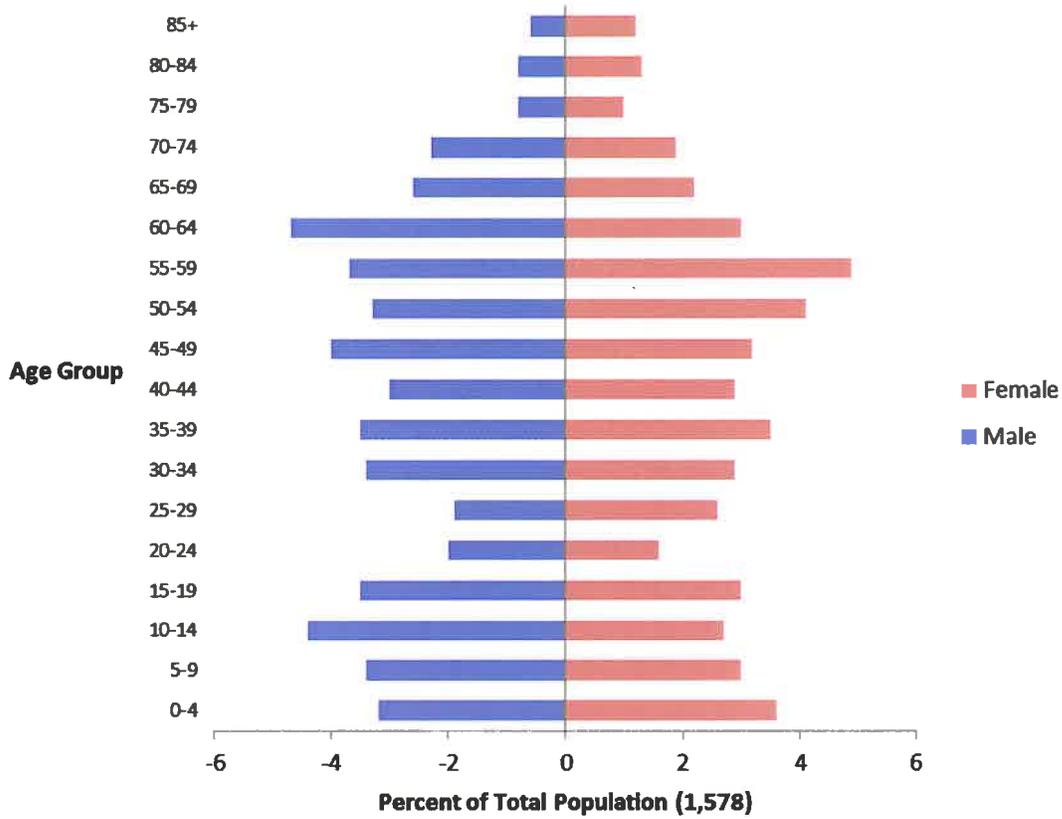
Bark River Township: T37N, 38N & 39N - R23W & 24W

Office location	Bark River Senior Center 4283 D Road Bark River, MI 49807
Mailing address	same as above
Phone	906.466.2331
Fax	906.466.0235
E-mail	barkrivertwp@chartermi.net
Total Area*	45.64 square miles (45.59 land) 29,209.6 acres (29,177.6 land)
Population (2010)	1,578
Housing Units (2010)	723 (52 for seasonal, recreational or occasional use)
Total Households (2010)	621
Average Household Size (2010)	2.54 persons
Primary Fire Department	Bark River Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Bark River-Harris Schools
2012 State Equalized Valuation (residential)	\$39,097,600

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Bark River Township extends for 13 miles north-south and 4 miles at its widest point. About half the township area is forest covered, about a third is agricultural. All except approximately 2,000 acres is privately-owned, most of it in parcels of at least 40 acres. Highways US-2/41 and M-69 are the major transportation routes and the Canadian National Railroad runs through the township's center. The community of Bark River is the commercial and residential center of the township. A large feed mill and concrete products manufacturer are within the community. A modern township complex includes a fire hall and senior citizen/community center. A community wastewater system is being studied.

Bark River Township Population by Age and Sex (2010)



2010 Median Age: 41.4
2000 Median Age: 36.3

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

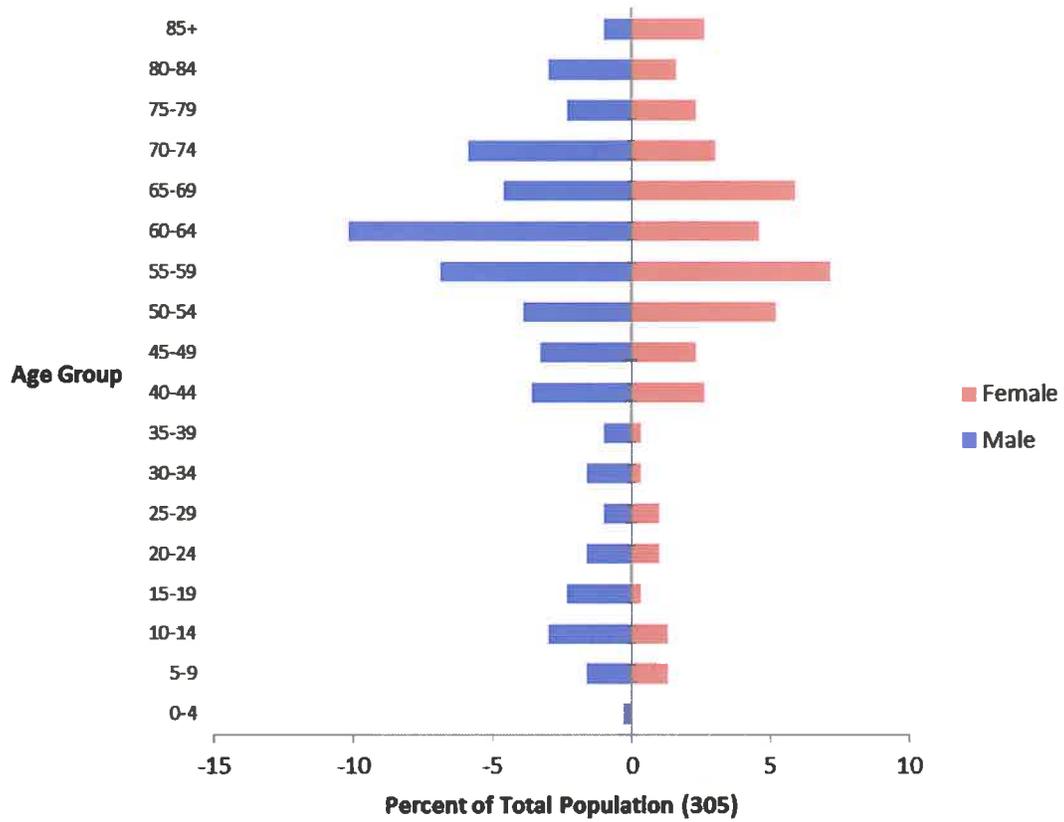
Bay de Noc Township: T39N, 39N & 40N - R20W, 21W & 22W

Office location	Township Hall 5870 County Road 513T Rapid River, MI 49878
Mailing address	(send to supervisor or clerk)
Phone	906.474.6286
Fax	-
E-mail	-
Total Area*	91.06 square miles (67.48 land) 58,278.4 acres (43,187.2 land)
Population (2010)	305
Housing Units (2010)	545 (363 for seasonal, recreational or occasional use)
Total Households (2010)	161
Average Household Size (2010)	1.89 persons
Primary Fire Department	Masonville Township Volunteer Fire Dept. (contracted)
Primary Police Department	Delta County Sheriff
School District(s)	Rapid River Public Schools
2012 State Equalized Valuation (residential)	\$37,299,519

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Bay de Noc Township encompasses the end of the Stonington Peninsula. It is over 80 percent forested with about 30 percent of the land area within the Hiawatha National Forest. Round and St. Vitals islands are within township boundaries. CR 513 is the busiest transportation route with county roads 511 and 503 being the most significant of the other roadways. Housing is scattered and two-thirds of the housing units do not serve as primary residences. Commercial development is limited to a small grocery and a few arts and crafts-type establishments. The township has no fire department. Fire protection services are provided through a contract with Masonville township.

Bay de Noc Township Population by Age and Sex (2010)



2010 Median Age: 58.7

2000 Median Age: 51.1

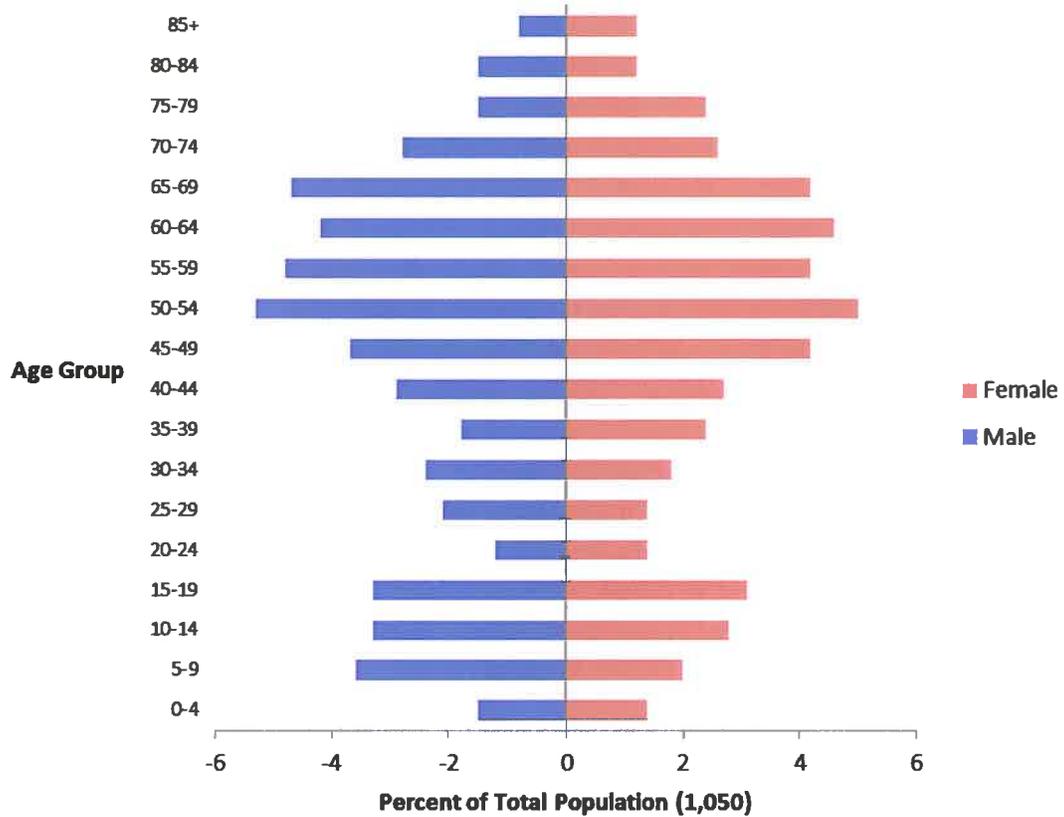
Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.
Brampton Township: T40N & 41N - R22W

Office location	Township Hall 9019 Bay Shore Drive Gladstone, MI 49837
Mailing address	(send to supervisor or clerk)
Phone	906.428.4790
Fax	-
E-mail	-
Total Area*	25.59 square miles (23.72 land) 16,377.6 acres (15,180.8 land)
Population (2010)	1,050
Housing Units (2010)	526 (50 for seasonal, recreational or occasional use)
Total Households (2010)	442
Average Household Size (2010)	2.36 persons
Primary Fire Department	Brampton Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Gladstone Area Schools
2012 State Equalized Valuation (residential)	\$36,699,600

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Brampton Township borders Gladstone on the south and Little Bay de Noc on the southeast. About 80 percent of the township is forest covered. State ownership totals about 4,000 acres and more than 10 percent of the land area is wetland. Much of the township's development is found along Bayshore Drive (old US-2). Most of the waterfront area has been developed with some tourist business, but mostly residential. The community of Kipling lies just to the north of Gladstone and has a few commercial establishments including the township hall and fire hall. Significant residential development has occurred in recent years in interior sections of the township. Trunklines US-2 and M-35 pass through the township as does the Canadian National Railroad.

Brampton Township Population by Age and Sex (2010)



2010 Median Age: 50.5
2000 Median Age: 42.4

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

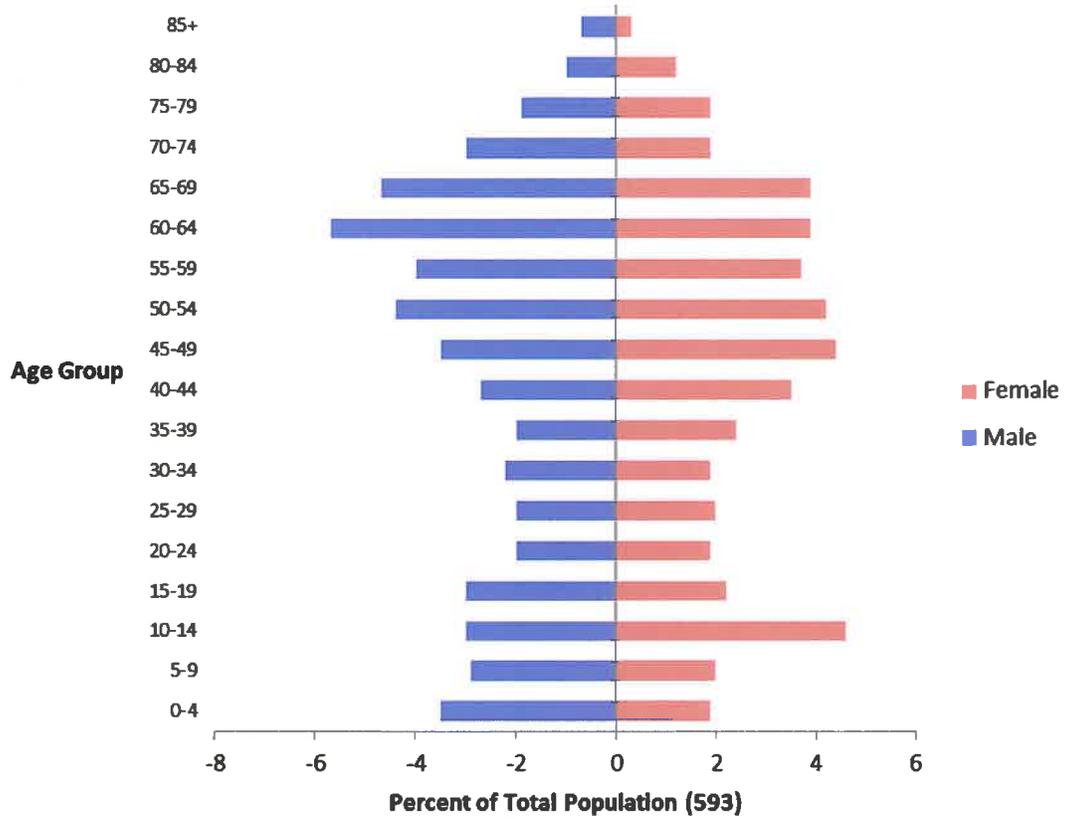
Cornell Township: T40N & 41N - R23W & 24W

Office location	Township Hall 9794 Boney Falls H Road Cornell, MI 49818
Mailing address	(send to supervisor or clerk)
Phone	906.384.6404
Fax	-
E-mail	-
Total Area*	60.19 square miles (59.76 land) 38,521.6 acres (38,246.4 land)
Population (2010)	593
Housing Units (2010)	413 (160 for seasonal, recreation or occasional use)
Total Households (2010)	244
Average Household Size (2010)	2.43 persons
Primary Fire Department	Cornell Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Escanaba Area Public Schools
2012 State Equalized Valuation (residential)	\$23,855,050

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Cornell Township borders are formed by the Escanaba River on the east, Escanaba township on the south, Menominee County on the west, and Marquette County on the north. It is 9 miles across at its widest point and 8 miles at its longest. Over 80 percent is forested and about 10 percent of the land area is used for agriculture. There is a small amount of publicly-owned land, but a large amount of land in Commercial Forest Reserve that is available to the public. A store and post office are found in the community of Cornell. An elementary school and road commission garage in the community have been closed for several years. Residences are scattered and land ownership is mostly in plots of at least 40 acres. More than a third of the housing units are camps or cottages. CR426 is the main transportation route. Dormant train tracks of the Escanaba & Lake Superior Railroad parallels CR426 for its entire route through the township.

Cornell Township Population by Age and Sex (2010)



2010 Median Age: 47.6
2000 Median Age: 42.4

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

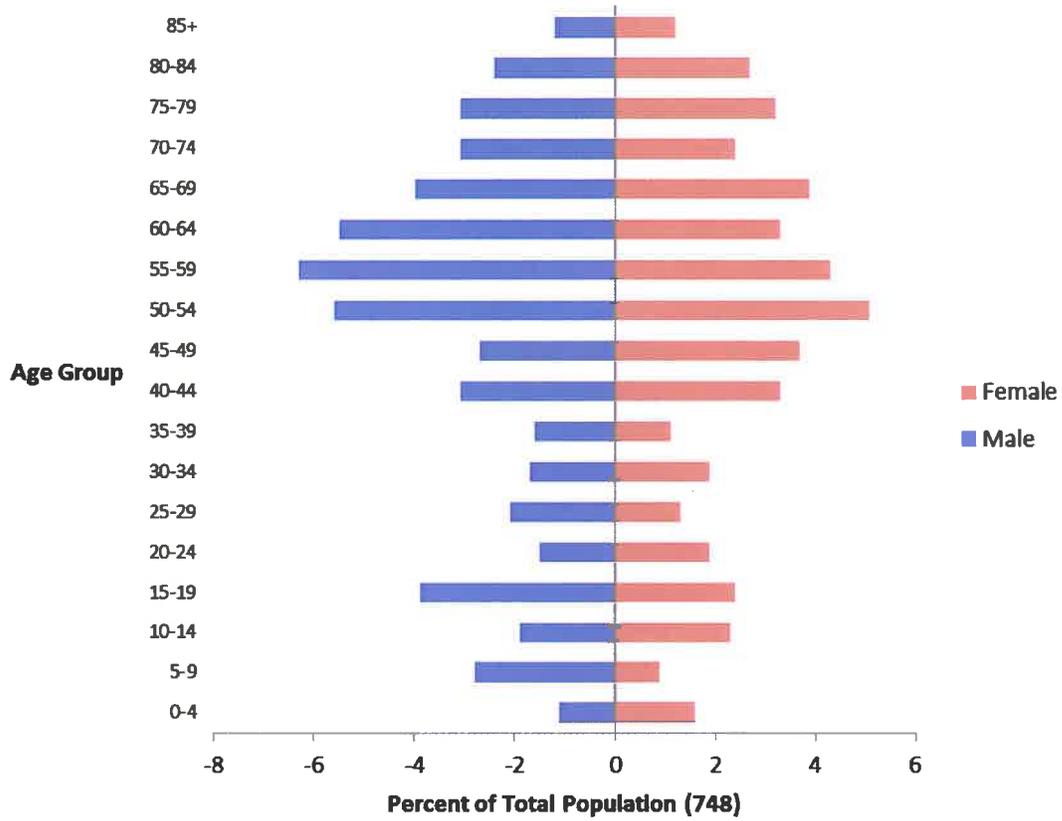
Ensign Township: T40N & 41N - R20W, 21W & 22W

Office location	Township Hall 9498 24 th Road Rapid River, MI 49878
Mailing address	(send to supervisor or clerk)
Phone	906.474.9231
Fax	-
E-mail	-
Total Area*	65.79 square miles (58.97 land) 42,105.6 acres (37,740.8 land)
Population (2010)	748
Housing Units (2010)	569 (187for seasonal, recreational or occasional use)
Total Households (2010)	348
Average Household Size (2010)	2.15 persons
Primary Fire Department	Ensign Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Rapid River Public Schools
2012 State Equalized Valuation (residential)	\$33,302,564

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Ensign Township extends about 11 miles across at its widest point and 7 miles north-south. Approximately 7 miles of Little Bay de Noc forms most of the western boundary. On the east, Nahma township and over 3 miles of Big Bay de Noc shoreline define the boundaries. The township adjoins Masonville and Bay de Noc on the north and south respectively. Over 80 percent of the land area is forested and more than a third is within the Hiawatha National Forest. Development consists almost entirely of scattered residential and seasonal or recreational use dwellings that make up 34 percent of all housing units. Highway US-2 traverses the township with the Canadian National Railroad running parallel a short distance to the north. Besides US-2, county roads 513, 511 and 503 are the most important transportation routes.

Ensign Township Population by Age and Sex (2010)



2010 Median Age: 53.1
2000 Median Age: 43.8

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

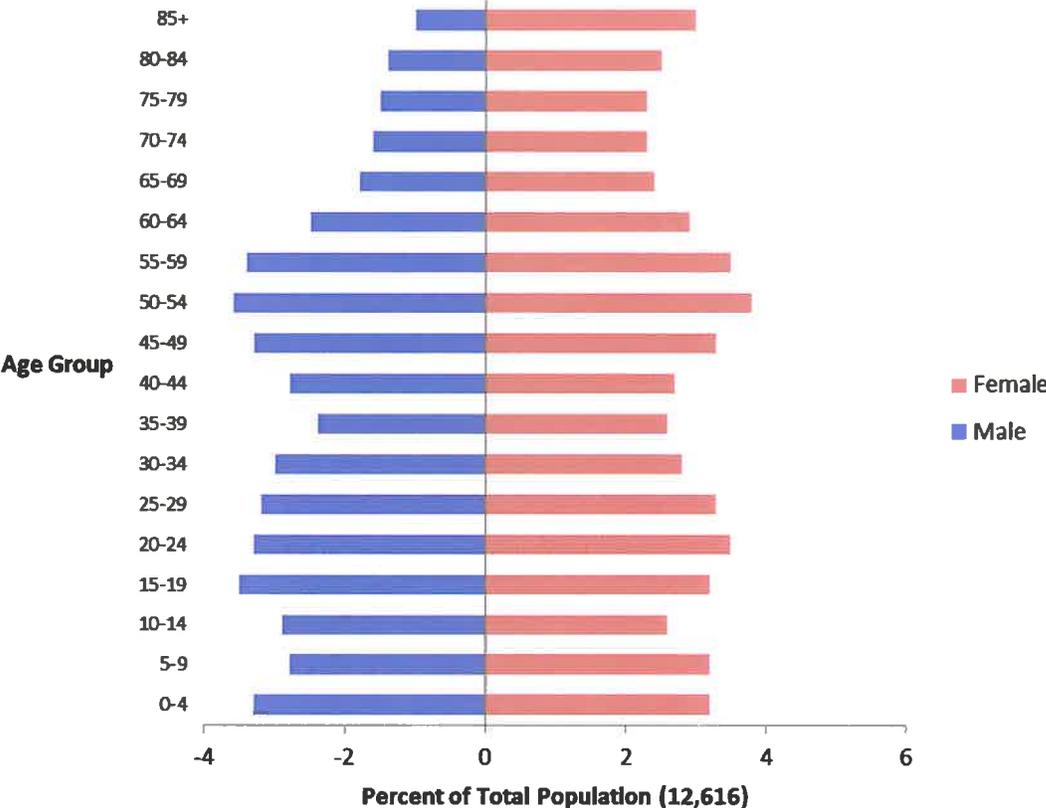
City of Escanaba: T38N & 39N - R22W & 23W

Office location	City Hall 410 Ludington Street Escanaba, MI 49829
Mailing address	same as above
Phone	906.786.0240
Fax	906.786.4755
E-mail	cityhall@escanaba.org
Total Area*	16.51 square miles (12.66 land) 10,566.4 acres (8,102.4 land)
Population (2010)	12,616
Housing Units (2010)	6,178 (58 for seasonal, recreational or occasional use)
Total Households (2010)	5,622
Average Household Size (2010)	2.14 persons
Primary Fire Department	Escanaba Public Safety Dept.
Primary Police Department	Escanaba Public Safety Dept.
School District(s)	Escanaba Area Public Schools
2012 State Equalized Valuation (residential)	\$175,233,808

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Escanaba (city) is the county's seat of government and service, employment and population center. OSF St. Francis Hospital, Delta County Airport, Bay de Noc Community College and the State Office Building are all located within the city. The extensive lakeshore includes a major iron ore shipping facility, modern marina and large public park areas. Municipal water (surface), wastewater, and electric generating facilities serve the residents and businesses. Trunklines US-2/41 and M-35 converge in the city. Escanaba is a destination point for iron ore delivered over the Canadian National Railroad from the Marquette Iron Range. The east-west Canadian National route passes through the northwestern section of the city. The Escanaba and Lake Superior Railroad also provide service within and through the city.

City of Escanaba Population by Age and Sex (2010)



2010 Median Age: 41.4
2000 Median Age: 40.1

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

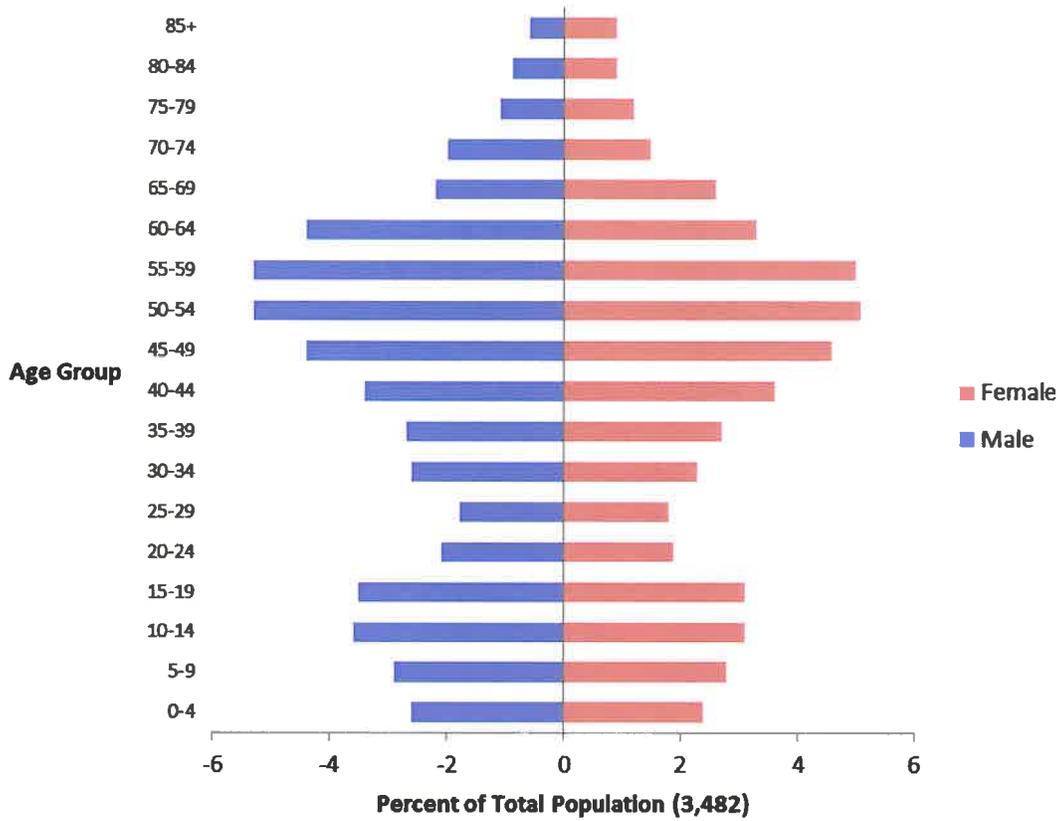
Escanaba Township: T40N - R22W, 23W & 24W

Office location	Township Hall 4618 Co 416 20 th Road Gladstone, MI 49837
Mailing address	(send to supervisor or clerk)
Phone	906.786.6200
Fax	-
E-mail	-
Total Area*	60.32 square miles (59.57 land) 38,604.8 acres (38,124.8 land)
Population (2010)	3,482
Housing Units (2010)	1,520 (81 for seasonal, recreational or occasional use)
Total Households (2010)	1,361
Average Household Size (2010)	2.54 persons
Primary Fire Department	Escanaba Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Gladstone Area Schools
2012 State Equalized Valuation (residential)	\$97,271,882

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Escanaba Township is over 13 miles wide stretching from Menominee County on the west to Little Bay de Noc on the east. About 65 percent of the township is forest covered and about 16 percent is used for agricultural purposes. Scattered commercial development is found along trunklines and major county roads (US-2/41, M-35, CR 420 and CR 426). Canadian National and Escanaba and Lake Superior railroads run through the township. Considerable residential development has occurred over the past 20 years - especially in the eastern portion of the township.

Escanaba Township Population by Age and Sex (2010)



2010 Median Age: 45.7
2000 Median Age: 38.8

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

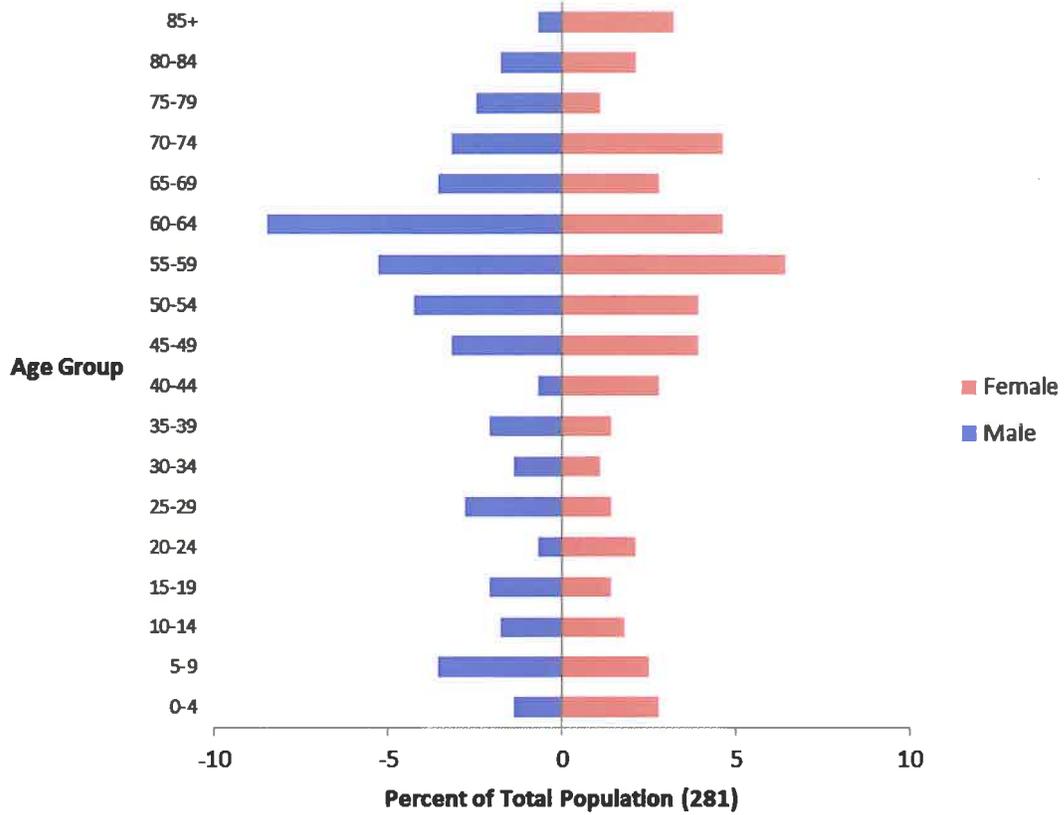
Fairbanks Township: T37N, 38N & 39N - R18W, 19W & 20W

Office location	Township Hall 13717 11 th Road Garden, MI 49835
Mailing address	(send to supervisor or clerk)
Phone	906.644.2027
Fax	-
E-mail	-
Total Area*	299.23 square miles (47.19 land) 191,507 acres (30,201.6 land)
Population (2010)	281
Housing Units (2010)	330 (184 for seasonal, recreational or occasional use)
Total Households (2010)	134
Average Household Size (2010)	2.24 persons
Primary Fire Department	Garden Township Volunteer Fire Department (contracted)
Primary Police Department	Delta County Sheriff
School District(s)	Big Bay de Noc School District
2012 State Equalized Valuation (residential)	\$27,967,211

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Fairbanks Township is located at the southern tip of the Garden Peninsula and includes the islands of St. Martins, Summer, Poverty, Little Summer, North Gull, South Gull, and Little Gull. Its only land border is with Garden township. It is about 70 percent forest-covered and about a quarter of the land area is devoted to agricultural use. Historic development was driven by farming and fishing. Approximately 40 percent of the housing units are not primary residences. Commercial development is limited. Commercial fishing boats operate from the harbor in the community of Fairport. Sac Bay County Park and Fayette State Park are popular recreational points. Highway M-183 is the principal transportation route.

Fairbanks Township Population by Age and Sex (2010)



2010 Median Age: 55.2
2000 Median Age: 46.6

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

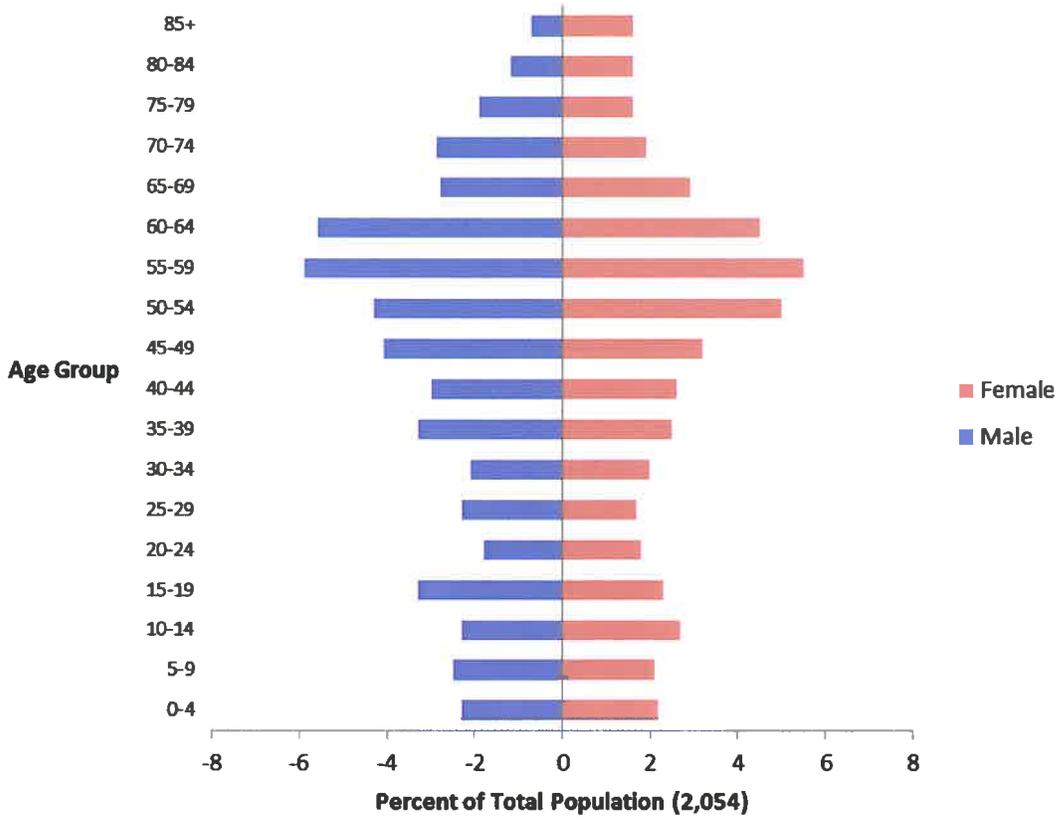
Ford River Township: T37N, 38N & 39N - R 23W & 24W

Office location	Township Hall 3845 K Road Bark River, MI 49807
Mailing address	same as above
Phone	906.786.8532
Fax	-
E-mail	-
Total Area*	65.27 square miles (64.81 land) 41,772.8 acres (41,478.4 land)
Population (2010)	2,054
Housing Units (2010)	1,138 (144 for seasonal, recreational or occasional use)
Total Households (2010)	895
Average Household Size (2010)	2.29 persons
Primary Fire Department	Ford River Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Escanaba Area Public Schools
2012 State Equalized Valuation (residential)	\$69,990,900

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Ford River Township extends from Menominee County to the city of Escanaba along Lake Michigan. Much of its interior is in state ownership - in all, about 30 percent. Forests are the predominate land cover - about 80 percent. Wetland areas cover more than 10 percent of the land area. Most development is found along and near highway M-35, the major transportation route. Commercial development is mostly of the hospitality type. Fuller County Park is along the shoreline at the mouth of the Bark River and a public boat launch is established at the Ford River mouth. A public water system (wells) serves 192 homes and businesses in the community of Ford River. The system includes elevated storage (capacity just under 50,000 gallons), 22 hydrants and pumping facilities. The township hall, fire hall and elementary school are along CR 521. Highway US-2/41 and Canadian National Railroad pass through the northern part of the township.

Ford River Township Population by Age and Sex (2010)



2010 Median Age: 49.9
2000 Median Age: 42.1

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

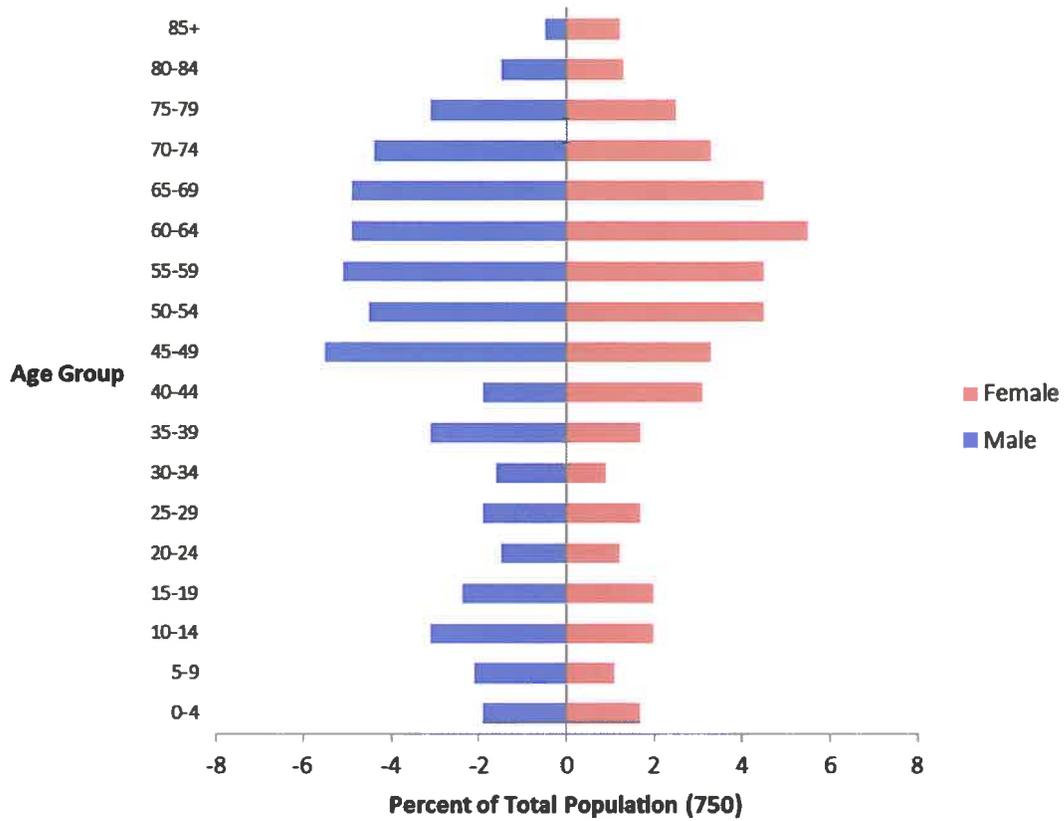
Garden Township: T37N, 38N, 39N, 40N, 41N, 42N & 43N - 18W, 19W & 20W

Office location	Garden Community Building 6316 State Street Garden, MI 49835
Mailing address	P.O. Box 224 Garden, MI 49835
Phone	906.644.7602
Fax	-
E-mail	-
Total Area*	184.39 square miles (159.92 land) 118,009.6 acres (102,348.8 land)
Population (2010)	750
Housing Units (2010)	715 (331 for seasonal, recreational or occasional use)
Total Households (2010)	360
Average Household Size (2010)	2.08 persons
Primary Fire Department	Garden Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Big Bay de Noc School District
2012 State Equalized Valuation (residential)	\$47,122,060 (includes Village of Garden SEV)

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Garden Township, from north to south spans 31 miles and is no more than 6 miles wide. Approximately 70 percent of the land area is in state or federal (Hiawatha National Forest) ownership. Forests and wetlands cover about 90 percent of the land. Most residential and commercial development lies along and south of highway US-2. The Big Bay de Noc School is about a mile south of US-2. Forty percent of the housing units are not primary residences. The Canadian National Railroad crosses through the center of the township north of US-2. M-183 and county roads 442, 440 and 436 are the principal roadways in addition to US-2.

Garden Township Population by Age and Sex (2010)



2010 Median Age: 53.8

2000 Median Age: 45.6

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

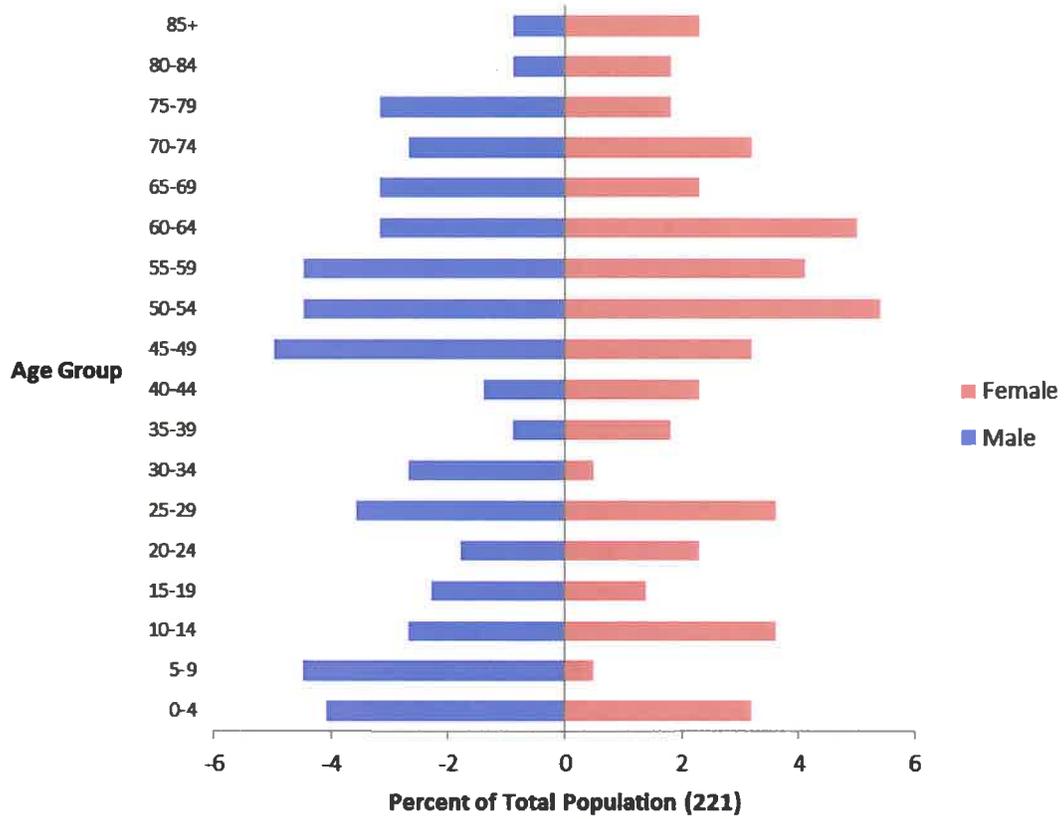
Village of Garden: T39N - R18W

Office location	Village Hall 15951 Garden Avenue Garden, MI 49835
Mailing address	P.O. Box 167 Garden, MI 49835
Phone	906.644.2423
Fax	-
E-mail	-
Total Area*	1.02 square miles (0.85 land) 652.8 acres (544.0 land)
Population (2010)	221
Housing Units (2010)	134 (24 for seasonal, recreational or occasional use)
Total Households (2010)	99
Average Household Size (2010)	2.21 persons
Primary Fire Department	Garden Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Big Bay de Noc School District
2012 State Equalized Valuation (residential)	\$ (included with township S.E.V.)

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Garden (village) envelopes much of Garden Bay. The village takes in a land area of slightly more than one square mile and is the commercial, governmental, and population center of the Garden peninsula. M-183 (State Street) winds through the middle of the village and serves as the main street. A municipal water system (wells) includes service to homes and businesses in the village and township.

Village of Garden Population by Age and Sex (2010)



2010 Median Age: 49.4
2000 Median Age: 45.0

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

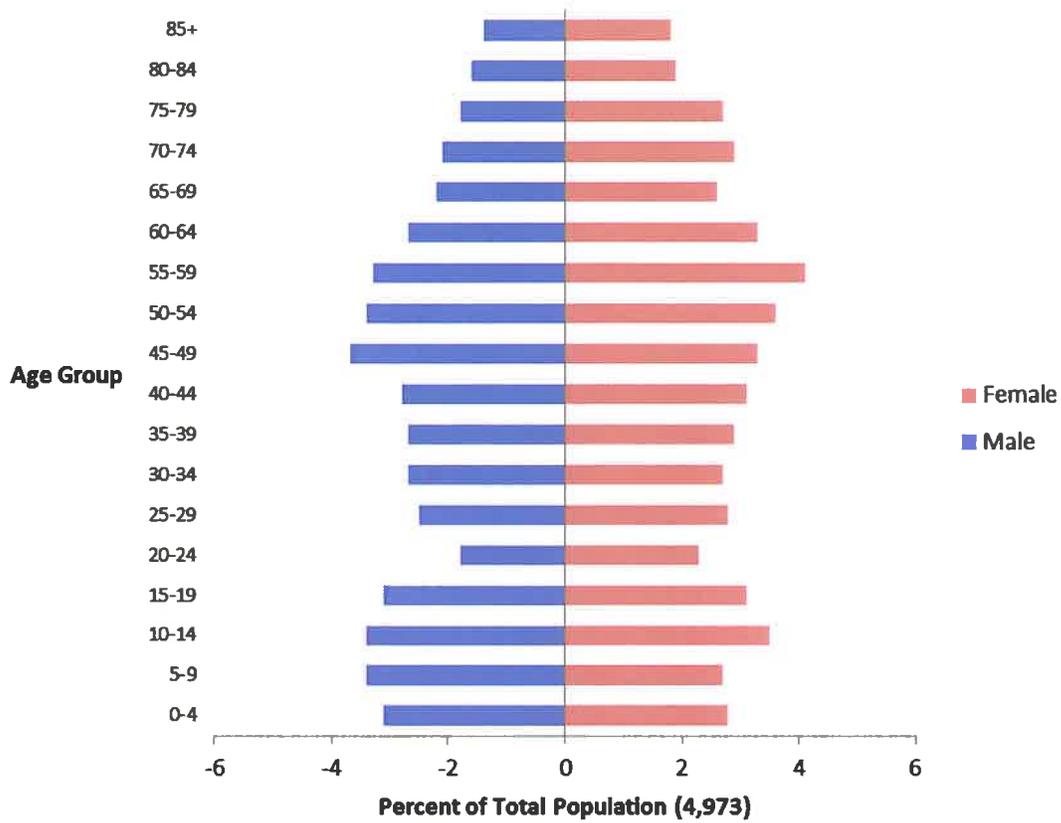
City of Gladstone: T40N - R22W

Office location	City Hall 1100 Delta Avenue Gladstone, MI 49837
Mailing address	same as above
Phone	906.428.2311
Fax	906.428.3122
E-mail	cityofgladstone@mi.org
Total Area*	7.89 square miles (4.96 land) 5,049.6 acres (3,174.4 land)
Population (2010)	4,973
Housing Units (2010)	2,431 (58 for seasonal, recreational and occasional use)
Total Households (2010)	2,182
Average Household Size (2010)	2.27 persons
Primary Fire Department	Gladstone Public Safety Department
Primary Police Department	Gladstone Public Safety Department
School District(s)	Gladstone Area Schools
2012 State Equalized Valuation (residential)	\$82,822,648

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Gladstone (city) is the second largest population and commercial center in the county. The original settlement is located east of US-2, close to Little Bay de Noc. A deep natural waterway permits large vessels to off-load bulk materials such as salt and bituminous. Over the past 20 years, significant development has taken place at higher elevations (bluff) on the city's west side. In addition to new home construction, an industrial park and new high school are situated along M-35 in the bluff area. Municipal water (surface), wastewater, and electrical distribution systems serve most residences and businesses. Canadian National Railroad maintenance, fueling and switching facilities are found along the west side of highway US-2/41. Highway M-35 intersects with US-2/41 near the center of the city.

City of Gladstone Population by Age and Sex (2010)



2010 Median Age: 43.6

2000 Median Age: 39.9

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

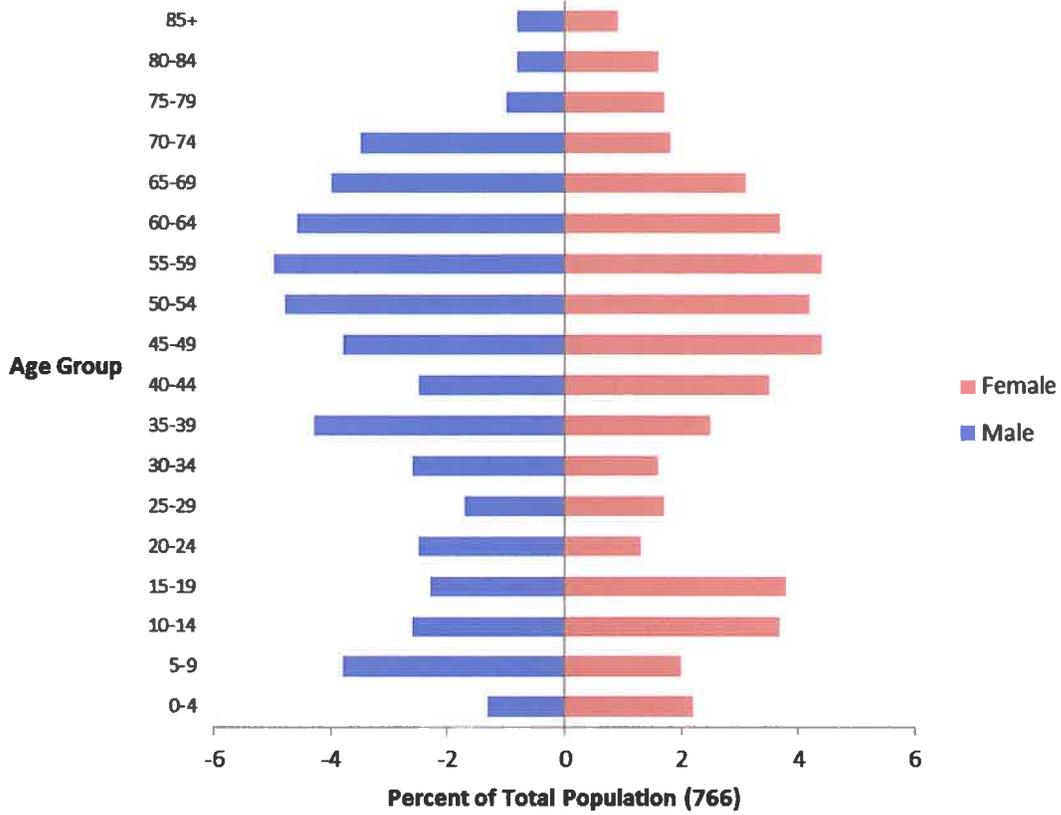
Maple Ridge Township: T42N & 43N - R22W & 23W

Office location	Maple Ridge Community Building 3892 W. Maple Ridge 37 th Road Rock, MI 49880
Mailing address	(send to supervisor or clerk)
Phone	906.356.6311
Fax	-
E-mail	-
Total Area*	108.23 square miles (108.23 land) 69,267.2 acres
Population (2010)	766
Housing Units (2010)	622 (240 for seasonal, recreational or occasional use)
Total Households (2010)	337
Average Household Size (2010)	2.27 persons
Primary Fire Department	Tri-Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Mid Peninsula School District
2012 State Equalized Valuation (residential)	\$30,435,500

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Maple Ridge Township is shaped in an “L”, extending for 12 miles at its longest and widest points. Forests cover about 80 percent of the land area; wetlands cover about 10 percent. State holdings make up about 20 percent of the total township land area. Highway M-35 angles through the township and is paralleled by the Canadian National Railroad. CR432 and the Saint Nicholas Road are among the most significant local roads. The largest collection of homes and commercial establishments is found in the community of Rock. A municipal water system (wells) was constructed in 1990 and serves about 100 households and businesses. Thirty percent of all township housing units are used as camps or cottages.

Maple Ridge Township Population by Age and Sex (2010)



2010 Median Age: 47.9
2000 Median Age: 45.0

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

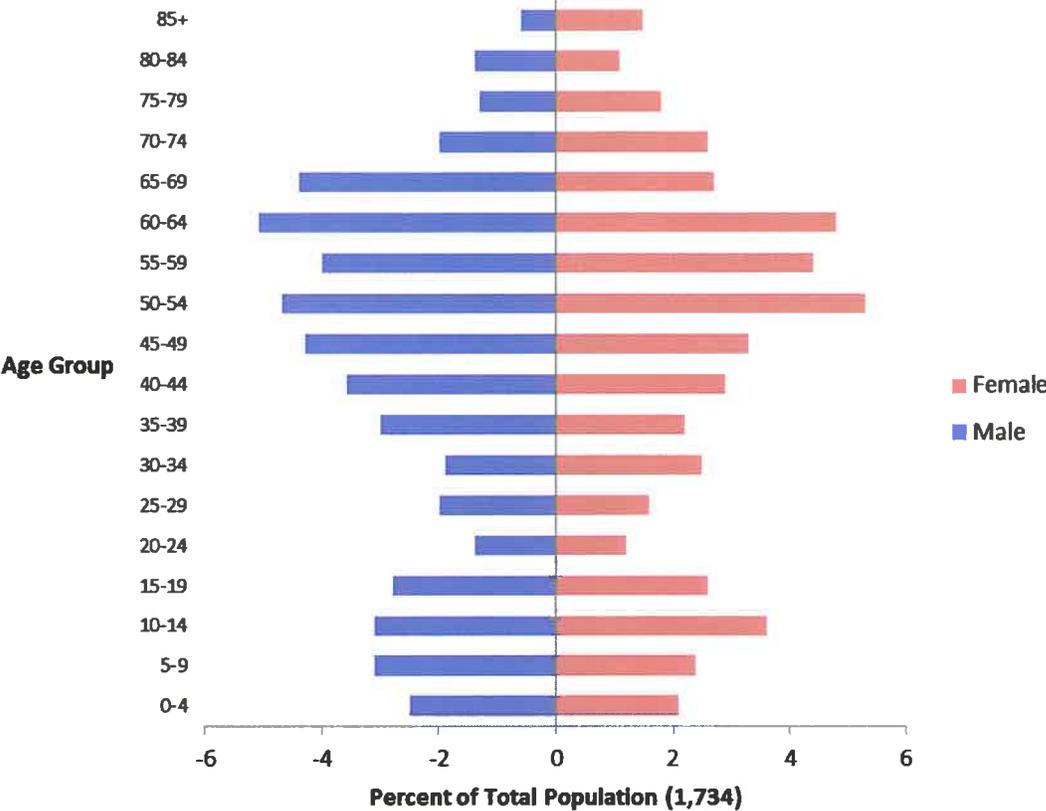
Masonville Township: T41N, 42N, & 43N - R20W & 21W

Office location	Omni Center, 10574 North Main Street Rapid River, MI 49878
Mailing address	P.O. Box 166, Rapid River, MI 49878
Phone	906.474.9505
Fax	same as above
E-mail	-
Total Area*	170.41 square miles (167.67 land) 109,062.4 acres (107,308.8 land)
Population (2010)	1,734
Housing Units (2010)	1,212 (360 for seasonal, recreational or occasional use)
Total Households (2010)	764
Average Household Size (2010)	2.27 persons
Primary Fire Department	Masonville Township Volunteer Fire Department
Primary Police Department	Delta County Sheriff
School District(s)	Rapid River Public Schools
2012 State Equalized Valuation (residential)	\$68,864,986

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Masonville Township at its widest and longest points extends for 10 miles and 18 miles respectively. In terms of land area, Masonville is the largest governmental unit in the county followed closely by Nahma township. About two-thirds of the land area is within the Hiawatha National Forest; about 80 percent of the township is forest-covered. Wetlands cover over 10 percent of the land area. Most commercial development is found along or near trunklines US-2 and US-41 - mostly near the community of Rapid River. Most of the township's residents live along and south of US-2 near the head of Little Bay de Noc. Twenty-six percent of township housing units are not used as primary residences. The Canadian National Railroad passes through the township near the lakeshore. In addition to trunklines, Bayshore Drive, CR513, CR509, and CR 428 are the most heavily used roadways in the township. Funding has been secured to construct a wastewater collection system in the community of Rapid River. Wastewater would be transmitted to the Gladstone WWTP via forcemain. Construction is anticipated to begin in 2004.

Masonville Township Population by Age and Sex (2010)



2010 Median Age: 49.1
2000 Median Age: 50.8

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

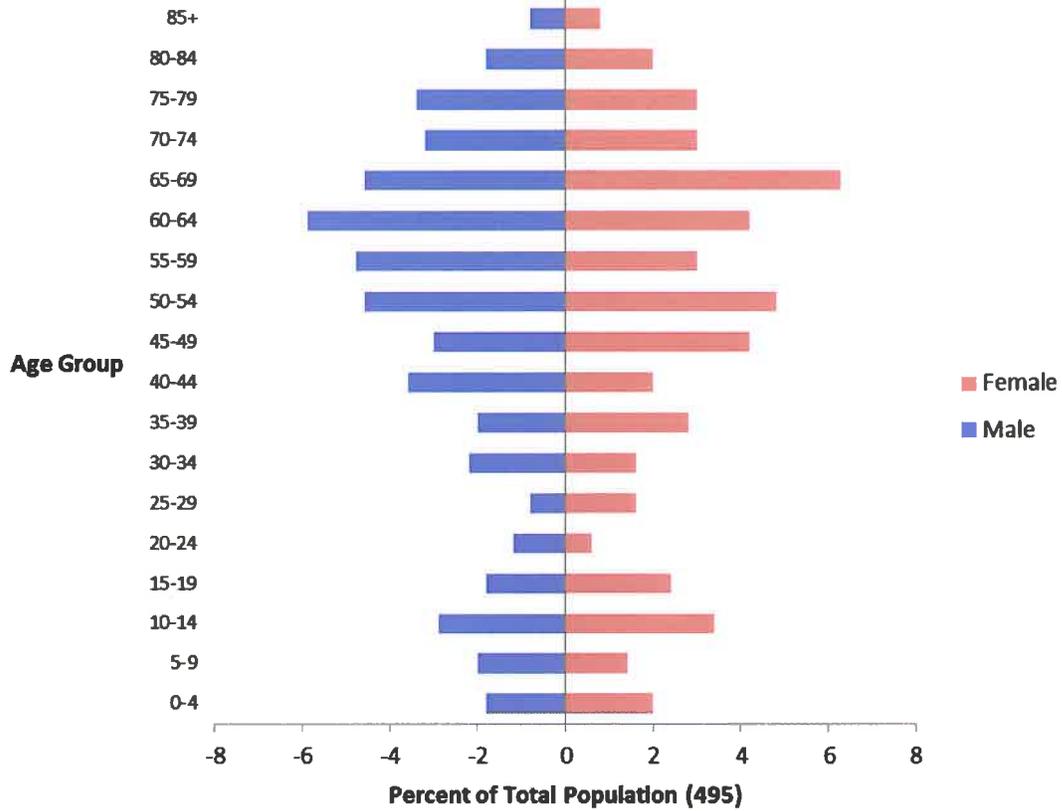
Nahma Township: T40N, 41N, 42N & 43N - R19W & 20W

Office location	Township Hall 13751 Wells Street 21.1 Nahma, MI 49864
Mailing address	(send to supervisor or clerk)
Phone	-
Fax	-
E-mail	-
Total Area*	188.87 square miles (166.24 land) 120,876.8 acres (106,393.6 land)
Population (2010)	495
Housing Units (2010)	678 (398 for seasonal, recreational and occasional use)
Total Households (2010)	232
Average Household Size (2010)	2.13 persons
Primary Fire Department	Nahma Township Volunteer Fire Dept.
Primary Police Department	Delta County Sheriff
School District(s)	Big Bay de Noc School District
2012 State Equalized Valuation (residential)	\$43,650,407

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Nahma Township stretches 22 miles north-south from Big Bay de Noc to Alger County. The east-west distance between adjoining Masonville and Garden townships is generally 8 miles. Federal land ownership (Hiawatha National Forest) accounts for two-thirds of the entire township land area. About 80 percent of the land area is forested and wetlands are found over about 15 percent. Trunkline US-2 and the Canadian National Railroad run parallel through the southern end of the township. Sixty percent of the housing units are used seasonally or for recreation. Federal Forest Highway 13 and US-2 are the most important transportation routes. County roads 495 and 499 provide access to the most development along the lakeshore and the community of Nahma. A public water (well) system supplies about 50 residences and businesses. Storage is accommodated in a 100,000 gallon elevated tank.

Nahma Township Population by Age and Sex (2010)



2010 Median Age: 53.9
2000 Median Age: 50.8

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

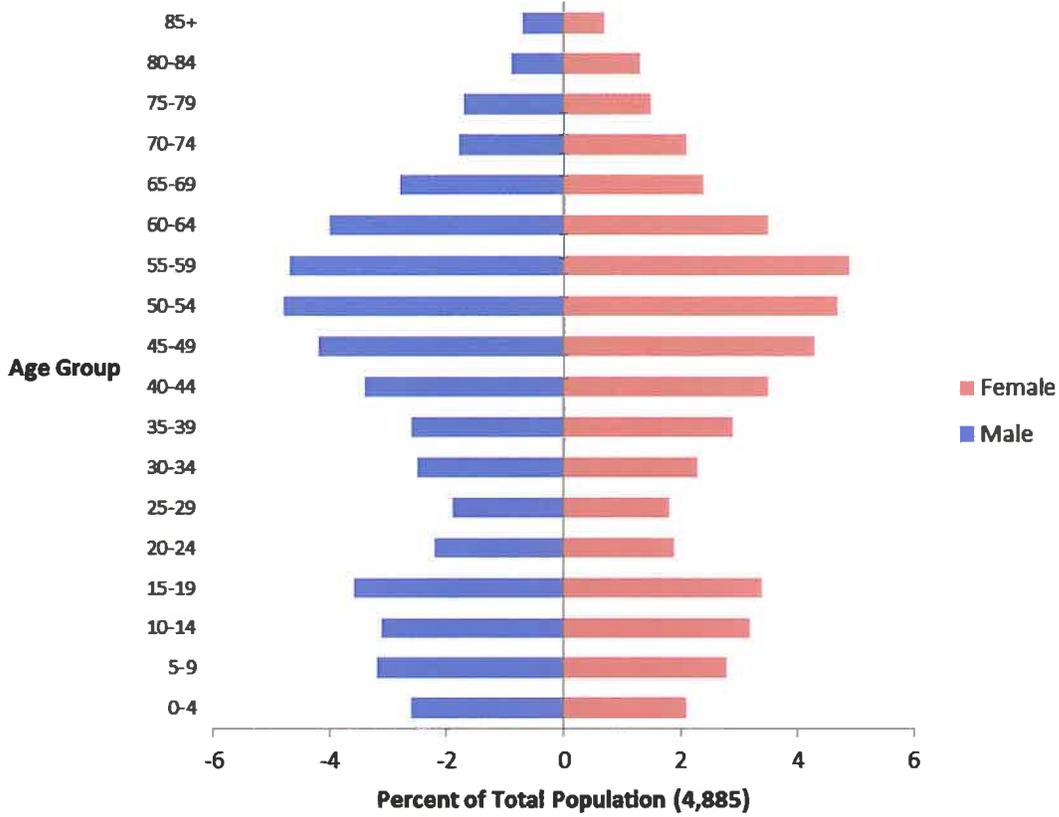
Wells Township: T39N - R22W, 23W & 24W

Office location	Township Hall 6436 North 8 th Street Wells, MI 49894
Mailing address	P.O. Box 188 Wells, MI 49894
Phone	906.786.0839
Fax	-
E-mail	-
Total Area*	39.83 square miles (39.49 land) 25,491.2 acres (25,273.6 land)
Population (2010)	4,885
Housing Units (2010)	2,094 (40 for seasonal, recreational or occasional use)
Total Households (2010)	1,695
Average Household Size (2010)	2.49 persons
Primary Fire Department	Escanaba Public Safety Department (contracted)
Primary Police Department	Delta County Sheriff
School District(s)	Escanaba Area Public Schools
2012 State Equalized Valuation (residential)	\$120,161,808

Source: U.S. Census Bureau, 2010 and Michigan Department of Treasury, 2012

Wells Township lies within the Gladstone-Escanaba urban corridor. It extends for up to 10 miles east-west and 6 miles north-south. Areas along and near US-2 and the northeastern portion of the township are the most intensively developed. The county's largest industrial complex and employer, NewPage, is located on the Escanaba River about 2 miles upstream from Little Bay de Noc. In terms of land cover, about 56 percent is forested and about 15 percent is wetland. The township-owned water distribution system supplies the community of Wells east of US-2. The system is supplied and maintained by the Escanaba.

Wells Township Population by Age and Sex (2010)



2010 Median Age: 45.7
2000 Median Age: 38.6

Source: U.S. Census Bureau, 2000 & 2010. Compiled by CUPPAD Regional Commission, 2013.

APPENDIX B

Historic Sites - Delta County

Historic Sites, Delta County		
Name	Location	Historic Significance
Charles Brotherton House	606 Ogden Avenue, Escanaba	Brotherton was a government surveyor who came to the Upper Peninsula in 1852. His survey and mapping work in laying out townships helped facilitate settlement across much of the region. The residential structure was listed on the state historic register in 1990.
Carnegie Public Library	201 South 7 th Street, Escanaba	Opened in 1903, this structure is noted for architectural design. It was granted historic designations by the state and federal historic offices in 1976 and 1977 respectively.
Delta Hotel	624 Ludington Street, Escanaba	This brick and masonry 5-story structure opened in 1914 amid boom times in the area. It has been transformed to apartments and restaurant. It was added to the national historic register in 1998.
Samuel Elliot Farm	CR 483, Sac Bay area, Fairbanks township	Constructed in 1880, this frame farmhouse is noted for its design. It was listed as a state historic site in 1974.
Fayette townsite	CR 483, Fairbanks township	The port town of Fayette was a bustling iron ore smelting company town that was settled in the 1860s. It was abandoned as industrial practices changed. It is within the Fayette Historic State Park and has undergone extensive restoration. National historic designation was granted in 1996.
Grand Island Indian Trail Informational Designation	CR 509, Masonville township	A marker was erected at the trailhead to commemorate the importance of this route connecting Lake Michigan and Lake Superior. State and national historic designations were approved in 1966 and 1968 respectively.
Little Bay de Noc Informational Designation	Lake Shore Drive, Escanaba	A marker noting the historic importance of Little Bay de Noc to Noquet Indians and European settlers is found in the Ludington Park area. State historic designation was granted in 1957.
Ludington Hotel	223 Ludington Street, Escanaba	Constructed in 1864, the hotel is inextricably linked with Escanaba's history. The hotel affords a view of Little Bay de Noc and remains in operation. It gained listing on the state historic register in 1981.
Maple Ridge Workers Association Hall (Finn Hall)	CR 529, Rock	Finn Hall was built in 1914 and served as a social, intellectual and recreational center for persons of Finnish descent for many years. State historic designation was granted in 1978.
Peninsula Point Light Station	southern terminus of CR 513, Hiawatha National Forest, Bay de Noc township	An attached lighthouse keeper residence was destroyed by fire in 1959. The facility was operational from 1865 until 1936. It gained national historic listing in 1975.

Historic Sites, Delta County		
Name	Location	Historic Significance
Saint Lawrence Catholic Church	CR 499, Indian Point, Nahma township	This small church was built in 1882 and is associated with missionary work in the area. Designation as a state historic site was approved in 1972.
Saint Martin Island Light Station	St. Martin Island, Fairbanks township	The exoskeletal light tower served as a navigation aid for Lake Michigan ship traffic. It was built in 1905 and added to the national historic register in 1984.
Sand Point Lighthouse	12 Water Plant Road, Escanaba	This facility was completed in 1867 to guide shipping into Little Bay de Noc. It is now being restored by the Delta County Historical Society. State and national historic designations were approved in 1988 and 1997 respectively.
Sawmills Informational Designation	Pioneer Trail Park, Escanaba River, Wells township	A marker at this location relates the story of the area's early lumbering industry. State historic designation was granted in 1966.
Webster School Annex	1219 North 19 th Street, Escanaba	Since demolished, this building was built in 1892 as a school and was later used for other public purposes. State historic designation was granted in 1977.

APPENDIX C

Hazard Risk Analysis

HAZARD RISK ANALYSIS

Hazards of all types were evaluated based primarily on the probability of an occurrence and severity of impact. Local residents from business and industry, police and fire agencies, emergency services, education, public health, medical services, transportation, planning and zoning, and local elected officials participated in a series of reviews and discussions. Hazards were ranked according to aspects and values determined by local evaluators. In all, about a dozen residents participated directly in the process.

The likelihood of a particular hazard occurring is based on Delta County incidents to the extent that such information is available. Regional, state, and national data were used throughout. Injury and death potential was considered based on available county information and state and national sources. The impacted population was rated based known and potential incident locations in relation to current census data. Direct and indirect impacts were considered. Economic and corollary effects were determined by known conditions, and anticipated future conditions.

For the 2007 Plan, the Committee utilized a ranking point score method arriving at a rating reflecting an order of importance of the threat within the county. This ranking is useful for planning purposes and is based on the most current information available.

For the 2013 updated plan, the Committee decided to revisit the hazard rankings. Rankings were revised through Local Emergency Preparedness Committee (LEPC) discussions that reflected current community concerns and incidents since approval of the original plan. At numerous meetings in 2013, the Committee discussed the rankings as presented in 2007 along with the data as presented in the Hazard chapter of this Plan. It was the Committee's concurrence that a number of issues warranted the rankings to change:

- Due to recent high-profile school shootings nationwide and local weapons-related incidents, the Committee gave school violence and workplace violence a higher hazard rating than in the 2007 plan.
- The Committee agreed that public health emergencies were more likely to occur and be widespread so this hazard's rating was also increased.
- Petroleum pipeline failures were put into the moderate risk category because pipelines in Delta County cross several rivers, and the spill in Kalamazoo highlighted the massive mitigation cost of river spills.
- The Committee also raised the hazard ranking of wildfires, because of its likelihood to occur in localized areas such as the Stonington Peninsula.

The county hazard ranking and the hazard rating score for 2007 (the original plan) and for 2013 (the update) are shown in table below.

The “2013 Hazard Risk Assessment – Delta County” table summarizes if the hazard is identified in State HMP, declared disaster, identified in County HMP, if Hazard occurred since original HMP approval, and ranking

While the ranking is useful for planning purposes and is based on the most current information available and many hours of deliberation, it should not be assumed that lower ranked hazards would not occur. Most hazard events are extremely difficult to predict.

Delta County Hazard Rating				
Hazard	2007 Plan		2013 Update	Risk
	Ranking	Rating Score	Ranking	
Hazardous Materials – Transportation	1	7.50	1	HIGH
Ice & Sleet	2	6.80	2	
Snowstorms	3	6.50	3	
Severe Wind	4	6.30	4	
Lightning and Thunderstorms	5	6.25	5	
Hazardous Materials - Fixed Site	6	6.15	6	
School Violence	14	4.00	7	
Workplace Violence	21	3.00	8	
Tornadoes	7	5.75	9	MODERATE
Public Health Emergencies	19*	3.10	10	
Terrorism, Sabotage, WMD	8	5.70	11	
Bioterrorism	9	5.60	12	
Temperature Extremes	10	4.80	13	
Public Assembly Events	11	4.50	14	
Structural Fires	12	4.35	15	
Economic Recession/Disaster	13	4.30	16	
Wildfires	15	3.70	17	
Hail	16	3.55	18	
Infrastructure Failures	17	3.30	19	LOW
Transportation Accidents	18	3.15	20	
Other Environmental (invasive, exotics, diseases, etc.)	19*	3.10	21	
Urban Flooding	22	2.70	22	
Drought	23	2.60	23	
Dam Failures	24	2.55	24	
Riverine Flooding	25	2.40	25	
Great Lakes Flooding	26*	2.20	26	
Petroleum Pipeline Failures	26*	2.20	27	
Civil Disturbance	28	1.90	28	
Scrap Tire Fires	29	1.30	29	LOW
Earthquakes	30*	1.00	30	
Nuclear Power Plant Accidents	30*	1.00	31	
Subsidence	30*	1.00	32	

2013 HAZARD RISK ASSESSMENT – DELTA COUNTY

Hazard	Identified in State HMP?	Declared Disaster?	Identified in County HMP?	Occurred Since Original HMP Approval?	Ranking
1 – Wildfires	Y		Y	Y	11
2 - Riverine Flooding	Y		Y	Y	26
3 - Great Lakes Flooding	Y		Y	N	27
4 - Urban Flooding	Y		Y	Y	23
5 – Tornadoes	Y		Y	Y	9
6 - Severe Wind	Y	2005	Y	Y	4
7 - Lightning & Thunderstorms	Y		Y	Y	5
8 – Hail	Y		Y	Y	17
9 – Snowstorms	Y	1978	Y	Y	3
10- Ice & Sleet Storms	Y		Y	Y	2
11- Temperature Extremes	Y	1999	Y	Y	12
12- Drought	Y	1977	Y	N	24
13- Earthquakes	Y		Y	N	30
14- Other Environmental (invasive exotics, diseases, etc.)	Y		Y	Y	22
15- Infrastructure Failures	Y		Y	Y	18
16- Structural Fires	Y		Y	Y	14
17- Dam Failures	Y		Y	N	25
18- Nuclear Power Plant Accidents	Y		Y	N	31
19- Subsidence	Y		Y	N	32
20- Scrap Tire Fires	Y		Y	N	29

2013 HAZARD RISK ASSESSMENT – DELTA COUNTY					
21- Hazardous Materials Accident - Fixed Site	Y		Y	N	6
22- Hazardous Materials Accident - Transportation	Y		Y	Y	1
23- Petroleum Pipeline Failures	Y		Y	N	16
24- Civil Disturbance	Y		Y	N	28
25- Terrorism, Sabotage, WMD	Y		Y	N	20
26- Bioterrorism	Y		Y	N	21
27- Public Assembly Events			Y	N	13
28- School Violence	Y		Y	Y	7
29- Workplace Violence	Y		Y	N	8
30- Public Health Emergencies	Y		Y	N	10
31- Economic Recession/Adversity	N		Y	N	15
32- Transportation Accidents	Y		Y	Y	19

APPENDIX D

DELTA COUNTY HIGH RISK EROSION PARCELS FOR:

Ensign Township

Ford River Township

Masonville Township

Wells Township

City of Gladstone

Ensign Township (arranged north to south)			
Sequence Number	Property Number	60-Year Projected Recession Distance	30-Year Projected Recession Distance
1	21-06-106-021-00	90 feet	45 feet
2	21-06-106-022-00	90 feet	45 feet
2	21-06-1-6-023-00	90 feet	45 feet
3	21-06-106-024-00	90 feet	45 feet
4	21-06-106-025-00	90 feet	45 feet
4	21-06-106-037-00	90 feet	45 feet
5	21-06-106-039-00	90 feet	45 feet
6	21-06-106-057-00	100 feet	55 feet
6	21-06-106-058-00	100 feet	55 feet
7	21-06-106-068-00	100 feet	55 feet
8	21-06-106-069-00	100 feet	55 feet
9	21-06-106-061-00	100 feet	55 feet
10	21-06-106-061-00	100 feet	55 feet
11	21-06-106-065-00	100 feet	55 feet
12	21-06-106-062-00	100 feet	55 feet
13	21-06-106-064-00	100 feet	55 feet

Ensign Township (arranged north to south)			
Sequence Number	Property Number	60-Year Projected Recession Distance	30-Year Projected Recession Distance
14	21-06-106-063-00	100 feet	55 feet
15	21-06-107-012-00	100 feet	55 feet
16	21-06-107-013-00	100 feet	55 feet
17	21-06-107-014-00	100 feet	55 feet
18	21-06-107-015-00	100 feet	55 feet
19	21-06-107-016-00	100 feet	55 feet
20	21-06-107-017-00	100 feet	55 feet
21	21-06-107-018-00	100 feet	55 feet
22	21-06-107-019-00	100 feet	55 feet
23	21-06-107-022-10	100 feet	55 feet
24	21-06-107-023-00	100 feet	55 feet
25	21-06-107-024-00	100 feet	55 feet
26	21-06-107-026-00	100 feet	55 feet
27	21-06-107-029-10	100 feet	55 feet
Ford River Township (arranged north to south)			
Sequence Number	Property Number	60-Year Project Recession Distance	30-Year Projected Recession Distance
	21-09-062-015-00	70 feet	35 feet

Ford River Township (arranged north to south)			
Sequence Number	Property Number	60-Year Project Recession Distance	30-Year Projected Recession Distance
1			
2	21-09-062-014-00	70 feet	35 feet
2	21-09-062-026-00	70 feet	35 feet
3	21-09-061-050-00	70 feet	35 feet
3	21-09-061-051-00	70 feet	35 feet
Public	21-09-063-003-00	85 feet	40 feet
4	21-09-063-001-00	85 feet	40 feet
5	21-09-063-001-20	85 feet	40 feet
6	21-09-063-001-10	85 feet	40 feet
7	21-09-302-043-00	95 feet	45 feet
8	21-09-302-042-00	95 feet	45 feet
9	21-09-302-041-00	95 feet	45 feet
9	21-09-302-040-00	95 feet	45 feet
10	21-09-302-039-00	95 feet	45 feet
10	21-09-302-038-00	95 feet	45 feet

Ford River Township (arranged north to south)			
Sequence Number	Property Number	60-Year Project Recession Distance	30-Year Projected Recession Distance
11	21-09-302-037-00	95 feet	45 feet
12	21-09-302-036-00	170 feet	90 feet
13	21-09-302-035-00	170 feet	90 feet
13	21-09-302-034-00	170 feet	90 feet
13	21-09-302-033-00	170 feet	90 feet
14	21-09-302-032-50	170 feet	90 feet
15	21-09-072-001-00	170 feet	90 feet
16	21-09-072-003-20	170 feet	90 feet
17	21-09-072-002-00	170 feet	90 feet
18	21-09-072-003-30	170 feet	90 feet
19	21-09-072-004-00	170 feet	90 feet
Public	21-09-072-005-00	170 feet	90 feet
20	21-09-303-002-00	190 feet	95 feet
21	21-09-303-003-00	190 feet	95 feet
	21-09-303-003-60	190 feet	95 feet

Ford River Township (arranged north to south)			
Sequence Number	Property Number	60-Year Project Recession Distance	30-Year Projected Recession Distance
22			
23	21-09-303-003-80	105 feet	60 feet
20	21-09-303-003-20	105 feet	60 feet
24	21-09-303-004-00	105 feet	60 feet
25	21-09-303-005-00	105 feet	60 feet
26	21-09-303-006-00	105 feet	60 feet
27	21-09-303-007-00	105 feet	60 feet
27	21-09-071-030-00	105 feet	60 feet
28	21-09-071-031-00	105 feet	60 feet
28	21-09-079-005-00	105 feet	60 feet
29	21-09-079-035-00	115 feet	65 feet
30	21-09-079-037-00	115 feet	65 feet
31	21-09-079-036-00	115 feet	65 feet
31	21-09-082-001-00	115 feet	65 feet

Masonville Township (arranged north to south)			
Sequence Number	Property Number	60-Year Projected Recession Distance	30-Year Projected Recession Distance
4	21-12-182-032-00	105 feet	60 feet
4	21-12-182-033-00	105 feet	60 feet
5	21-12-182-034-00	105 feet	60 feet
6	21-12-182-035-00	105 feet	69 feet
7	21-12-182-036-00	105 feet	60 feet
8	21-12-182-037-00	105 feet	60 feet
9	21-12-182-050-00	115 feet	65 feet
9	21-12-182-051-00	115 feet	65 feet
9	21-12-182-052-00	115 feet	65 feet
10	21-12-182-053-00	115 feet	65 feet
11	21-12-182-054-00	115 feet	65 feet
12	21-12-182-055-00	115 feet	65 feet
13	21-12-182-056-00	115 feet	65 feet
14	21-12-182-057-00	115 feet	65 feet

Masonville Township (arranged north to south)			
Sequence Number	Property Number	60-Year Projected Recession Distance	30-Year Projected Recession Distance
15	21-12-182-058-00	115 feet	65 feet
16	21-12-182-159-00	115 feet	65 feet
1	21-12-182-060-00	115 feet	65 feet
2	21-12-182-066-00	115 feet	65 feet
3	21-12-082-063-00	115 feet	65 feet
2	21-12-182-065-00	115 feet	65 feet

Wells Township (arranged north to south)			
Sequence Number	Property Number	60-Year Projected Recession Distance	30-Year Projected Recession Distance
1	21-14-005-003-00	95 feet	55 feet
2	21-14-005-001-00	95 feet	55 feet
3	21-14-007-001-00	80 feet	40 feet
3	21-14-720-001-00	80 feet	40 feet
3	21-14-720-002-00	80 feet	40 feet

City of Gladstone (arranged north to south)			
Sequence Number	Property Number	60-Year Projected Recession Distance	30-Year Projected Recession Distance
1	21-52-622-004-00	125 feet	70 feet
1	21-52-200-001-00	195 feet	105 feet
1	21-52-200-001-00	315 feet	165 feet
1	21-52-200-001-00	160 feet	85 feet
2	21-52-150-062-00	85 feet	40 feet
3	21-52-150-063-00	85 feet	40 feet
4	21-52-150-09-00	85 feet	40 feet
5	21-52-150-008-00	85 feet	40 feet
6	21-52-150-005-00	85 feet	40 feet

APPENDIX E

National Climatic Data Center – Weather Events

	Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
1	Delta	07/17/81	2.00 in.	0	0	0	0
2	Delta	09/11/81	1.75 in.	0	0	0	0
3	Delta	07/19/84	0.75 in.	0	0	0	0
4	Delta	07/18/86	1.75 in.	0	0	0	0
5	Delta	07/18/86	0.75 in.	0	0	0	0
6	Delta	07/18/86	0.75 in.	0	0	0	0
7	Delta	06/06/87	0.88 in.	0	0	0	0
8	Delta	07/19/92	1.00 in.	0	0	0	0
9	Delta	07/19/92	1.00 in.	0	0	0	0
10	Escanaba	08/03/93	1.50 in.	0	0	0	0
11	Rock	07/14/95	1.75 in.	0	0	0	0
12	Rapid River	07/31/95	1.00 in.	0	0	0	0
13	Escanaba	07/08/96	1.00 in.	0	0	0	0
14	Escanaba	07/08/96	0.75 in.	0	0	0	0
15	Fairport	07/08/96	0.75 in.	0	0	0	0
16	Rapid River	07/08/96	1.50 in.	0	0	0	0
17	Gladstone	07/08/96	0.75 in.	0	0	0	0
18	Gladstone	07/08/96	0.75 in.	0	0	1K	0
19	Cornell	10/17/96	0.75 in.	0	0	0	0
20	Schaffer	07/02/97	1.50 in.	0	0	0	0
21	Escanaba	07/16/97	0.75 in.	0	0	0	0
22	Stonington	07/16/97	1.75 in.	0	0	0	0
23	Fayette	07/16/97	0.75 in.	0	0	0	0
24	Stonington	03/29/98	0.75 in.	0	0	0	0
25	Garden	07/30/99	0.75 in.	0	0	0	0
26	Gladstone	03/08/00	0.75 in.	0	0	0	0
27	Ford River	05/07/00	0.75 in.	0	0	0	0
28	Bark River	05/07/00	0.75 in.	0	0	0	0
29	Rapid River	06/27/01	0.88 in.	0	0	0	0
30	Gladstone	05/06/02	0.75 in.	0	0	0	0
31	Gladstone	05/06/02	1.25 in.	0	0	0	0
32	Garden	05/06/02	0.88 in.	0	0	0	0
33	Rock	05/30/02	0.88 in.	0	0	0	0
34	Escanaba	05/30/02	0.75 in.	0	0	0	0
35	Escanaba	05/30/02	1.25 in.	0	0	0	0
36	Rapid River	05/30/02	0.75 in.	0	0	0	0
37	Rock	06/26/02	1.00 in.	0	0	0	0
38	Cornell	07/30/02	0.75 in.	0	0	0	0
39	Garden	07/30/02	1.75 in.	0	0	0	0
40	Escanaba	08/01/02	1.75 in.	0	0	0	0
41	Bark river	08/01/02	0.88 in.	0	0	0	0
42	Bark River	07/30/03	0.75 in.	0	0	0	0
43	Bark River	07/30/03	0.75 in.	0	0	0	0
44	Gladstone	08/25/03	1.75 in.	0	0	0	0
45	Garden Corners	04/18/2004	0.88 in.	0	0	0	0
46	Rapid River	06/14/2004	0.88 in.	0	0	0	0
47	Rapid River	06/14/2004	0.88 in.	0	0	0	0

	Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
48	Ford River	07/13/2004	1.00 in.	0	0	0	0
49	Rapid River	08/02/2004	1.00 in.	0	0	0	0
50	Nahma	08/02/2004	0.75 in.	0	0	0	0
51	Rock	08/09/2004	0.88 in.	0	0	0	0
52	Hyde	06/18/2006	1.00 in.	0	0	0	0
53	Lathrop	07/03/2006	1.75 in.	0	0	0	0
54	Garden	06/07/2007	0.88 in.	0	0	2K	0
55	Schaffer	06/20/2007	0.75 in.	0	0	0	0
56	Ford River	07/07/2007	0.75 in.	0	0	0	0
57	Stonington	07/08/2007	0.88 in.	0	0	0	0
58	Moss Lake	07/08/2007	0.88 in.	0	0	0	0
59	Gladstone	07/08/2007	0.88 in.	0	0	0	0
60	Rapid River	07/08/2007	1.75 in.	0	0	0	0
61	Rapid River	07/08/2007	1.00 in.	0	0	0	0
62	Gladstone	07/08/2007	1.00 in.	0	0	0	0
63	Escanaba	07/08/2007	0.75 in.	0	0	0	0
64	Escanaba	07/08/2007	0.88 in.	0	0	0	0
65	Gladstone	07/08/2007	0.88 in.	0	0	0	0
66	Bark River	05/25/2008	2.50 in.	0	0	0	0
67	Garden	07/15/2008	1.00 in.	0	0	0	0
68	Larch	08/01/2008	0.88 in.	0	0	0	0
69	Stonington	08/01/2008	1.75 in.	0	0	0	0
70	Maplewood	07/25/2011	1.75 in.	0	0	1K	0
71	Flat Rock	06/18/2012	1.75 in.	0	0	0	0
72	Gladstone	06/18/2012	2.00 in.	0	0	0	0
73	Chandler	07/30/2012	0.88 in.	0	0	0	0
74	Chandler	07/30/2012	0.88 in.	0	0	0	0
75	Gladstone	07/30/2012	1.00 in.	0	0	0	0
Total				0	0	4K	0

	Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
1	Delta	08/16/68	F1	0	0	25K	0
2	Delta	07/20/72	F2	0	1	250K	0
3	Delta	07/27/73	F0	0	0	0K	0
4	Delta	07/14/74	F1	0	0	25K	0
5	Delta	07/11/87	F3	0	0	25K	0
6	Delta	07/19/92	F2	0	2	2.5M	0
7	Garden Corners	10/05/97	F1	0	0	3K	0
8	Rock	03/29/98	N/A	0	0	0	0

	Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
9	Escanaba	06/25/98	N/A	0	0	0	0
10	Escanaba	06/25/98	N/A	0	0	0	0
11	Escanaba	06/25/98	F1	0	0	25K	0
12	Rapid River	05/30/02	F0	0	0	0	0
13	Masonville	07/25/08	EFO	0	0	10K	0
Total				0	3	2.863M	0

	Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
1	Delta	07/02/57	0 kts.	0	0	0	0
2	Delta	09/08/60	53 kts.	0	0	0	0
3	Delta	07/01/63	50 kts.	0	0	0	0
4	Delta	07/06/63	0 kts.	0	0	0	0
5	Delta	08/01/64	0 kts.	0	0	0	0
6	Delta	08/07/69	0 kts.	0	0	0	0
7	Delta	07/14/74	85 kts.	0	0	0	0
8	Delta	05/19/75	0 kts.	0	0	0	0
9	Delta	07/19/75	0 kts.	0	0	0	0
10	Delta	07/07/80	0 kts.	0	0	0	0
11	Delta	07/06/82	54 kts.	0	0	0	0
12	Delta	06/26/83	0 kts.	0	0	0	0
13	Delta	09/06/83	60 kts.	0	0	0	0
14	Delta	09/06/83	0 kts.	0	0	0	0
15	Delta	06/26/84	0 kts.	0	0	0	0
16	Delta	07/14/84	0 kts.	0	0	0	0
17	Delta	07/24/86	0 kts.	0	0	0	0
18	Delta	07/11/87	0 kts.	0	0	0	0
19	Delta	07/20/87	0 kts.	0	0	0	0
20	Delta	07/20/87	0 kts.	0	0	0	0
21	Delta	06/17/92	0 kts.	0	0	0	0
22	Lower	05/24/93	0 kts.	0	0	50K	0
23	Maple Hill	07/13/95	N/A	0	0	0	0
24	Gladstone	07/13/95	N/A	0	0	0	0
25	Rapid River	07/14/95	N/A	0	0	0	0
26	Cornell	07/08/96	55 kts.	0	0	2K	0
27	Rock	10/05/97	100 kts.	0	0	300K	2.3M
28	Cornell	05/17/98	60 kts.	0	0	400K	0
29	Rapid River	05/17/98	50 kts.	0	0	0	0
30	Escanaba	06/25/98	55 kts.	0	0	75K	0
31	Delta & other counties	11/10/98	76 kts.	0	0	450K	10.0M
32	Nahma	06/06/99	55 kts.	0	0	0	0
33	Cornell	07/05/99	52 kts.	0	0	0	0

	Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
34	Bark River	07/29/99	75 kts.	0	0	0	0
35	Rapid River	07/29/99	55 kts.	0	0	0	0
36	Cornell	07/30/99	55 kts.	0	0	0	0
37	Gladstone	07/30/99	60 kts.	0	0	0	0
38	Escanaba	09/11/00	55 kts.	0	0	0	0
39	Rapid River	07/21/01	55 kts.	0	0	0	0
40	Isabella	07/21/01	60 kts.	0	0	0	0
41	Rapid River	07/21/02	55 kts.	0	0	0	0
42	Rock	07/21/02	55 kts.	0	0	0	0
43	Cornell	07/31/02	60 kts.	0	0	0	0
44	Gladstone	07/31/02	60 kts.	0	0	0	0
45	Rock	07/31/02	60 kts.	0	0	0	0
46	Isabella	08/01/02	65 kts.	0	0	0	0
47	Nahma	08/01/02	65 kts.	0	0	0	0
48	Cornell	10/04/02	60 kts.	0	0	0	0
49	Ensign	10/04/02	60 kts.	0	0	0	0
50	Escanaba	10/04/02	60 kts.	0	0	0	0
51	Bark River	08/26/03	57 kts.	0	0	0	0
52	Garden	08/26/03	65 kts.	0	0	0	0
53	Bark River	06/13/04	55 kts.	0	0	0	0
54	Rapid River	06/14/04	65 kts.	0	0	0	0
55	Ensign	08/02/04	55 kts.	0	0	0	0
56	Gladstone	08/09/04	65 kts.	0	0	0	0
57	Gladstone	08/09/04	60 kts.	0	0	0	0
58	Escanaba	08/04/05	55 kts.	0	0	0	0
59	Perkins	08/09/05	70 kts.	0	0	0	0
60	Escanaba	08/09/05	65 kts.	0	0	0	0
61	Stonington	08/09/05	70 kts.	0	0	0	0
62	Garden	07/28/06	55 kts.	0	0	3K	0
63	Rapid River	07/30/06	55 kts.	0	0	0	0
64	Escanaba	03/26/07	50 kts.	0	0	1K	0
65	Escanaba	08/28/07	50 kts.	0	0	4K	0
66	Island View	07/17/08	65 kts.	0	0	10K	0
67	Island View	07/17/08	78 kts.	0	0	20K	0
68	Gladstone	07/25/08	43 kts.	0	0	0.10K	0
69	Kipling	07/25/08	43 kts.	0	0	0.10K	0
70	Garden Corners	07/25/08	55 kts.	0	0	1K	0
10	Cornell	08/01/08	50 kts.	0	0	0	0
72	Cornell	08/01/08	50 kts.	0	0	0	0
73	Larch	08/01/08	55 kts.	0	0	0	0
74	Escanaba	08/01/08	50 kts.	0	0	0	0
75	Pine Ridge	08/01/08	50 kts.	0	0	0	0
76	Moss Lake	06/08/11	50 kts.	0	0	0	0
77	Moss Lake	06/08/11	50 kts.	0	0	0	0
78	Moss Lake	06/08/11	50 kts.	0	0	0	0
79	Escanaba	07/30/11	57 kts.	0	0	3K	0
80	Rapid River	07/30/11	52 kts.	0	0	1K	0

	Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
81	Moss Lake	07/30/11	55 kts.	0	0	3K	0
82	Schaffer	05/28/12	50 kts.	0	0	1K	0
Total				0	2	1.324M	12.250M

	Location or County	Date	Magnitude	Death	Injury	Property Damage	Crop Damage
1	Delta & other counties	2/03/96	N/A	0	0	0	0
2	Delta & other counties	2/04/96	N/A	0	0	0	0
3	Delta & other counties	02/04/07	N/A	0	0	0	0
Total				0	0	0	0

	Location or County	Date	Type	Death	Injury	Property Damage	Crop Damage
1	Southern Lower Michigan	01/03/93	Flooding	0	0	5K	0
2	Delta & other counties	03/23/93	Flood	0	0	0	0
3	Delta & other counties	04/19/93	Flood	0	0	5.0M	0
4	Delta & other counties	04/20/96	Flood	0	0	800K	0
5	Gladstone	07/08/96	Urban/small stream fld.	0	0	0	0
6	Escanaba	08/01/02	Flash flood	0	0	0	0
7	Delta & other counties	04/02/05	Flood	0	0	0	0
8	Escanaba	05/28/06	Flash flood	0	0	0	0
9	Escanaba	07/08/07	Flash flood	0	0	0	0
10	Escanaba	07/08/07	Flash flood	0	0	0	0
11	Escanaba	07/08/07	Flash flood	0	0	0	0
12	Cornell	06/23/10	Flash flood	0	0	5K	0
Total				0	0	5.81M	0

Table 6
68 Snow & Ice Events in Delta County 1950 – June 2013 (NCDC)

	Location or County	Date	Type	Death	Injury	Property Damage	Crop Damage
1	Delta & other counties	01/12/93	Heavy Snow	0	0	50K	0
2	Delta & other counties	02/22/93	Lake effect Snow	0	0	0	0
3	Southern	03/10/93	Heavy Snow	0	0	0	0
4	Delta & other counties	03/23/93	Freezing Rain	0	0	0	0
5	Upper Michigan	11/04/93	Heavy Snow	0	0	0	0
6	Upper Michigan & Wisconsin	12/20/93	Heavy Snow	0	0	0	0
7	Part of Upper & All	01/27/94	Heavy Snow/freezing Rain	0	0	5.0M	0
8	Delta & other counties	03/04/95	Heavy Snow	0	0	0	0
9	Delta & other counties	03/06/95	Heavy Snow	0	0	0	0
10	West & Central Upper	12/13/95	Heavy Snow	0	0	0	0
11	Delta & other counties	01/18/96	Winter Storm	0	0	0	0
12	Delta & other counties	01/26/96	Heavy Snow	0	0	0	0
13	Delta & other counties	04/12/96	Winter Storm	0	0	0	0
14	Delta & other counties	03/13/97	Winter Storm	0	0	0	0
15	Delta & other counties	01/04/98	Ice Storm	0	0	0	0
16	Delta & other counties	01/02/99	Winter Storm	0	0	0	0
17	Delta & other counties	01/02/00	Heavy Snow	0	0	0	0
18	Delta & other counties	02/15/00	Winter Storm	0	0	0	0
19	Delta & other counties	02/08/01	Winter Storm	0	0	0	0
20	Delta & other counties	03/03/02	Winter Storm	0	0	0	0
21	Delta & other counties	03/08/02	Winter Storm	0	0	0	0
22	Delta & other counties	03/09/02	Ice Storm	0	0	0	0
23	Delta & other counties	04/28/02	Heavy Snow	1	0	0	0
24	Delta & other counties	12/18/02	Ice Storm	0	0	0	0
25	Delta & other	02/03/03	Heavy Snow	0	0	0	0

Table 6
68 Snow & Ice Events in Delta County 1950 – June 2013 (NCDC)

	Location or County	Date	Type	Death	Injury	Property Damage	Crop Damage
	counties						
26	Delta & other counties	03/03/03	Winter Storm	0	0	0	0
27	Delta & other counties	04/05/03	Heavy Snow	0	0	0	0
28	Delta & other counties	12/10/03	Heavy Snow	0	0	0	0
29	Delta & other counties	12/11/03	Heavy Snow	0	0	0	0
30	Delta & other counties	01/07/04	Winter Storm	0	0	0	0
31	Delta & other counties	03/05/04	Heavy Snow	0	0	0	0
32	Delta & other counties	03/13/04	Heavy Snow	0	0	0	0
33	Delta & other counties	12/12/04	Winter Storm	0	0	0	0
34	Delta & other counties	12/20/04	Winter Storm	0	0	0	0
35	Delta & other counties	12/25/2004	Heavy Snow	0	0	0	0
36	Delta & other counties	01/02/05	Ice Storm	0	0	0	0
37	Delta & other counties	01/21/05	Heavy Snow	0	0	0	0
38	Delta & other counties	11/23/05	Winter Storm	0	0	0	0
39	Delta & other counties	12/01/05	Lake-Effect Snow	0	0	0	0
40	Delta & other counties	12/14/2005	Winter Storm	0	0	0	0
41	Delta & other counties	02/03/06	Heavy Snow	0	0	0	0
42	Delta & other counties	02/16/06	Winter Storm	0	0	0	0
43	Delta & other counties	02/24/06	Heavy Snow	0	0	0	0
44	Delta & other counties	01/29/06	Lake-Effect Snow	0	0	0	0
45	Delta & other counties	02/25/07	Winter Storm	0	0	0	0
46	Delta & other counties	03/01/07	Winter Storm	0	0	0	0
47	Delta & other counties	04/04/07	Winter Storm	0	0	0	0
48	Delta & other counties	12/01/07	Winter Storm	0	0	0	0
49	Delta & other	01/17/08	Heavy Snow	0	0	0	0

**Table 6
68 Snow & Ice Events in Delta County 1950 – June 2013 (NCDC)**

	Location or County	Date	Type	Death	Injury	Property Damage	Crop Damage
	counties						
50	Delta & other counties	01/30/08	Winter Storm	0	0	0	0
51	Delta & other counties	02/14/08	Heavy Snow	0	0	0	0
52	Delta & other counties	02/17/08	Winter Storm	0	0	0	0
53	Delta & other counties	03/31/08	Winter Storm	0	0	0	0
54	Delta & other counties	04/01/08	Winter Storm	0	0	0	0
55	Delta & other counties	04/08/08	Heavy Snow	0	0	0	0
56	Delta & other counties	04/11/08	Winter Storm	0	0	0	0
57	Delta & other counties	11/19/08	Lake-Effect Snow	0	0	0	0
58	Delta & other counties	12/06/08	Winter Storm	0	0	0	0
59	Delta & other counties	12/20/08	Heavy Snow	0	0	0	0
60	Delta & other counties	02/17/09	Winter Storm	0	0	0	0
61	Delta & other counties	02/26/09	Winter Storm	0	0	0	0
62	Delta & other counties	12/08/09	Winter Storm	0	0	0	0
63	Delta & other counties	12/11/10	Winter Storm	0	0	0	0
64	Delta & other counties	02/29/12	Winter Storm	0	0	0	0
65	Delta & other counties	03/02/12	Winter Storm	0	0	15K	0
66	Delta & other counties	12/20/12	Winter Storm	0	0	0	0
67	Delta & other counties	01/30/13	Winter Storm	0	0	0	0
68	Delta & other counties	04/11/13	Winter Storm	0	0	0	0
TOTALS				0	0	5.065M	0

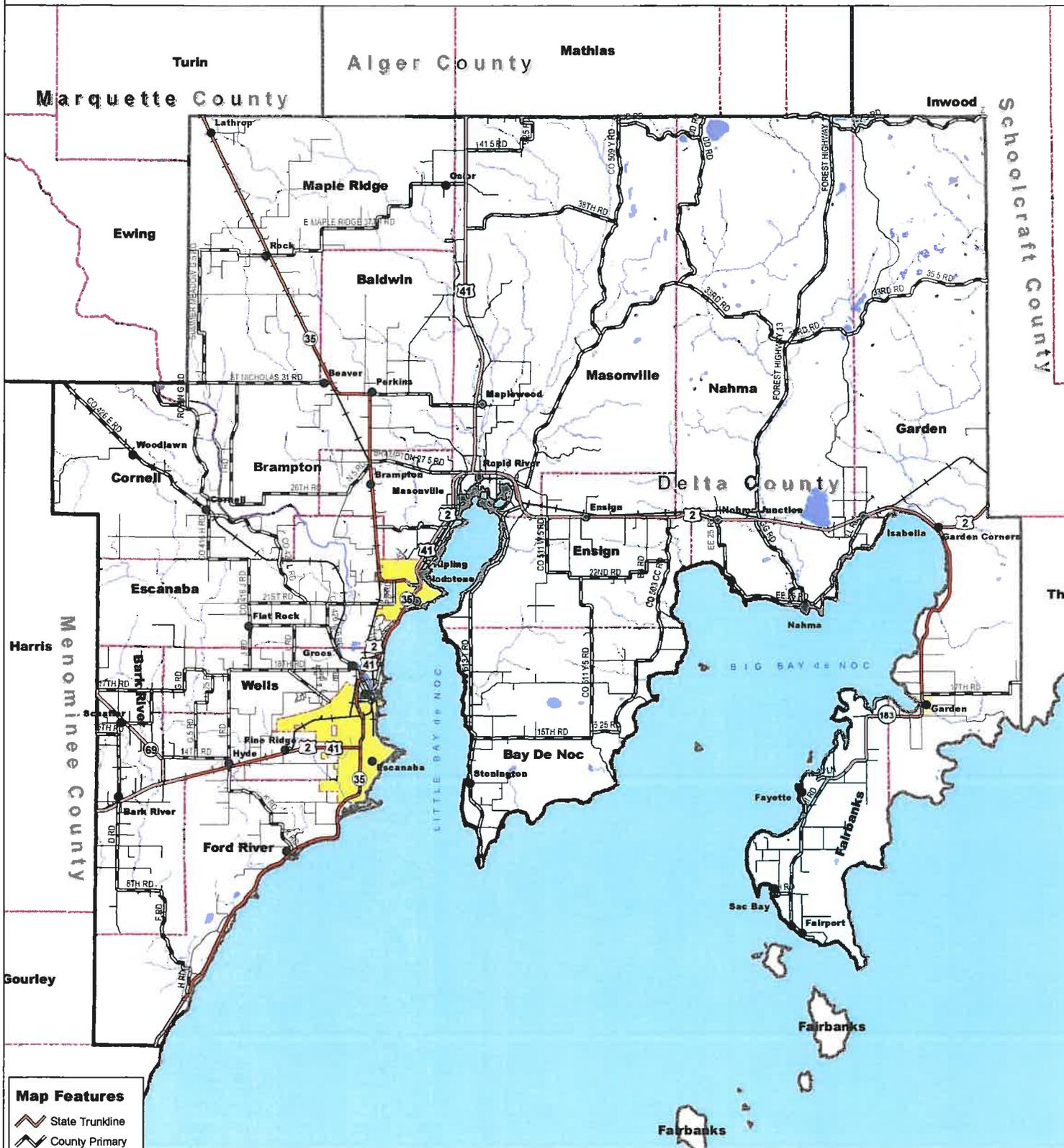
APPENDIX F

Maps

Delta County

Basemap

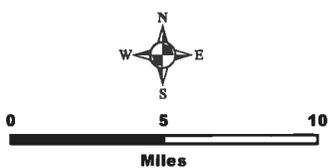
Map 1



Map Features

- State Trunkline
- County Primary
- County Local
- Railroad
- Rivers
- Lakes
- Cities
- Villages
- Townships
- County Boundary

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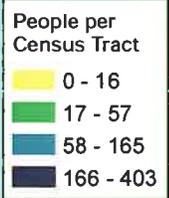
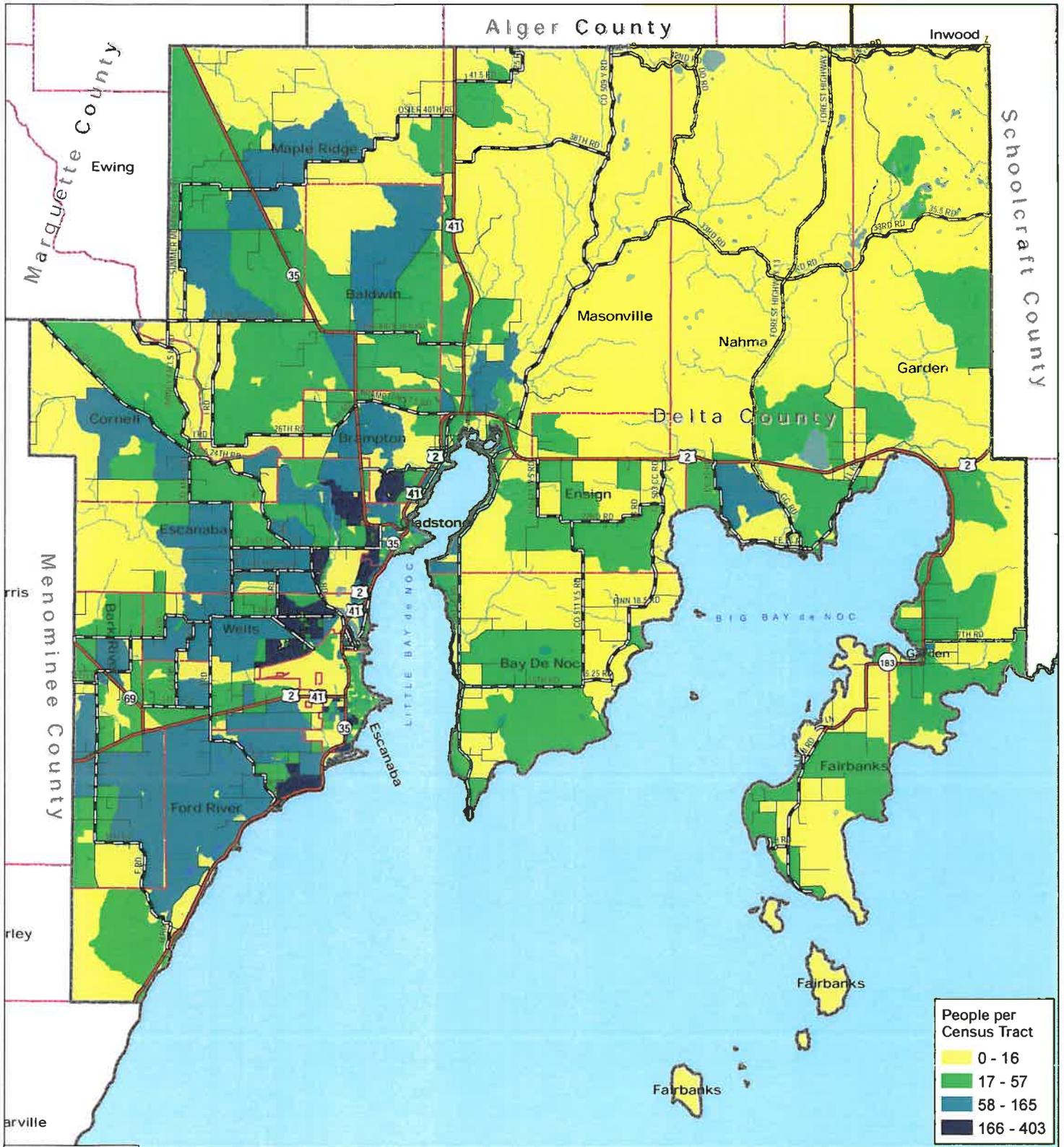
Location Map

Delta County

Delta County

Population Distribution

Map 2



Map Features

- State Trunkline
- County Primary
- County Local
- Rivers
- Lakes
- Townships
- County Boundary

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Data Source: 2010 US Census

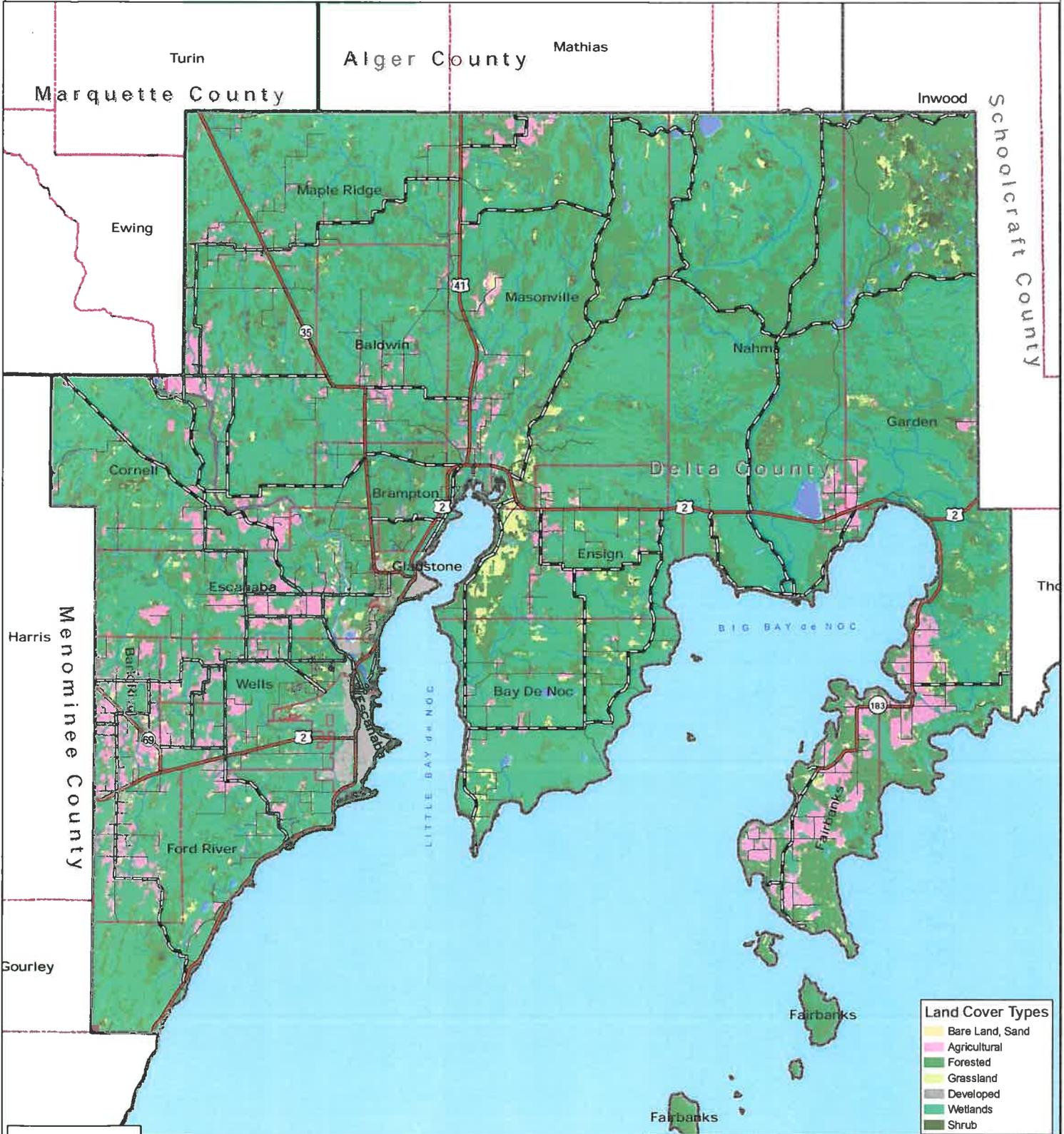
Location Map



Delta County

Delta County

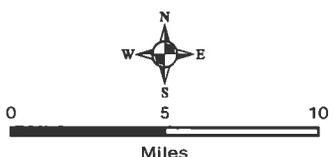
Land Cover



Land Cover Types	
[Yellow]	Bare Land, Sand
[Pink]	Agricultural
[Green]	Forested
[Light Green]	Grassland
[Grey]	Developed
[Light Blue-Green]	Wetlands
[Dark Green]	Shrub

Map Features	
[Red Line]	State Trunkline
[Black Line]	County Primary
[Grey Line]	County Local
[Blue Line]	Rivers
[Blue Area]	Lakes
[Red Dashed Line]	Townships
[Black Outline]	County Boundary

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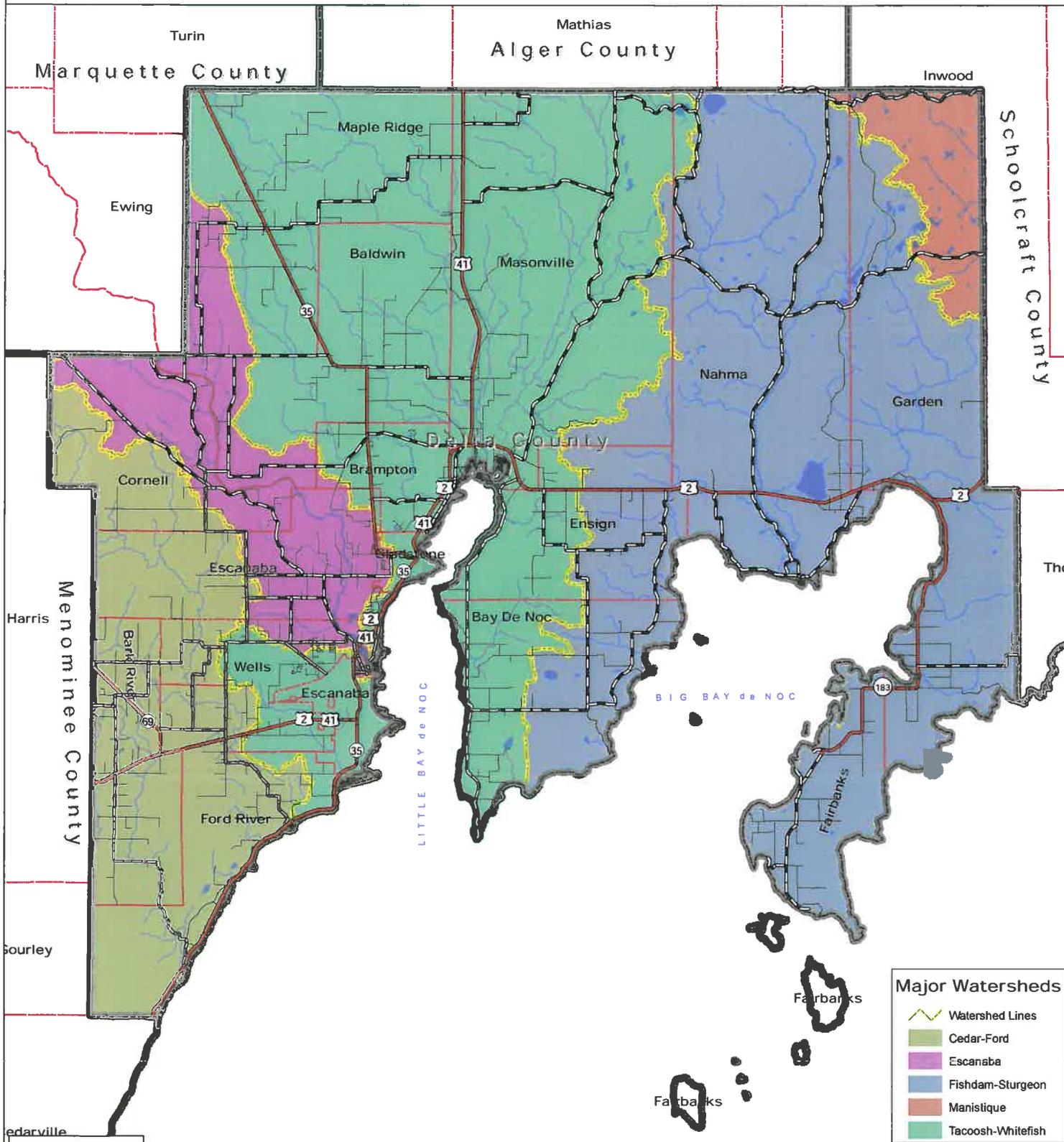
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Delta County

Major Watersheds

Map 4



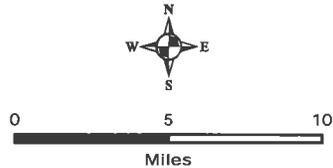
Major Watersheds

- Watershed Lines
- Cedar-Ford
- Escanaba
- Fishdam-Sturgeon
- Manistique
- Tacoosh-Whitefish

Map Features

- State Trunkline
- County Primary
- County Local
- Rivers
- Lakes
- Townships
- County Boundary

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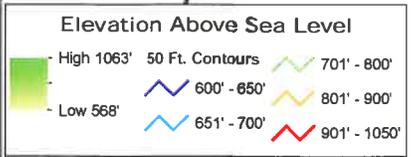
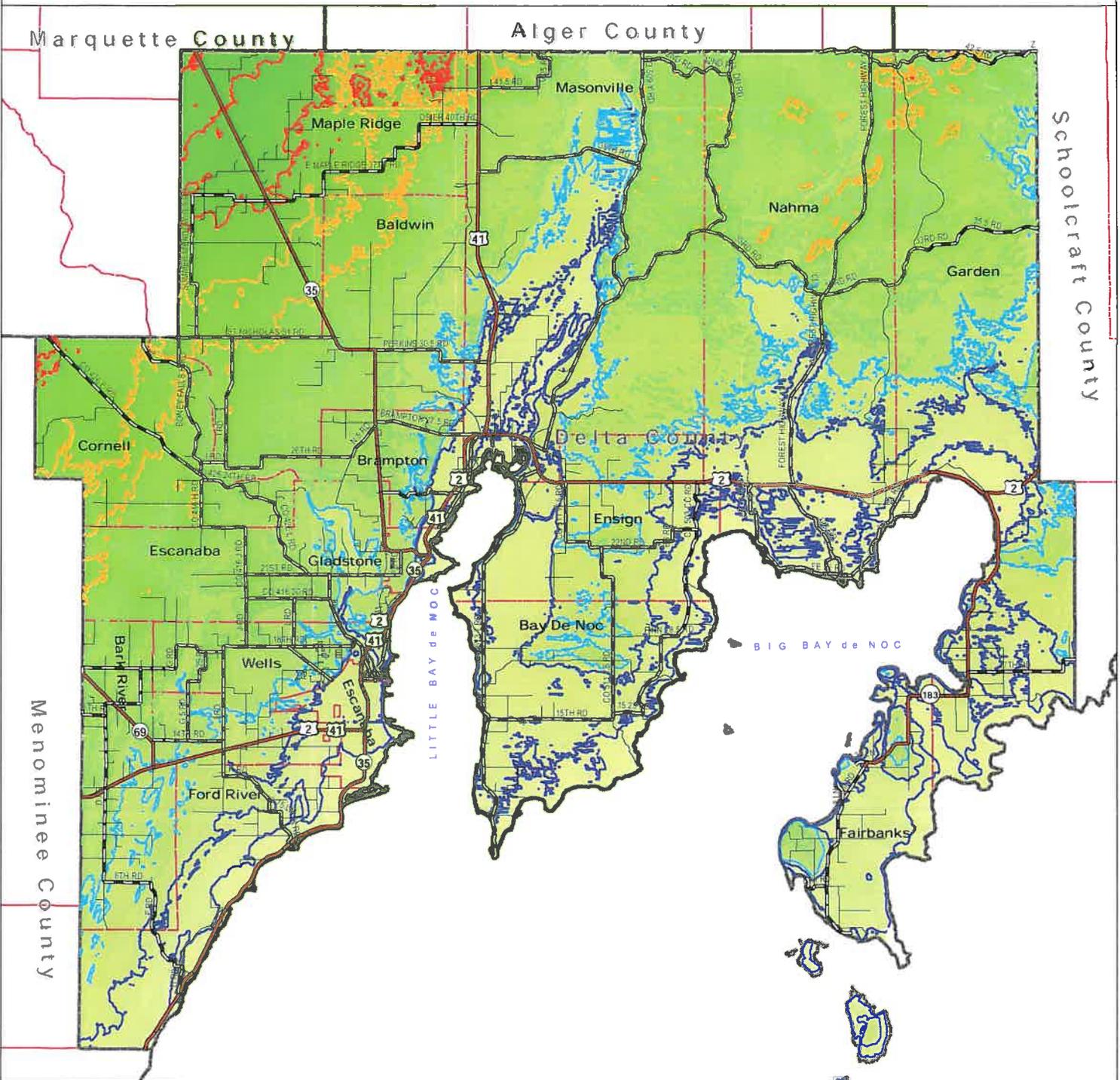
Location Map

Delta County

Delta County

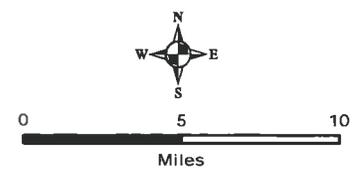
Contours and Elevation

Map 5



- Map Features**
- State Trunkline
 - County Primary
 - County Local
 - Townships
 - County Boundary

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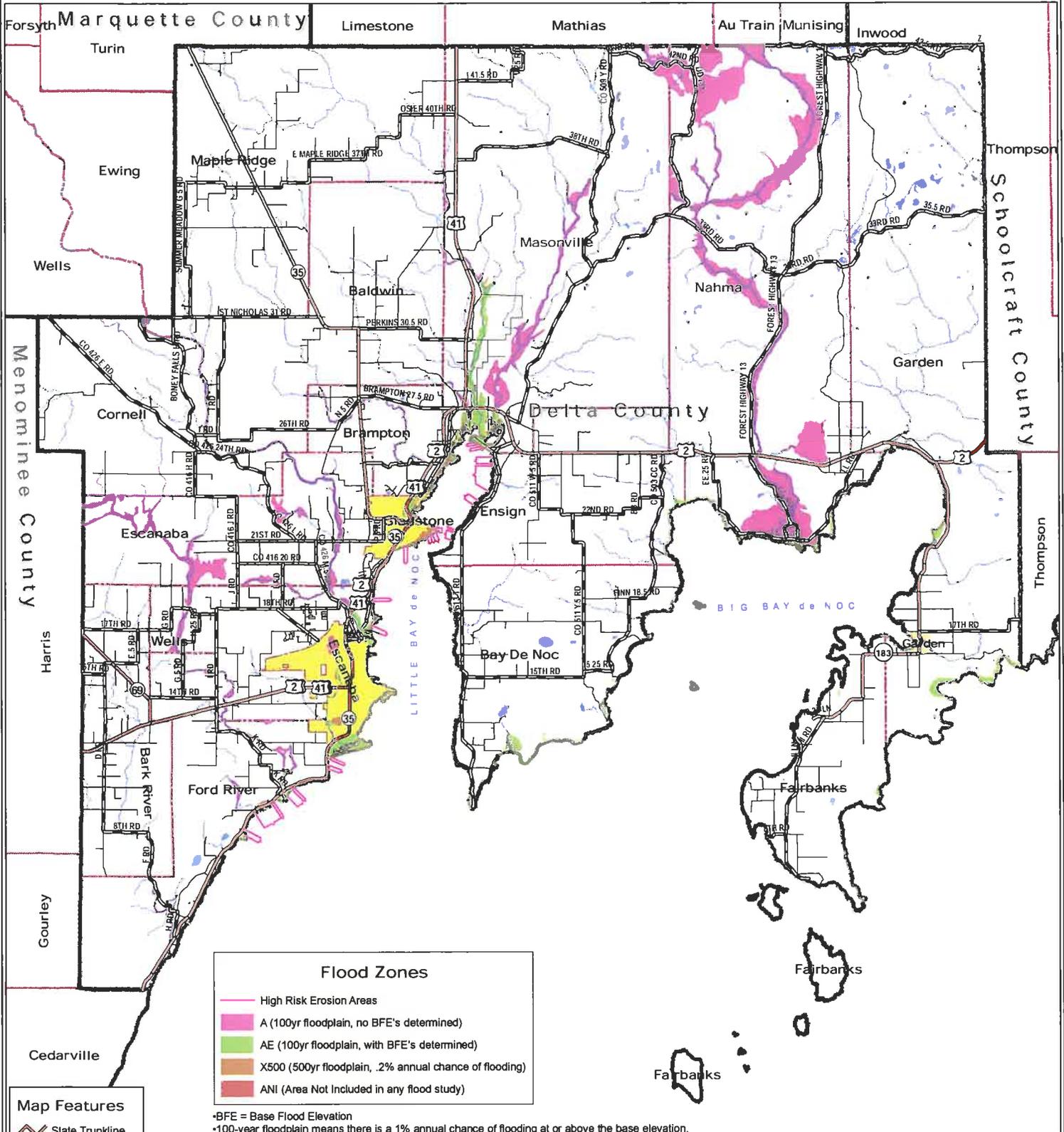
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 Created by CUPPAD, 2014



Delta County

Floodplains and High Risk Erosion Areas

Map 7



Flood Zones

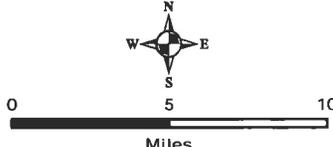
- High Risk Erosion Areas
- A (100yr floodplain, no BFE's determined)
- AE (100yr floodplain, with BFE's determined)
- X500 (500yr floodplain, .2% annual chance of flooding)
- ANI (Area Not Included in any flood study)

•BFE = Base Flood Elevation
 •100-year floodplain means there is a 1% annual chance of flooding at or above the base elevation.

Map Features

- State Trunkline
- County Primary
- County Local
- Rivers
- Lakes
- Cities
- Villages
- Townships
- County Boundary

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Location Map

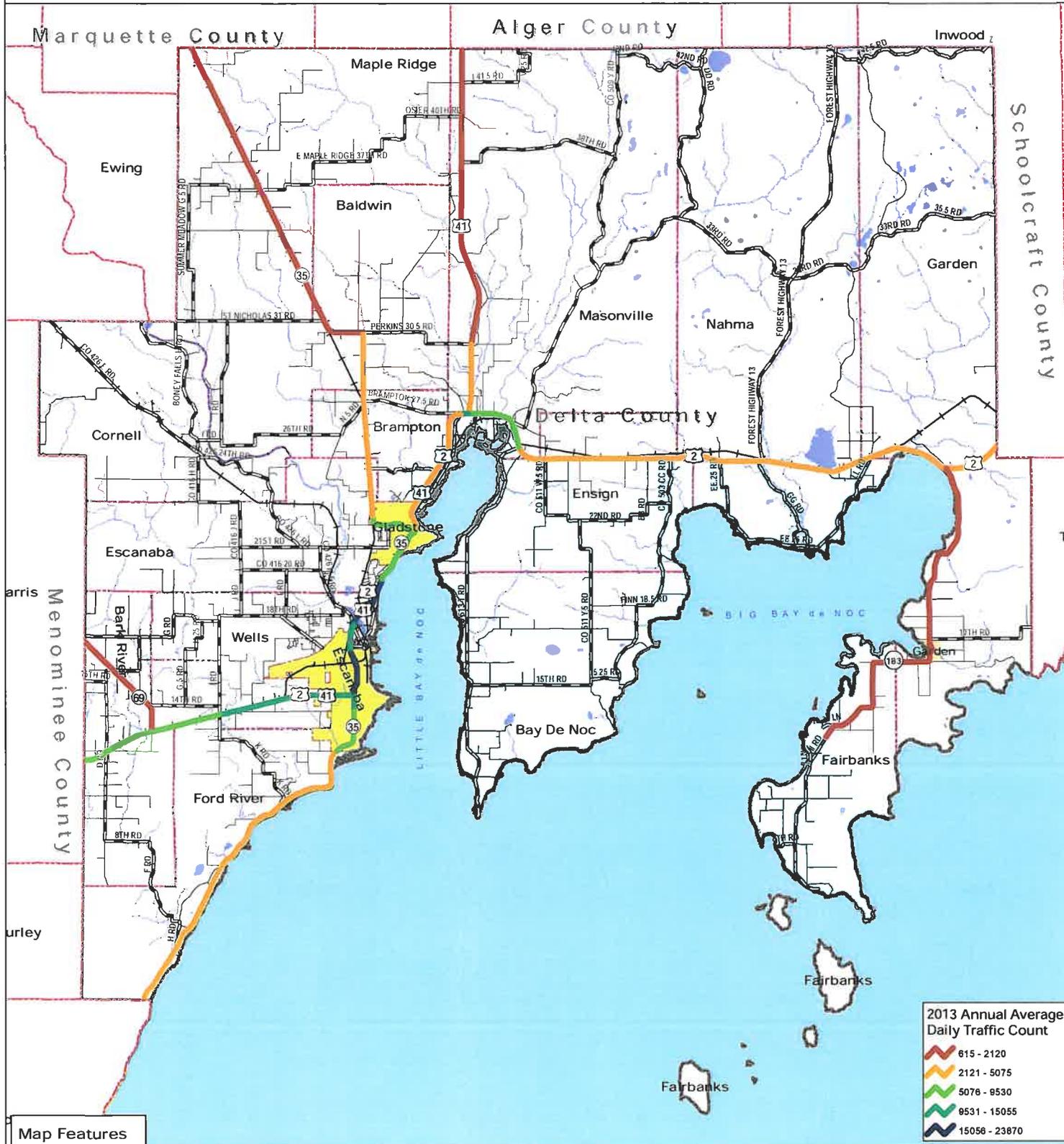
Delta County

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Delta County

Map 8

Annual Average Daily Traffic - State Trunklines

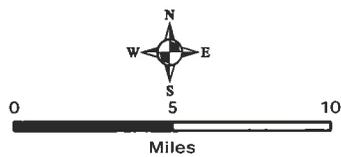


2013 Annual Average Daily Traffic Count

Red line	615 - 2120
Orange line	2121 - 5075
Green line	5076 - 8530
Light Green line	8531 - 15055
Blue line	15056 - 23870

- Map Features**
- State Trunkline
 - County Primary
 - County Local
 - Railroad
 - Rivers
 - Lakes
 - Townships
 - County Boundary

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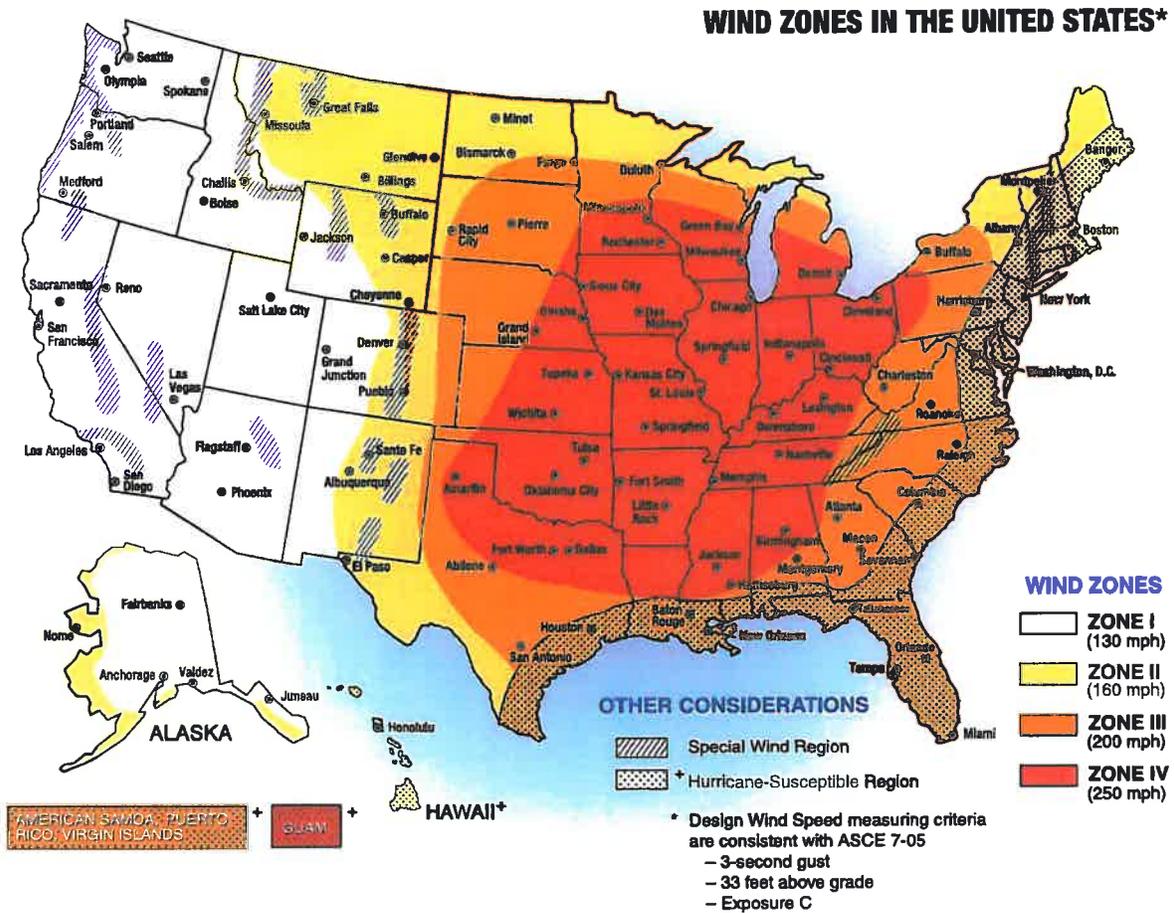


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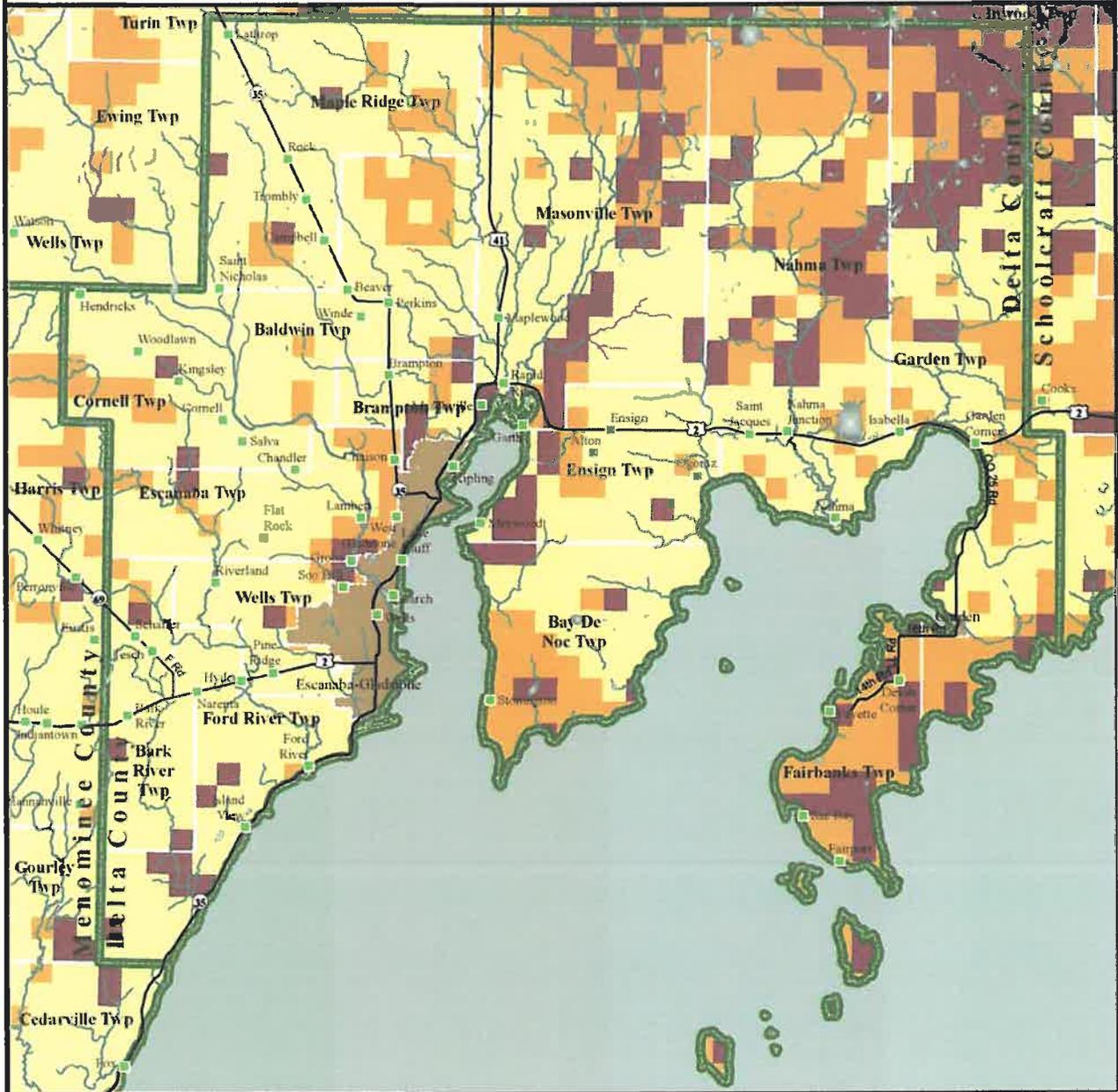
Document Path: E:\Gisdata\NAD83\Data\Hazard Mitigation\Map\Mi_AADT_MDOT\FINAL.mxd Data Source: MDOT, 2013

High Wind Zones



Source: FEMA, 2014

Fire Management - Communities at Risk



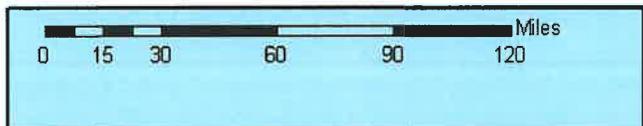
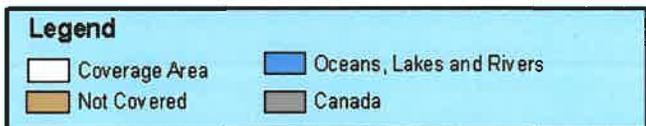
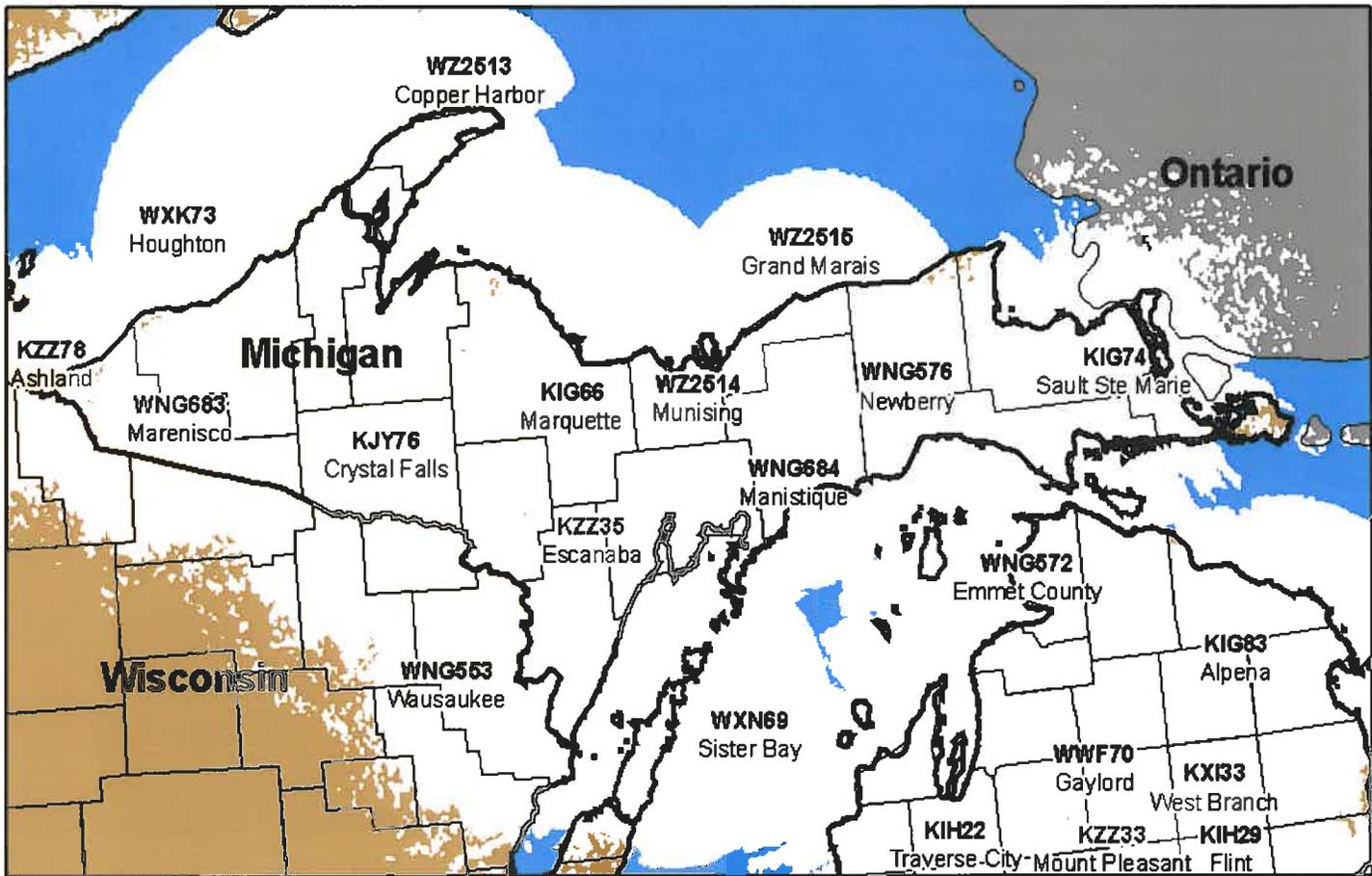
Fire Risk	■ Localities
■ Low	— Highways
■ Moderate	■ Bodies of Water
■ High	■ Urban Boundaries



Delta County

Map and Analysis by Remote Sensing & GIS Research and Outreach Services
<http://www.19215.tmsu.edu>

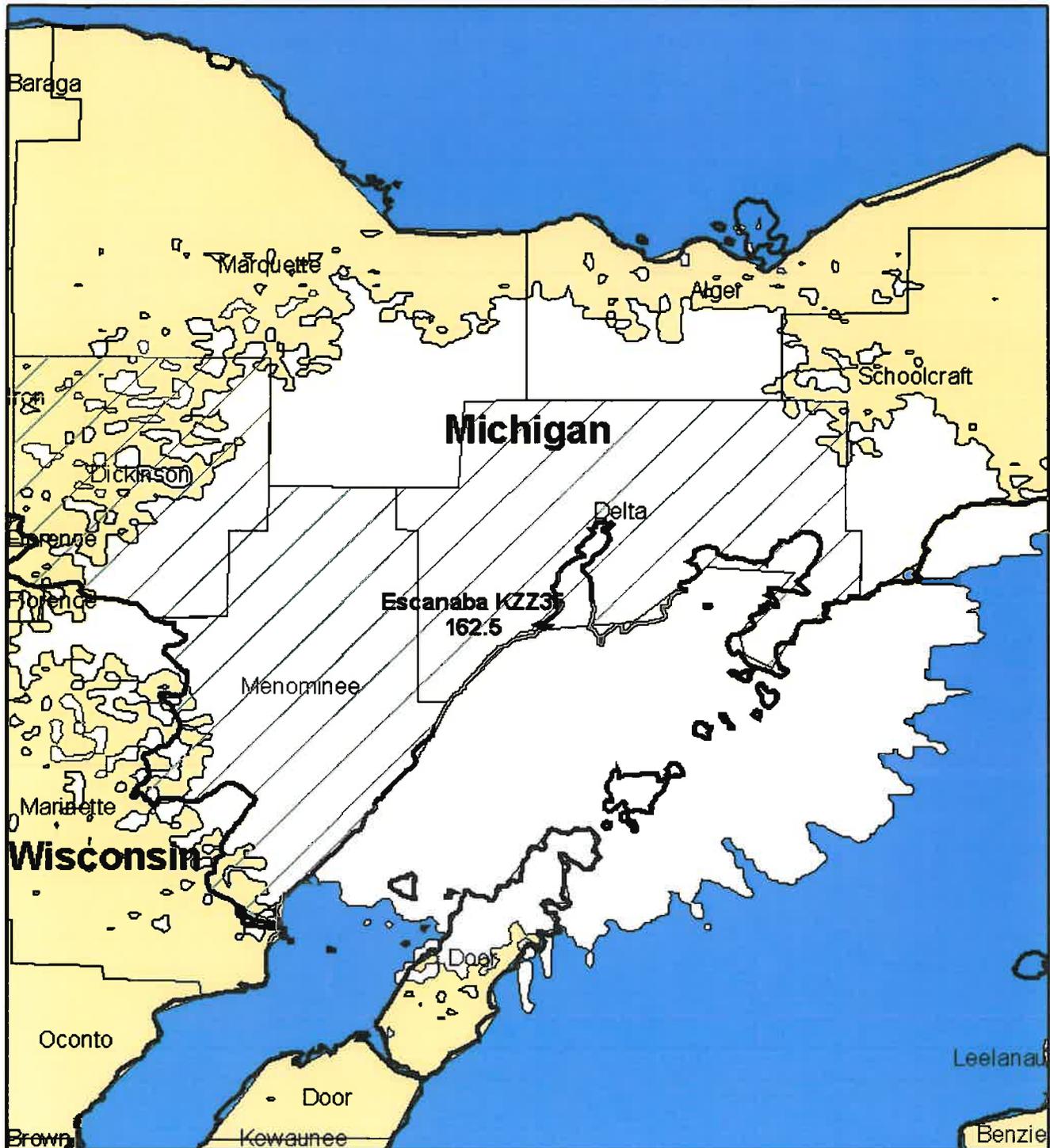
Upper Michigan



NOAA Weather Radio Coverage

Map 11A

NOAA Weather Radio - KZZ35 162.500 MHz



Legend

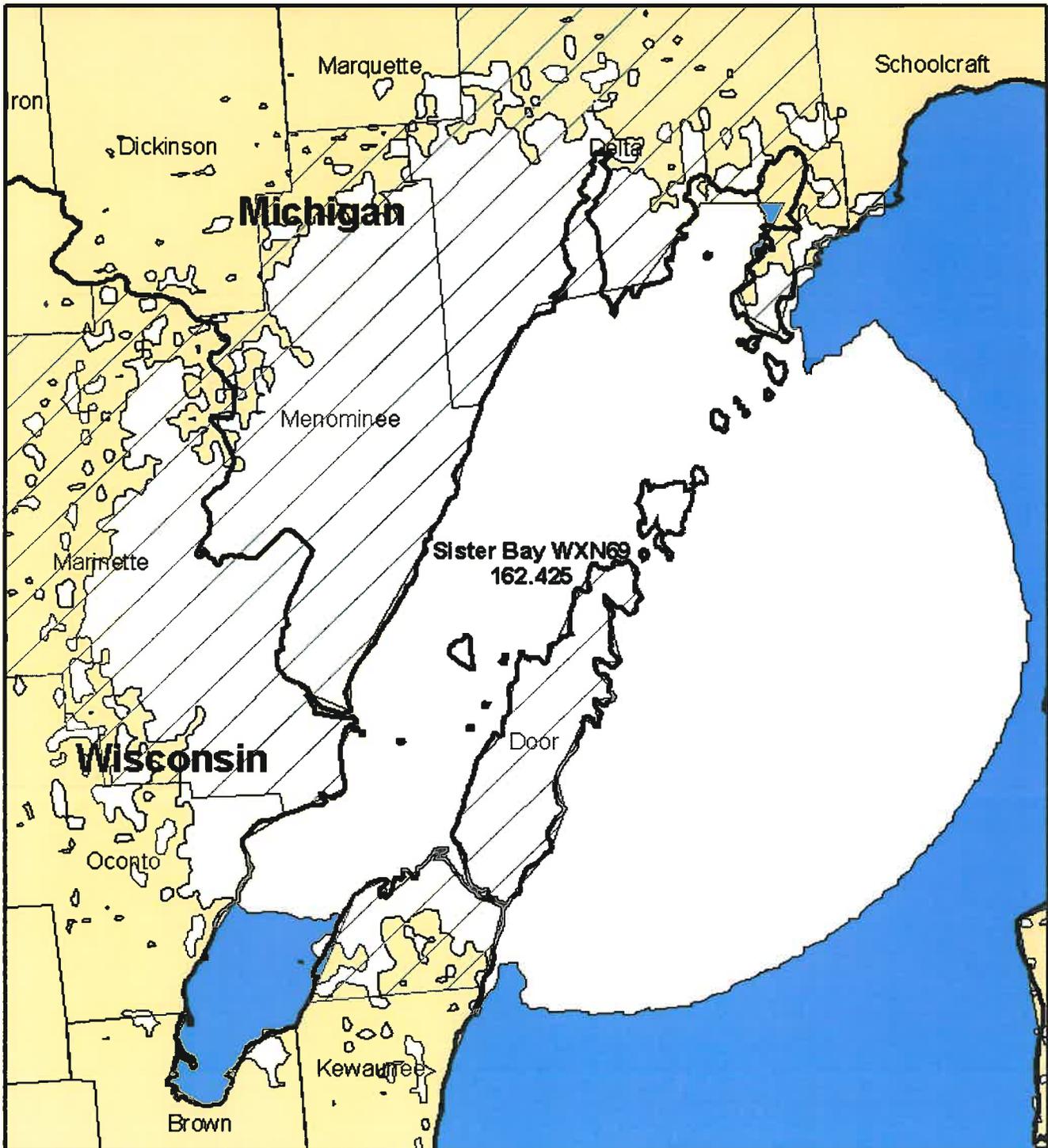
-  Coverage and Alerting Area
-  No Coverage or Alerts
-  Lake

0 5 10 20 30 Miles

NOAA Weather Radio Coverage

Map 11B

NOAA Weather Radio - WXN69 162.425 MHz



Legend

-  Coverage and Alerting Area
-  No Coverage or Alerts
-  Lake

0 4 8 16 24 32 Miles