



Volume II

Manitowoc County Resources

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CHAPTER 5 :
NATURAL, AGRICULTURAL, AND CULTURAL RESOURCES

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INTRODUCTION

This section provides an inventory of the existing natural, agricultural, and cultural resource features found in Manitowoc County. These physical characteristics of the county are important, as they are major determinants of future development options.

As development occurs, it is important to understand the location of the natural, agricultural, and cultural resources and how they relate to one another, as this will help limit unnecessary public expenditure and minimize potential negative impacts to these features.

NATURAL RESOURCES

Natural resources are materials that occur in nature, such as water, air, land, trees, animals, plants, soil, and minerals that are essential or useful to humans. Some are replaceable and others are not. Nonrenewable resources (e.g., coal, oil, natural gas, and minerals) are not replaceable once they have been consumed. Renewable resources (e.g., trees, animals, water, and wind) can be replaced.

Natural resources are important because of their natural beauty, wildlife habitat, and recreational opportunities. People depend on natural resources to provide a clean and abundant supply of groundwater; assure good air quality; and provide natural landscapes that are essential to a healthy and diverse biological community. Despite their importance, several natural resources face significant threats due to a growing population with increasing demands. Habitat loss and fragmentation, threats to water quality, and changes in climate are just several of the possible impacts of current and projected development patterns.

The following text describes the types and locations of Manitowoc County's many natural resources, and briefly discusses the importance of them when planning for future growth of the county.

Climate

The climate of Manitowoc County is classified as continental, meaning there is an extreme disparity between summer and winter temperatures including cold, snowy winters and warm summers with periods of hot, humid conditions. The average annual temperature is 47.5 degrees Fahrenheit with the coldest month being January (17° F) and the warmest month being July (70° F). A narrow belt adjacent to Lake Michigan has a modified continental climate. Lake Michigan's influence is strongest during spring, summer and fall. The lag in lake water temperature delays the coming of the spring and extends mild temperatures into late fall. Residents of this narrow belt enjoy relatively cool summers compared to the hot summer temperatures further inland.

The annual precipitation for Manitowoc County is 40.51 inches. Over 55 percent of this amount falls from May through September, with June traditionally being the wettest month. The growing season for most crops also occurs from May through September. Overall, the varied climate is favorable for agricultural purposes and suitable for a number of outdoor activities ranging from biking and camping to snowmobiling.

Geology

The geology of the Manitowoc County surface is the result of the last two glaciation sub-stages that occurred approximately 11,000 years ago. The geology that lies beneath the county has important implications for land use.

Bedrock type, soil composition and depth to bedrock can have an impact on:

- excavation;
- foundations;
- location and effectiveness of site wastewater treatment systems;
- residential and industrial development locations;
- cost effectiveness of construction and maintenance of highways and streets;
- the natural infiltration of surface waters;
- groundwater recharge;
- groundwater susceptibility to contaminants;
- manure application;
- nutrient management;
- animal feedlot/livestock facility siting; and
- lagoon siting

Bedrock

The bedrock underlying Manitowoc County is made up of three distinct types that slope from west to east toward Lake Michigan. These bedrocks include Niagara dolomitic limestone, shales and dolomites, and sandstones. Underneath these three bedrock formations lay crystalline rocks.

The Wisconsin Geological and National History Survey indicates that the bedrock in portions of Manitowoc County also has deep karst potential. *Karst* features (Figure 5.1) such as caves and sinkholes are the result of small pre-existing fractures in the Dolomite bedrock being slowly dissolved overtime by slightly acidic water.

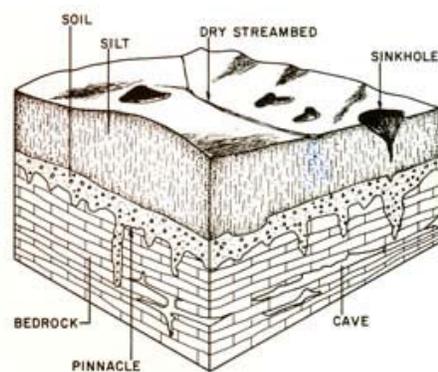


One excellent example of karst features in Manitowoc County is the *Cherney Maribel Caves County Park*, which contains several small caves and openings in the Dolomite rock layers.



Sinkholes are also significant features found in Manitowoc County (Map 5.1). Sinkholes are depressions in the land surface that form due to enough bedrock being dissolved / eroded from underground, and the subsequent collapse of overlying soil and rock.

Figure 5.1: Karst Geology



Source: www.dnr.mo.gov

When making land use decisions, karst features should be taken into consideration in order to ensure protection of the area's groundwater. A primary concern regarding karst is that these features provide a direct pathway for surface water to move into the subsurface. This increases the probability of a higher concentration of

contaminants being transported directly into the groundwater supply rather than being filtered by overlying soil.

Glacial

Glacial deposits consist of both till and glaciofluvial sediment. Till consists of clay, sand, gravel and boulders intermingled in any proportion, while glaciofluvial deposits consist of coarse to medium-grained sand and gravel with numerous cobbles, boulders and portions of till. Manitowoc County is covered primarily by clayey till, with glaciofluvial sediments comprised of lake silt and clay, located in areas adjacent to major water features.



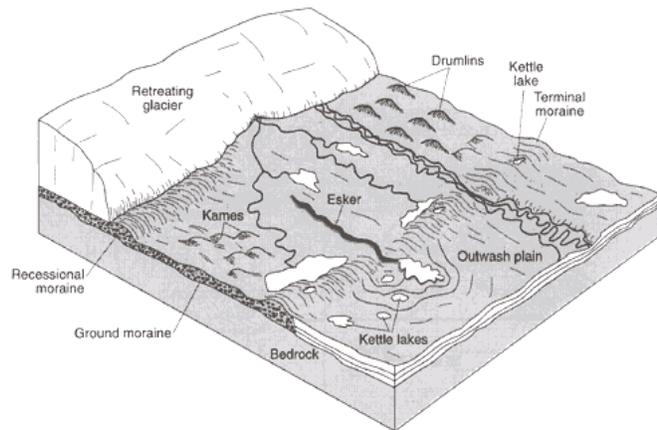
The depth of glacial deposits varies throughout the county, averaging 70-100 feet. Deposits are fairly deep in the southern and eastern parts of the county, but may only be one foot or less above the bedrock in other areas.



Several physical features (Figure 5.2) are evident throughout Manitowoc County as a result of glacial events. These features include, but are not limited to the following:

- *Kettle moraine*, a belt of irregular hills, glacial lakes, and wet depressions that formed along the junction of two glacial lobes. Kettle moraine is located mostly in southwestern Manitowoc County. Walla Hi County Park in the Town of Schleswig provides an excellent example of a kettle moraine landscape.
- A round cone-shaped hill, called a *Moulin kame* by geologists, is located just south of USH 151 in the Town of Eaton.
- Noticeable glacial *ridges and eskers* can also be found in portions of the Town of Maple Grove, north of the Village of Reedsville. A long narrow esker of more than four miles winds through the Maple Grove swamp west of CTH W.
- *Two Creeks Buried Forest* is a rare glacial feature found in the Town of Two Creeks on the shores of Lake Michigan. A forest that grew during a frigid climate between the glacial periods was buried beneath layers of glacial till. The buried forest is evident on a steep bluff where wave action and erosion have exposed the long-buried branches, logs, and stumps of various trees that are radiocarbon-dated at 11,850 years old.
- *Ice Age National Scenic Trail* is a 1,000 mile footpath entirely within Wisconsin. The purpose of the trail is to tell the story of the Ice Age and continental glaciation. The portion of the trail that passes through Manitowoc County is illustrated on Map 9.5.

Figure 5.2: Glacial Features



Source: hypography.com

Topography

The topography of Manitowoc County consists of gently rolling glacial deposits. Most of the western portion of the county contains generally flat stretches of open land with gentle rolling hills that gradually descend to the east. An area of rolling terrain occurs from the northwest corner of the county in the Town of Cooperstown stretching to the Town of Schleswig in the southwest corner of the county. The eastern portion of the county is characterized by river valleys that contain steep slopes and hills that drain toward Lake Michigan.



Map 5.2 illustrates the areas of steep slope (i.e., slope 12 percent or greater) based on soils characteristics within Manitowoc County.



The highest point in Manitowoc County is 1,047 feet above sea level, which is in the Town of Schleswig. This is 567 feet above Lake Michigan. The elevations of the county are displayed on Map 5.3.

Steep slopes are more susceptible to soil erosion, and may require special building and construction restraints (e.g., retaining walls or major grading efforts) to remove the area of steep slope.

Soils

The Natural Resources Conservation Service (NRCS) provides a detailed study of all soils in Manitowoc County in the *Soil Survey of Calumet and Manitowoc County, Wisconsin*, which was conducted between 1971 through 1975. The soil survey provides information on the suitability and limitations of soils for a variety of natural resource and engineering uses. Listed below are descriptions of the general soil types within Manitowoc County.

Soils Description

Soils are grouped into general soil associations that have similar patterns of relief and drainage. These associations typically consist of one or more major soils and some minor soils. Manitowoc County contains 11 diverse soil associations that are divided into six general categories.

- *soils that formed in glacial till;*
- *soils that formed in lacustrine deposits;*
- *soils that formed in glacial drift;*
- *soils that are underlain by outwash deposits;*
- *organic soils; and*
- *soils that are underlain by dolomite*

Soil Limitations

There exist certain limitations for various soil types because of their composition and properties. Before development can take place, an evaluation of the soil's composition and property should be conducted for development suitability.

The *Soil Survey of Calumet and Manitowoc County, Wisconsin* provides information on the limitations of each type of soil for private on-site wastewater treatment systems (POWTS) and building site development including the construction of dwellings with basements. These limitations are based on soil properties, site features and observed performance of the soils.

There are three (3) classes of limitations:

- *Severe limitations* mean soil properties or site features are so unfavorable or so difficult to overcome that special designs may be required which would result in a significant increase in construction costs or possibly costly ongoing maintenance.
- *Moderate limitations* mean soil properties or site features are not favorable for the indicated use, and may require special planning, design, or maintenance to overcome or minimize these limitations.
- *Slight limitations* mean soil properties and site features are generally favorable for the indicated use and limitations are minor and therefore can be easily overcome.

As a way to mitigate these limitations, COMM 83 allows new technologies for private on-site wastewater treatment systems. Additional housing and greater population densities may be a result of the COMM 83 code. This, in turn, heightens the need for undertaking land use planning and drafting controls to address the potential impacts on the environment associated with expanding development.

For more information regarding soil descriptions and limitations, refer to the *Soil Survey of Calumet and Manitowoc County, Wisconsin*.

COMM 83

COMM 83 health and safety code gives property owners not being served by municipal sewer, or within a sanitary district, the opportunity and flexibility to meet environmental performance standards with several private sewage treatment technologies. For detailed information about Comm 83 refer to the Wisconsin Administrative Code, Chapter Comm 83, or visit www.legis.state.wi.us/rsb/code.ht

Nonmetallic Mineral Resources

Limestone, sand, gravel, and clay are the primary minerals in Manitowoc County according to the *Soil Survey of Calumet and Manitowoc County, Wisconsin*. These minerals are needed for making bricks, constructing the sub-base for roads, and contain the primary components in concrete for the building of foundations, basement walls, and sidewalks.

As Manitowoc County and other surrounding areas experience continued growth and development, the demand for sand, gravel and crushed stone will increase. While, there are several mining sites within the county that presently extract sand gravel and/or crushed stone, the *Soil Survey of Calumet and Manitowoc Counties, Wisconsin* also identifies soils that would be the best sources for nonmetallic mineral resources. These soils should be evaluated and conserved for future mining consideration.

Nonmetallic Mining Reclamation (NR 135)

The purpose of the nonmetallic mining reclamation plan is to achieve acceptable final site reclamation to an approved post-mining land use in compliance with the uniform reclamation standards. This results in environmental protection, reduced erosion and sedimentation, desired post-mining land uses, creation of effective plant and animal communities, and an increase in land values and tax revenues.

Nonmetallic Mining Reclamation Program (NR 135)

NR 135 requires that active (un-reclaimed) areas of a mine site be stabilized and reclaimed to the specifications of the county’s approved nonmetallic mine reclamation plan.

For information regarding reclamation of nonmetallic mining sites in Manitowoc County, refer to Chapter 21: Nonmetallic Mining Operations in the Manitowoc County Code.

Water Resources

Watersheds

Manitowoc County consists of ten subwatersheds which are part of three watershed basins (Map 5.4). All of the following watersheds drain indirectly into Lake Michigan or one of the county's major rivers.

Lakeshore Basin

- Branch River Watershed
- East Twin River Watershed
- Lower Manitowoc River Watershed
- North Branch Manitowoc River Watershed
- Sevenmile/Silver Creek Watershed
- South Branch Manitowoc River Watershed
- West Twin Watershed

Lower Fox River Basin

- East River Watershed

Sheboygan Basin

- Pigeon River Watershed
- Sheboygan River Watershed

Priority Watershed

As a way to protect the state's watersheds from nonpoint source pollution (e.g., contaminated runoff from farming, construction, and mining), the Wisconsin Nonpoint Source Water Pollution Abatement Program (NPS Program) was created in 1978 by the State Legislature, and is managed by the WDNR. This program selected priority watersheds based on numerous factors, including but not limited to, the potential for unique species to respond positively to nonpoint source controls and sensitivity to phosphorus loading.



The Pigeon River watershed is the one remaining nonpoint source priority watershed project in progress.

It is important to evaluate any new developments and land activities to determine their potential impacts on the applicable watershed. Many of these activities may not occur in the county; however, the activities undertaken upstream in adjacent communities can adversely impact the water quality in the area and pose a threat to the environment, economy and health of the county and its communities.

Surface Water

The surface waters in Manitowoc County primarily flow southeast to Lake Michigan. The surface waters of the county provide quality habitat for waterfowl and wildlife as well as recreational opportunities.



Along with Lake Michigan, which borders Manitowoc County's entire eastern edge, the county contains 56 named lakes covering approximately 1,308 acres and 45 unnamed lakes totaling approximately 202 acres. There are also 25 rivers and streams that meander throughout Manitowoc County.

Table 5.1 lists the Manitowoc County lakes and ponds greater than 20 surface acres along with the major rivers and tributaries, while Map 5.5 illustrates the location of these surface water features. A complete list of lakes and ponds located in Manitowoc County is found in Appendix A of *Volume II: Manitowoc County Resources*.

Table 5.1: Surface Water, Manitowoc County

| Map 5.5 Number | Lakes and Ponds (Greater than 20 Acres) | Rivers and Streams | |
|----------------|--|------------------------------|-------------------|
| | | Name | |
| 1 | Bullhead Lake | Branch River | Mud Creek |
| 2 | Carstens Lake | Calvin Creek | Pigeon River |
| 3 | Cedar Lake | Cedar Creek | Pine Creek |
| 4 | Clarks Mills Pond | Centerville Creek | Point Creek |
| 5 | English Lake | Devils River | Silver Creek |
| 6 | Harpt Lake (Herman) | East Twin River | Sheboygan River |
| 7 | Hartlaub Lake (Hartab) | Fischer Creek | Tisch Mills Creek |
| 8 | Horseshoe Lake | Francis Creek | West Twin River |
| 9 | Long Lake (Big Long) | Jambo Creek | |
| 10 | Millhome Flowage | Johnson Creek | |
| 11 | Mud Lake (Hartmans) | Kriwanek's Creek | |
| 12 | Pigeon Lake | Little Manitowoc River | |
| 13 | Rockville Flowage | Manitowoc River | |
| 14 | Shoto Lake | Manitowoc River South Branch | |
| 15 | Silver Lake | Meeme River | |
| 16 | Wilke Lake | Millhome Creek | |
| 17 | Lake Michigan | Molash Creek | |

Source: Wisconsin Department of Natural Resources, Wisconsin Lake Book, 2005 Revision; "Surface Water Resources of Manitowoc County" Wisconsin Conservation Department, 1968; Bay-Lake Regional Planning Commission, 2009.



Branch River and Millhome Creek are classified as *Exceptional Resource Waters* per NR 102.11 of the Wisconsin Administrative Code. "Exceptional Resource Waters" exhibit excellent water quality, high recreational and aesthetic value, and high quality fishing, but they may be impacted by nonpoint sources of pollution.

Wisconsin's Impaired Waters

Section 303(d) of the Federal Clean Water Act requires each state to periodically submit to the U.S. Environmental Protection Agency (EPA) a list of impaired waters. Impaired waters are those that are not meeting the state's water quality standards.

See Appendix A of *Volume II: Manitowoc County Resources* for a listing of impaired waters in Manitowoc County.

Lakes Classification

In 1999, lakes and rivers were classified in Manitowoc County by authority of NR191.01 (Lake Protection and Classification Grants) for their level of development and future building potential. This assessment was based on the level of development on a lake including both numbers and density. Potential future development was also assessed including factors such as percent of buildable shoreline, septic suitability and current zoning.

The Lakes Classification system grouped lakes and rivers into similar management strategies to provide County Planning and Zoning Department and town government with the tools to develop effective zoning regulation and land use protection. The classification system grouped county

lakes and rivers into three categories: 1) Natural Waters, 2) Semi Developed Waters, and 3) Developed Waters

For more information regarding Lakes Classification, refer to the *Surface Water Resources of Manitowoc County* document or contact the Manitowoc County Soil and Water Conservation Department.

Shorelands

Shorelands are land areas within the following distances from the ordinary high water mark of navigable waters:

- 1,000 feet from a lake, pond or flowage; and
- 300 feet from a river or stream or to the landward side of the floodplain, whichever distance is greater.

Shorelands are viewed as valuable environmental resources both in rural and urbanized areas. As a result, the State of Wisconsin requires counties and incorporated communities to adopt shoreland/floodplain regulations to address the problems associated with development in shoreland and floodplain areas.

The authority to enact and enforce shoreland and other zoning provisions is set forth in Chapter 59.692 of the *Wisconsin Statutes* and Chapters NR 115,116, and 117 of the *Wisconsin Administrative Code*.

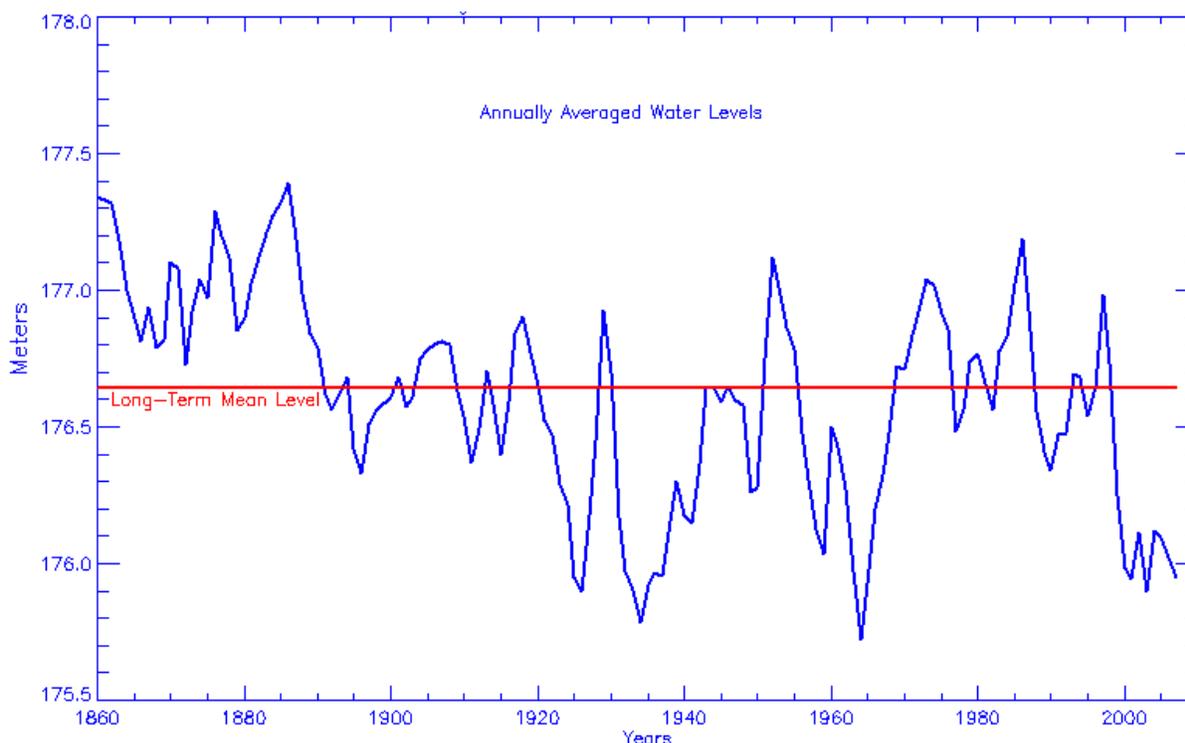
For more information regarding county regulations of shorelands, refer to Chapter 9 of the *Manitowoc County Code*, entitled “Shoreland/Floodplain Zoning,” or see Chapter 10 of *Volume II: Manitowoc County Resources*.

Lake Michigan Levels

Lake Michigan levels correspond with changes in the water it is supplied, with the major driving forces being precipitation and evaporation. Figure 5.3 displays the levels of Lake Michigan-Huron (*Note: the lakes are normally referred to as two separate lakes. Hydrologically, however, they are a single body of water*). Lake Michigan-Huron levels are constantly monitored at numerous locations including nearby Kewaunee County. Continuous water level data for all of the Great Lakes monitoring sites is listed online at <http://glakesonline.nos.noaa.gov/monitor.html>.

According to the National Oceanic and Atmospheric Administration (NOAA), Lakes Michigan and Huron’s record low water levels coincided with climatic events such as the Dust Bowl of the 1930’s, a multi-continental severe drought of 1964 (the record low for the two lakes), and the most recent and strongest El Niño on record of 1997. In 2007, Lake Michigan came within five inches of meeting the record low set in 1964. The lakes reached record highs in both 1886 and 1986.

Figure 5.3: Lake Michigan–Huron Annually Averaged Water Levels, 1860-2007



Source: National Oceanic and Atmospheric Administration (NOAA), 2008.

According to the U.S. Army Corps of Engineers, due to above average snowfall and prolonged ice cover on the lakes, Lake Michigan's water level the summer of 2008 should be five to eight inches higher than the summer of 2007, however the lake level remains 15 inches below its long-term average.

Low lake levels impact commercial navigation, recreational boating, marinas, beaches, fishing, and lakeshore properties. Lake carriers that transport raw cargo are forced into carrying fewer goods, sending prices higher; while marinas need to dredge boat slips, channels, and harbors which is also very costly.

The fluctuating lake levels over the years (Figure 5.3) may be part of a 30-year cycle, so although lake levels are presently low, we may see high lake levels in the future. High water levels could cause flooding and erosion, not only impacting properties along the lake shoreline, but also those properties along the rivers that provide water to the lakes.

Coastal Resources

The Lake Michigan coastline offers a variety of natural resources (e.g., bluffs, beaches, wetlands, etc.); living resources (i.e., flora and fauna and unique habitats of the coast); and cultural resources (e.g., history, recreation, and agriculture). It is important to protect these valuable assets in order to help maintain and improve community health and safety, aesthetics, and economic viability (e.g., tourism, clean parks and beaches, and recreational fishing).

Coastal development can affect the shape and use of the shoreline. Several issues to consider when planning include: shoreline/bluff erosion, impacts to coastal wetlands, fluctuating lake



Manitowoc County contains approximately 35 miles of Lake Michigan shoreline.

levels, increased nonpoint pollution, economic impacts, wildlife habitats, and the unique historic and archeological resources of the area.

In an effort to address bluff erosion and stability in the coastal communities along Lake Michigan, a study entitled *Lake Michigan Shoreline Recession and Bluff Stability in Northeastern Wisconsin* was prepared in 1996. Refer to the study for more information regarding findings along the Lake Michigan shoreline in Manitowoc County and other coastal communities.

Floodplains

Floodplains (Figure 5.4) are normally defined as those areas, excluding the stream channel, subject to inundation by the 100-year recurrence interval flood event. This event has a one percent chance of occurring in any given year.

Floodplains, as identified by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), provide for:

- storm water retention;
- groundwater recharge;
- waterfowl and wildlife habitat;
- recreational resource; and
- flood and erosion control

Section 87.30(1) of the *Wisconsin Statutes* and Chapter NR 116 of the *Wisconsin Administrative Code* requires counties, cities and villages to adopt floodplain zoning ordinances to address the problems associated with development in floodplain areas. Any development adjacent to or within a designated floodplain should be discouraged, if not strictly prohibited.

Refer to Chapter 9 of the *Manitowoc County Code*, entitled “Shoreland/Floodplain Zoning,” for more information regarding county floodplain regulations.

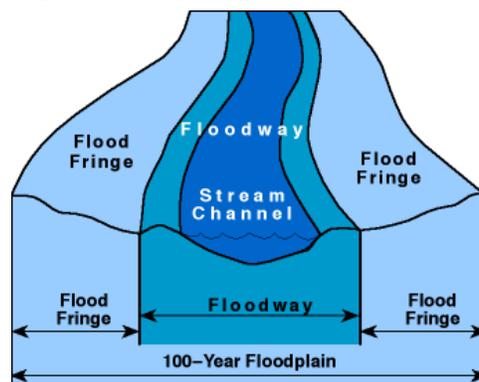


The floodplains within Manitowoc County are illustrated on Map 5.6.

Wetlands

According to the WDNR, wetlands are areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophilic vegetation. Other common names for wetlands are swamps, bogs, and marshes.

Figure 5.4: Floodplain



Source: www.dnr.state.oh.us

Wetlands...

- provide scenic open spaces;
- act as natural pollution filters for lakes, streams and drinking water;
- act as groundwater discharge areas, and retain floodwaters; and
- provide valuable and irreplaceable habitat for many plants and animals.



Map 5.7 illustrates Manitowoc County’s 50,637 acres of WDNR inventoried wetlands covering an area of two acres or more.

Manitowoc also contains six Significant Coastal Wetlands as designated by the WDNR. These coastal wetland sites along Lake Michigan are often rich in species diversity and provide critical habitat for migratory and nesting birds, spawning fish, and rare plants. Further information about the Significant Coastal Wetland project can be found on the WDNR (<http://dnr.wi.gov/wetlands/cw>).

- Significant Coastal Wetlands**
- Cleveland Hardwood Swamp
 - Fischer-Centerville Creeks Area
 - Point Creek
 - Silver-Calvin Creeks
 - Little Manitowoc River
 - Point Beach Area

Because of their importance, there are strict regulations regarding wetlands. Wisconsin Administrative Codes fall under the jurisdiction of the WDNR, and mandate that shoreland wetlands be protected in both the rural and urban areas of the state. Wetlands not in the shoreland zone are protected from development by the federal government through Section 404 of the Clean Water Act and Chapter NR 103 of the *Wisconsin Administrative Code*. It should be noted that all wetlands, no matter how small, are subject to WDNR and possible federal regulations, if they meet the state definition.

Groundwater

Groundwater is the water that occupies spaces between soil particles and rocks located below the earth’s surface. Groundwater, lakes, and rivers are all connected as water commonly flows between them. Groundwater is also connected to the surface of the land by rain and melted snow, which carry substances from the surface down to the groundwater and nearby wells.

- Communities using Groundwater for their Municipal Water System**
- Village of Cleveland
 - Village of Kellnersville
 - City of Kiel
 - Village of Maribel
 - Village of Mishicot
 - Village of Reedsville
 - Village of St. Nazianz
 - Village of Valders
 - Village of Whitelaw
 - City of Manitowoc (1% groundwater, 99% surface water)

Groundwater is stored in porous and permeable strata, more commonly known as aquifers. In Manitowoc County, groundwater source comes from three aquifers:

- Sandstone aquifer;
- Niagara aquifer; and
- Water table aquifer

Nearly all water used by Manitowoc County municipalities and homes comes from groundwater. All rural communities on private wells, along with nine incorporated communities with municipal water systems, get their drinking water exclusively from groundwater.

Groundwater Management

In order to provide protection for groundwater resources, the WDNR has adopted maximum contaminant level (MCL) standards that apply to all public water supplies in the state. The standards regulate concentrations of pollutants in public water supplies (NR 809) and nitrate removal from public drinking water (NR 122). Wisconsin’s Groundwater Standards Law (NR 160), also has standards for landfills, hazardous wastes, spills, wastewater, septic tanks, salt storage, fertilizer storage, pesticides, and underground storage tanks to follow, while Chapters NR 140, 141, and 142 of the *Wisconsin Administrative Code* regulate groundwater quality, groundwater monitoring, well requirements and water management and conservation.

As development continues, it is important to ensure protection of groundwater within the county from construction or agricultural runoff events that can lead to contamination of private wells, fish kills, and polluted surface waters.

Wellhead Protection Planning

Wellhead protection plans can be an effective method of protecting groundwater quality and quantity. These plans are developed to achieve groundwater pollution prevention measures within public water supply wellhead areas.

- Communities with Wellhead Protection Plans**
- Village of Cleveland
 - Village of St. Nazianz
 - Village of Reedsville
 - Village of Valders
 - Village of Whitelaw
 - City of Kiel
 - City of Manitowoc

Special Well Casing Pipe Depth Areas

As a way to improve the quality of drinking water in several areas of the county, the WDNR has established “special well casing pipe depth areas” in portions of the towns of Franklin, Kossuth, Cooperstown, and Cato (Map 5.1). All new private wells drilled in these designated areas of the county are required to meet stringent standards for well construction, grouting, and disinfection for various reasons.



The Town of Franklin special casing area was established because of potential chemical contamination (i.e., Volatile organic compounds (VOC’s)) from the Lemberger Landfill site.



The Town of Kossuth special casing area was established because of karst topography including sinkholes and other shallow bedrock features resulting in bacterial contamination and high nitrates.



The special casing area in the Town of Cooperstown was established as a result of bacterial contamination due to manure spreading.



In the Town of Cato, the special casing area that covers the northern portion of the town is associated with the area established in the Town of Franklin due to the Lemberger Landfill site. The other special casing area in the Town of Cato was established as a result of bacterial contamination due to manure spreading.

The goals of “special well casing pipe depth areas” are to:

- allow for the construction of wells that will withdraw groundwater from aquifers that contain water with low concentrations of arsenic,

- specify the use of well construction methods that eliminate the introduction of oxidants in the aquifer systems, and
- specify grouting methods that provide a dense, competent and impermeable annular space seal for the casing pipe.

Each of the special well casing pipe depth areas found in Manitowoc County contain different requirements for new well construction. For more information on the various requirements of these four areas, contact the WDNR.

Runoff/Stormwater Management

Runoff refers to water from precipitation (stormwater), irrigation, or other sources (e.g., overwatering of lawns) that moves over and through the ground. As the water flows over these impervious surfaces it picks up and carries away natural and man-made pollutants, eventually depositing them into lakes, rivers, wetlands, coastal waters and groundwater supplies.

In October 2002, the State of Wisconsin established Run-off Management Administrative Rules to address uncontrolled run-off from urban and rural land use activities. These administrative rules establish a variety of best management practices, performance standards, regulations, and permit requirements that farms, cities and construction sites are required to follow as a way to reduce polluted runoff.

The following are the eight rules written by the WDNR and one rule written by the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) that are intended to reduce the effects of runoff:

| | |
|---------|---|
| NR 120 | Priority Watershed and Priority Lake Program |
| NR 151 | Runoff Management (Performance Standards and Prohibitions) |
| NR 152 | Model Ordinances for Construction Site Erosion Control and Post-Construction Storm Water Management |
| NR 153 | Targeted Runoff Management Grant Program |
| NR 154 | Best Management Practices and Cost-Share Conditions |
| NR 155 | Urban Nonpoint Source Water Pollution Abatement and Storm Water Management Grant Program |
| NR 216 | Storm Water Discharge Permits |
| NR 243 | Animal Feeding Operations |
| ATCP 50 | Soil and Water Resource Management Program |

It is important that these requirements are addressed through local planning activities by promoting and utilizing best management practices to control storm water. These practices will help to preserve the quality of the groundwater supply, protect surface waters from pollution, and safeguard significant aquatic habitats. For more information regarding best management practices and nonpoint source pollution control, visit the WDNR's runoff management website (<http://www.dnr.state.wi.us/runoff>).

Controlling Runoff and Protecting Groundwater and Surface Water Resources:

Manitowoc County has adopted a number of ordinances to control runoff and protect ground and surface water features.

Animal Waste Management Ordinance

Agricultural Shoreland Management Ordinance

Animal Waste Storage Ordinance

Livestock Siting Ordinance

These ordinances contain a number of regulations and restrictions related to manure storage, manure spreading activities in proximity to lakes, streams, wells, sinkholes and tile surface inlets, winter manure spreading, nutrient management, etc. More information on these Manitowoc County ordinances can be viewed at <http://www.manitowocounty.com/department/documentcountycode.asp?id=8>.

Land Spreading Activities

Agricultural fields are used for disposal of various wastes in addition to livestock manure. These wastes consist of septage from septic and holding tanks, digested sludge from municipal waste water treatment plants, industrial byproducts such as whey from cheese factories and waste from vegetable processing. These materials are spread as a means of disposal but also to utilize the nutrients which may be present in the waste. The Department of Natural Resources Watershed Management Program regulates these activities through the following Administrative Codes:

- Septage - Administrative Code: NR 113
- Domestic Sewage Sludge (Municipal) - Administrative Code: NR 204
- Industrial Liquid Waste, By-Product Solids, and Sludges - Administrative Code: NR 214

The authority to create these rules is based in Wisconsin State Statute. NR 204 and NR 214 are based on State Statute Chapter 283. NR 113 is based on Chapter 281. Sections 281.48 (5p) and 283.82 of the Wisconsin Statutes have language that prohibits a city, village, town, or county from superseding state authority to regulate these activities. Section 281.48 (5m) also contains a provision for a county to take over the regulation of septage.

For more information on landspreading activities, visit the WDNR's website at (<http://www.dnr.state.wi.us/org/water/wm/ww/>)

Woodlands

Approximately 21 percent of the non-urban land in Manitowoc County is considered woodlands. Woodlands provide aesthetic views, wildlife habitat, and offer multiple recreational choices to residents in county. Woodlands also maintain watershed cover, provide shade, serve as a windbreak, help reduce soil erosion, act as a noise barrier, and screen unsightly developments.



Map 5.8 illustrates the woodlands in Manitowoc County.

Wildlife Habitat

Wildlife habitat can be defined as areas that provide the arrangement of food, water, cover and space required to meet the biological needs of an animal. Different wildlife species have different requirements and these requirements vary over the course of a year. Also, different plants provide fruit and food in different seasons.

Maintaining a variety of habitats while providing connectivity of natural landscapes generally benefits diverse wildlife and maintains fundamental ecological processes and services. Woodlands, wetlands, floodplains and water features provide habitat for many species of wildlife such as white-tailed deer, turkey, grouse, rabbits, gray squirrel, and chipmunks. The inland surface waters also provide habitat for fish and migratory fowl that frequent the area.

Rare, Threatened, and Endangered Species

According to the Wisconsin DNR Natural Heritage Inventory, Manitowoc County is occupied by many rare, threatened, and endangered species of animals, plants, and natural communities (Appendix A of *Volume II: Manitowoc County Resources*). Many of the species found in Manitowoc County are considered rare because their populations and habitat are declining throughout their range. These species are of aesthetic, ecological, cultural, educational, historical, medicinal, recreational, and/or scientific importance to the land and people. For more information, refer to the Wisconsin DNR website: <http://dnr.wi.gov/org/land/er/nhi/>.

Invasive Species

Manitowoc County along with much of the country is, or will need to deal with invasive species from other regions and countries. These non-native plants, animals, and disease-producing organisms displace native species, disrupt ecosystems, and have a negative economic and environmental impact on agriculture and woodlands, along with recreational activities such as fishing, boating, and hiking.



Some invasive species impacting Manitowoc County include:

- Terrestrial: gypsy moths, earthworms, purple loosestrife, garlic mustard, and emerald ash borer. The emerald ash borer was first documented in Wisconsin in August 2008. Manitowoc County's southern hardwood tree area is especially susceptible to it.
- Aquatic: zebra and quagga mussels, sea lamprey, rusty crayfish, round goby, and Eurasian milfoil.

Invasive species can spread rapidly and aggressively since they lack the predators and competitors from their place of origin. Controlling invasive species is difficult, and they are often impossible to get rid of. Many people aid in spreading invasive species, but they can also help keep them from spreading. For more information on identifying and controlling invasive species, visit the WDNR online at <http://dnr.wi.gov/invasives>.

Significant Natural Features

A number of sites located within Manitowoc County may be considered significant natural features and designated as one or more of the following:

WDNR State Natural Areas

This program was established to designate sites that are in natural or near natural condition for scientific research, the teaching of conservation biology, and preservation of their natural values and genetic diversity for the future. These areas are not intended for intensive recreation use.

State Wildlife and Fishery Areas

State wildlife and fishery areas are lands that have been acquired by the WDNR in order to preserve wild lands and game for people interested in the outdoors. These lands are important for protection of wildlife habitat, while also keeping them open for public use.

Significant Coastal Wetlands

Significant coastal wetlands on the shoreline of Lake Michigan form a complex arrangement of ecosystems supporting a diversity of natural features. The Natural Heritage Inventory Program of the WDNR has inventoried these wetlands for the Great Lakes in Wisconsin in a report titled, *A Data Compilation and Assessment of Coastal Wetlands of Wisconsin's Great Lakes*.

Land Legacy Places

The WDNR has identified these places that will play a critical role in meeting Wisconsin's conservation and outdoor recreation needs over the next 50 years in order to effectively plan for potential future conservation needs within the state.

Natural Areas Inventory (NAI)

The Scientific Areas Preservation Council (SAPC) defined the NAI sites as “tract[s] of land or water so little modified by man’s activity or sufficiently recovered that they contain intact native plant and animal communities believed to be representative of the pre-settlement landscape.”

Contact the WDNR (<http://dnr.wi.gov>) for more information regarding these significant natural feature designations.



Table 5.2 is a list of the significant natural features in Manitowoc County along with their designation(s), while Map 5.9 illustrates the locations of these features within the county.

Table 5.2: Significant Natural Features, Manitowoc County

| Map 5.9 Number | Significant Natural Feature | Designation | | | | |
|----------------|---|--------------------|---------------------------------|-----------------------------|-------------------|------------------------|
| | | State Natural Area | State Wildlife and Fishery Area | Significant Coastal Wetland | Land Legacy Place | Natural Area Inventory |
| 1 | Camp Vits | | | | | X |
| 2 | Cherney Maribel Caves | X | | | | |
| 3 | Cleveland Hardwood Swamp | | | X | X | |
| 4 | Collins Marsh Wildlife Area | | X | | | |
| 5 | Ficher-Centerville Creeks Area | | | X | | |
| 6 | Fischer Creek | | | | X | |
| 7 | Glonski Lake | | | | | X |
| 8 | Kiel Marsh Wildlife Area | | X | | | |
| 9 | Lakeshore Technical College Maple Woods | | | | | X |
| 10 | Little Manitowoc River | | | X | | |
| 11 | Little Mud Lake | | | | | X |
| 12 | Manitowoc-Branch River | | | | X | |
| 13 | Millhome Woods | | | | X | |
| 14 | Point Beach and Dunes | | | X | X | |
| 15 | Point Beach Ridges | X | | | | X |
| 16 | Point Creek | | | X | X | |
| 17 | Silver-Calvin Creek | | | X | | |
| 18 | Sugarbush Woods | | | | | X |
| 19 | Twin River Marsh | | | | | X |
| 20 | Twin Rivers | | | | X | |
| 21 | Two Creeks Buried Forest | X | | | | X |
| 22 | VanderBloemen Bog | X | | | | |
| 23 | Wet Mesic Woods | | | | | X |
| 24 | Weyers Lake | | | | | X |
| 25 | Wilderness Ridge | X | | | | X |
| 26 | Woodland Dunes | X | | | | X |

Source: Wisconsin Department of Natural Resources, 2007; Bay-Lake Regional Planning Commission, 2009.

Environmental Corridors

Environmental corridors are areas on the landscape that contain and connect natural areas, green space and scenic, historic, scientific, recreational, and cultural resources. It is important to understand that environmental corridors provide many ecological and human-valued services such as improved water quality, protection of natural resources, groundwater recharge, recreation areas and stormwater management. The corridors are strictly an advisory tool that can be utilized in various community planning efforts as a way to promote preservation of areas with environmental significance.



Map 5.10 illustrates the environmental corridors of Manitowoc County as defined by the Bay-Lake Regional Planning Commission (BLRPC). These features were mapped using the Commission’s Geographic Information Systems (GIS) and include:

- WDNR wetlands;
- 100-year FEMA floodplains;
- Slopes 12 percent or greater; and
- 75-foot lake and river setback

Other features that communities may consider as part of their environmental corridors could include: unique and isolated woodland areas, scenic viewsheds, unique geologic features, wetland mitigation sites and exceptional wildlife habitats.

Parks and Open Space

Various natural settings in the county are utilized as recreational sites by the public. Manitowoc County maintains eight parks and recreation facilities along with 14 lake accesses throughout the county, while the State of Wisconsin maintains the Point Beach State Forest.



Table 5.3 lists the Point Beach State Forest along with the Manitowoc County parks and recreation areas. Appendix A of *Volume II: Manitowoc County Resources* lists all state, county, and municipal parks located in the county.

For more detailed information on each of the following parks and open space areas located in the county, refer to Chapter 9 of *Volume II: Manitowoc County Resources*.

Table 5.3: Parks, Manitowoc County

| Park Name | Geographic Location | Ownership |
|--------------------------|--------------------------|-----------|
| Cherney Maribel Caves | Town of Cooperstown | County |
| Fischer Creek | Town of Centerville | County |
| Horseshoe Lake | Town of Meeme | County |
| Long Lake | Town of Rockland | County |
| Lower Cato Falls | Town of Cato | County |
| Point Beach State Forest | Town of Two Rivers | State |
| Point Creek | Town of Centerville | County |
| Silver Lake | Town of Manitowoc Rapids | County |
| Walla Hi | Town of Schleswig | County |

Source: Manitowoc County, 2007; Bay-Lake Regional Planning Commission, 2009.

Air Quality Issues

The legal authority for federal programs regarding air pollution control is based on the 1990 Clean Air Act Amendments. One of the amendments included expanded and modified provisions concerning the attainment of National Ambient Air Quality Standards (NAAQS). According to the U.S. Environmental Protection Agency (EPA), areas that do not meet the EPA’s 8-hour ozone NAAQS standard of 0.08 parts per million are classified as “nonattainment” areas. Manitowoc County, along with several other lakeshore counties, is identified as a nonattainment area.

By law, nonattainment areas may be subject to certain requirements to reduce ozone-forming pollution and requires states to submit plans for reducing the levels of ozone. Several methods to meet the ozone standard may include stricter controls on emissions by industrial sources, transportation emissions, etc.

Designed to protect the public from breathing unsafe air, the EPA’s 8-hour ozone standard could have an impact on economic development efforts for Manitowoc County communities. The ozone reducing regulations identified in the state’s plan may end up requiring existing and future businesses to pay for installing and maintaining equipment to limit pollution emissions rather than focusing on expanding their operations to create jobs.

AGRICULTURAL RESOURCES

According to UW-Extension, Manitowoc County farmers own and operate agricultural resources on 257,111 acres of land, or 68 percent of all the land in the county. This includes pastures, cropland, and tree farms.

Prime Agricultural Soils

The USDA, Natural Resources Conservation Service (NRCS), defines prime agricultural soils as lands that have the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops, with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion.

According to the NRCS, there are three classes of prime agricultural soils that cover Manitowoc County (see inset on right). Since agriculture plays an important role in the economic, cultural and social structure of Manitowoc County, it will be important to preserve these areas against future development. Once agricultural land is disturbed or replaced by another land use, it cannot be effectively returned to agricultural production.



Map 5.11 illustrates the 131,777 acres in Manitowoc County that are classified as Prime Farmland based on the NRCS soil types.

Farm Numbers and Types

Table 5.4 lists the types of farms that exist in Manitowoc County according to the 2002 Census of Agriculture which was conducted by the United States Department of Agriculture (USDA) National Agricultural Statistics Service. This table illustrates the number of farms that were operating in 2002 by type, as well as the number of animals, or acres of land, that could be attributed to each particular farm type.

Three Classes of Prime Agricultural Soils in Manitowoc County

Prime farmland is considered land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods.

Farmland of statewide importance is land not identified as prime farmland on a nationwide basis but is important in Wisconsin for the production of various food, feed, fiber and forage crops.

Prime farmland only where drained are areas where soils have wetness limitations, but can be or are used effectively for agricultural production with installation of a tile drainage system.

Table 5.4: Farm Numbers and Types in Manitowoc County, 2002

| Livestock and Poultry | | |
|-------------------------------|-----------------|---------------|
| Type | Number of Farms | Total Animals |
| Milk cows | 372 | 42,462 |
| Beef cows | 156 | 1,552 |
| Horses and Ponies | 233 | 1,254 |
| Hogs and pigs | 39 | NA |
| Sheep and lambs | 42 | 1,573 |
| Broilers and other poultry | 18 | NA |
| Goats (milk and angora) | 18 | 544 |
| Harvested Crops | | |
| Type | Number of Farms | Total Acreage |
| Forage* | 411 | 48,117 |
| Corn for grain | 464 | 37,629 |
| Corn for silage or greenchop | 441 | 28,267 |
| Soybeans | 303 | 21,041 |
| Oats | 315 | 8,510 |
| Vegetables harvested for sale | 92 | 4,664 |
| Wheat | 329 | 12,869 |

*Land used for all hay and all haylage, grass silage, and greenchop.

Source: USDA National Agricultural Statistics Service, Census of Agriculture, 2002; Bay-Lake Regional Planning Commission, 2009.

Throughout Manitowoc County dairy farms have traditionally been the primary livestock operations. According to the *2006 Wisconsin Agricultural Statistics*:



In 1997 the county contained 551 dairy farms housing 44,000 milk cows, whereas in 2005 Manitowoc County had 340 dairy farms housing 44,500 milk cows. This is a decrease in the number of dairy farms, but an increase in the number of milk cows.



In 2005, there were approximately 75 cows per square mile, meaning Manitowoc County had the third heaviest concentration of cows in Wisconsin.



Also in 2005, Manitowoc County ranked fourth in the State in total milk produced.

Concentrated Animal Feeding Operations (CAFO)

Over the past ten years, Wisconsin has become home to an increasing number of Concentrated Animal Feeding Operations (CAFOs). In order to ensure proper management of animal waste from these facilities, WDNR requires that CAFOs have a Wisconsin Pollutant Discharge Elimination System (WPDES) CAFO permit. These permits are designed to ensure that operations use proper planning, construction, and manure management to protect water quality from adverse impacts.

According to WDNR a **CAFO** is any livestock or poultry operation with 1,000 or more animal units.



As of May 2008, there were six CAFO permittees located in Manitowoc County.



In addition, Manitowoc County has established standards and procedures for the issuance of licenses for new and expanded livestock facilities with 750 or more animal units. Refer to *Chapter 28: Livestock Facility Licensing* of the Manitowoc County Code.

Trends in Agriculture

The 2002 Census of Agriculture indicates that the total number of farms has declined in Manitowoc County from 1,487 in 1997 to 1,469 in 2002. The average size of a farm in the county in 1997 was 179 acres. By 2002, the average farm size decreased slightly to 175 acres.

Harvested cropland in Manitowoc County also dropped 8,456 acres (three percent) from 1997 to 2002. The reduction in harvested croplands may be an indicator of the development pressures within the county.

The amount of agricultural land sold over a period of time is a good indicator of how much development has taken place. Table 5.5 indicates that 10,110 acres of agricultural land was sold between 2002 and 2006 in Manitowoc County.

Table 5.5: Manitowoc County Agricultural Land Sales, 2002-2006

| Year | Acres Continuing as Agriculture Land | Average Cost per Acre | Acres Diverted from Agriculture Land | Average Cost per Acre | Total Acres Sold |
|--------------|--------------------------------------|-----------------------|--------------------------------------|-----------------------|------------------|
| 2002 | 2,454 | \$2,227 | 604 | \$3,740 | 3,058 |
| 2003 | 1,291 | \$1,996 | 286 | \$3,560 | 1,577 |
| 2004 | 2,158 | \$2,982 | 118 | \$7,373 | 2,276 |
| 2005 | 1,795 | \$3,251 | 84 | \$6,000 | 1,879 |
| 2006 | 1,320 | \$3,556 | NA | NA | 1,320 |
| Total | 9,018 | \$2,773 | 1,092 | \$5,132 | 10,110 |

Note: Agricultural land sold are land sales without building and improvements

Note: All 2006 agricultural land sales remained in agriculture

Source: Wisconsin Agricultural Statistical Service, 2002 - 2006.

According to Table 5.5, the amount of agricultural land sold and preserved as agricultural land has remained higher than the amount of land that was converted to non-agricultural uses.



Approximately 11 percent of the 10,110 acres of agricultural land sold in the county between 2002 and 2006 was converted to non-agricultural uses.

Agricultural lands which were diverted from agricultural uses after they were sold, drew a higher market value than those that continued to be used for agricultural purposes,



The value of each acre diverted from agriculture to non-agriculture use has risen from \$3,740 per acre in 2002 to \$6,000 per acre in 2005. Farmers seeking to sell their land in the future may be influenced by this trend, leading to a greater conversion of agricultural land to non-agricultural uses.

The cost of developing productive agricultural lands needs to be considered. For instance, farmlands provide revenues to local governments and require very few services. Conversely, residential land uses may cost communities more to provide services than is gained through local property tax base increases. This is evident in areas of widespread development as road maintenance, school transportation, police service and fire protection will likely increase the overall cost of services throughout the entire community.

As growth continues in the county, communities should plan for concentrated development in rural areas to help keep the cost of services down and assist with the preservation of Manitowoc County's valuable farmlands and rural landscape.

Environmental Impacts of Agriculture

The landscape of Manitowoc County is interspersed with water features, wetlands, steep slopes and other natural features. With the integration of agricultural and natural resources in the county, farming activities can cause harm to the environment.

Soil erosion from farm fields and surface runoff of crop nutrients and agricultural chemicals can impact the quality of streams, rivers, lakes and underground aquifers, ultimately impacting drinking water supplies. Specific crop rotations, livestock and tillage practices all affect the amount of soil erosion and nutrient losses.

To help decrease environmental impacts of agricultural activities, farm operators are encouraged to work with local land conservation departments to identify and implement specific resource conservation practices to better protect the environmental features in and around farms. Agricultural lands and in areas not cropped (e.g., woodlots and stream corridors) have a positive impact on a community. These lands provide balanced habitat for wildlife and waterfowl, in addition to providing open space lands.

Discovery Farms Project (UW-Extension)

The Discovery Farms Program conducts research on working farming operations to identify and implement the most economical practices to the environmental regulations placed on farming operations.

The Manitowoc County Discovery Farms Project consists of the Saxon Homestead Farm. The farm was selected to participate in a five to seven year research project to monitor the effects of different Best Management Practices on water quality. The University of Wisconsin with the UW-Extension and US Geological Survey will work with the farm through 2009 to find the most economical and effective ways of complying with environmental regulations while continuing its agricultural operations.



For additional information on the Manitowoc County Discovery Farms Project, please contact the Manitowoc County UW-Extension.

Economic Impacts of Agriculture

Agriculture is an important element to Manitowoc County's economy. It includes hundreds of family-owned farms as well as agriculture related businesses and industries that provide equipment, services and other products farmers need to process, market and deliver food to consumers. The production, sales and processing of Manitowoc County's farm products generate employment, economic activity, income and tax revenue.



According to UW-Extension, agriculture in Manitowoc County provides jobs to 6,061 county residents and contributes \$826 million in economic activity. Furthermore, economic activity associated with Manitowoc County's farms and agriculture-related businesses generates over \$18 million in local and state taxes.

For more information on Manitowoc County's agricultural industry, refer to the Economic Development element (Chapter 7 of *Volume II: Manitowoc County Resources*).

CULTURAL RESOURCES

Manitowoc County has many historical, cultural, and archeological resources. These resources represent what a community in the county has developed into today. These resources are what a community values from the past, cherishes presently, and plans to preserve for future generation to use and enjoy.

Historical, cultural, and archeological resources are typically sites, structures, features and/or objects. These resources are of some importance to a culture or community for scientific, aesthetic, traditional, educational, religious, archaeological, architectural or historic reasons.

Historic and Archeological Sites

Many of Manitowoc County's historical and archeological sites are on the National Register of Historic Places. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. Properties listed in the Register include districts, sites, buildings, structures and objects that are significant in American history, architecture, archeology, engineering and culture.



Table 5.6 is a listing of the State and National Register of historic sites within Manitowoc County, while Map 5.12 illustrates their approximate locations in the county.

Table 5.6: State and National Register of Historic Places, Manitowoc County

| Map 5.12 Number | Historic Name (known as...) | Municipality | Location |
|-----------------|---|--------------------------|--|
| 1 | Central Park Historic District | City of Two Rivers | Bounded by 19th St., Adams St., 16th St. and Jefferson St. |
| 2 | Eighth Street Historic District | City of Manitowoc | Bounded by Buffalo St., 8th and 7th Sts., Hancock St., and 10th, 9th and Quay Sts. |
| 3 | Francis Hinton (steamer) | City of Manitowoc | Lake Michigan |
| 4 | Frenchside Fishing Village (Two Rivers Fishing Village Historic District) | City of Two Rivers | 21st, Jackson, East, 17th, Harbor, and Rogers Sts. |
| 5 | Green Bay Road Bridge (Mill Street Bridge) | Town of Manitowoc Rapids | Mill St. at Manitowoc Road |
| 6 | Carl Gottlieb Heins House | City of Kiel | Fremont St. |
| 7 | Island Village Site | Town of Eaton | N/A |
| 8 | Loreto Shrine Chapel | Village of St. Nazianz | Off of CTH A |
| 9 | Lutze Housebarn | Town of Centerville | S. Union Rd. |
| 10 | Manitowoc County Courthouse | City of Manitowoc | 8th and Washington Sts. |
| 11 | Rawley Point Light Station (Twin River Point Light Station) | Town of Two Rivers | Point Beach State Forest |
| 12 | Rock Mill | Town of Cooperstown | Off USH 141 |
| 13 | "Rouse Simmons" Shipwreck | Town of Two Creeks | 6 miles off Point Beach, Lake Michigan |
| 14 | Saint Luke's Church Complex | City of Two Rivers | Jefferson St. |
| 15 | Sexton's House | City of Manitowoc | Revere Dr. |
| 16 | St. Gregory's Church | Village of St. Nazianz | Church St. |
| 17 | St. Mary's Convent | Village of St. Nazianz | S. 2nd Ave. |
| 18 | Two Rivers Post Office | City of Two Rivers | 18th St. |
| 19 | USS COBIA (submarine) | City of Manitowoc | S. 8th St. |
| 20 | Joseph Vilas Jr. House (Vilas-Rahr House) | City of Manitowoc | N. 8th St. |

Source: National Register of Historic Places, 2007; Bay-Lake Regional Planning Commission, 2009.

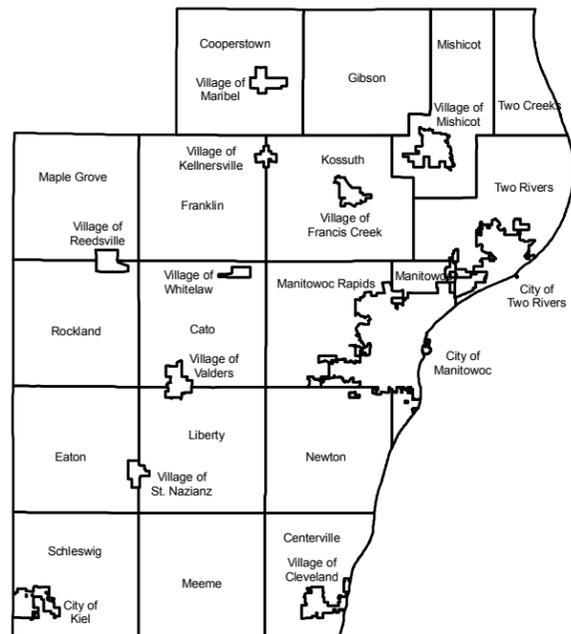
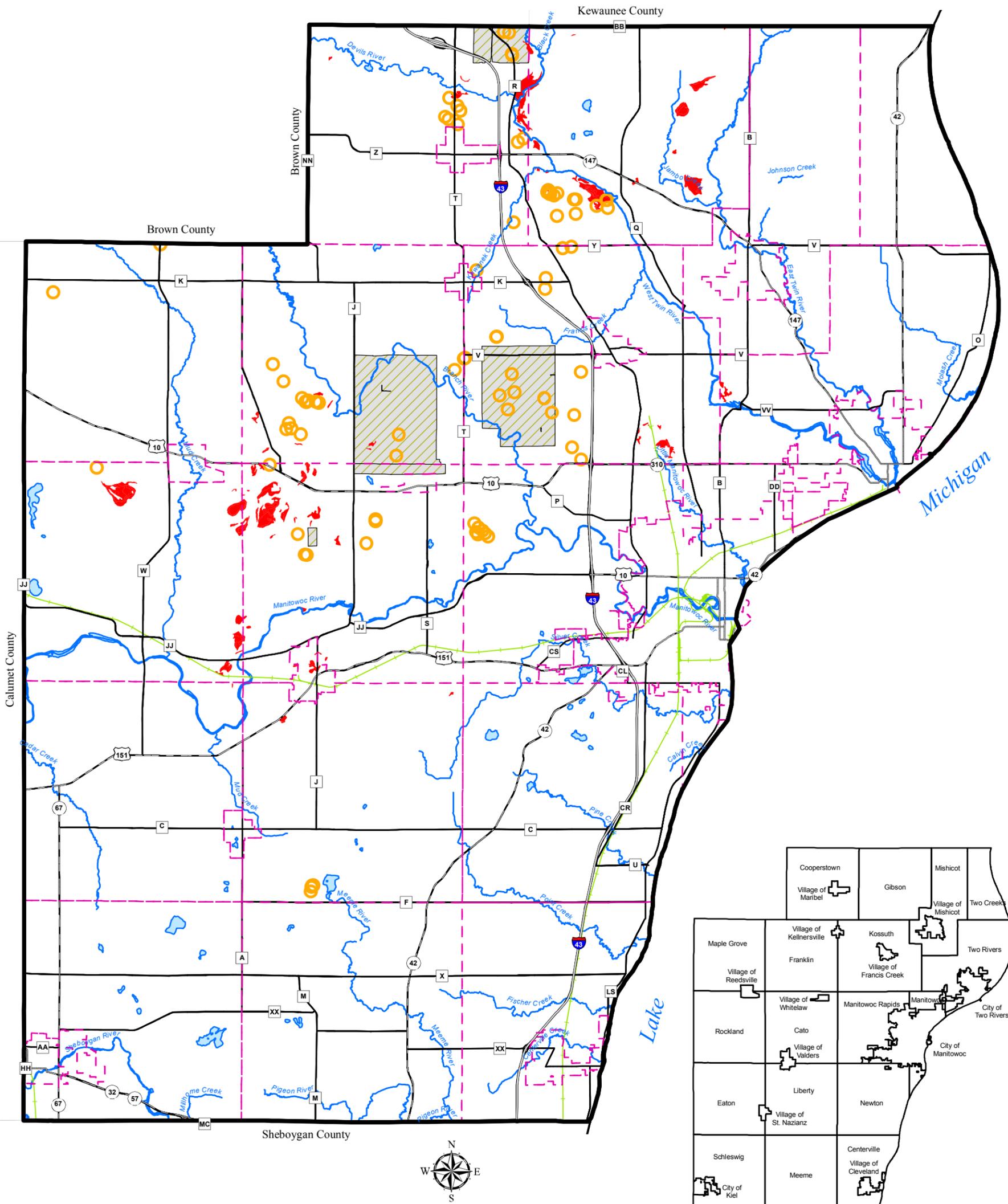
There are other structures of historic significance in the county that are not on the National Register but are listed in the Wisconsin Architecture and History Inventory (AHI). The AHI

inventory consists of churches, hotels, historic homes, historic markers, etc. There is a possibility that several structures or sites may not be listed, and some of the listed structures may have been torn down. A comprehensive listing of AHI sites in Manitowoc County can be found on the Wisconsin Historical Society website (<http://www.wisconsinhistory.org/ahi>).

Preservation of historical and archeological sites located within the county can be important in retaining the character of the area. These sites help to educate the public about the history of the county while also providing tourism and recreation opportunities.

Geologic Features of Concern

Manitowoc County, Wisconsin



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Source: NRCS, 2004, 2009; WNDR, 2005, 2009; WisDOT, 2007; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

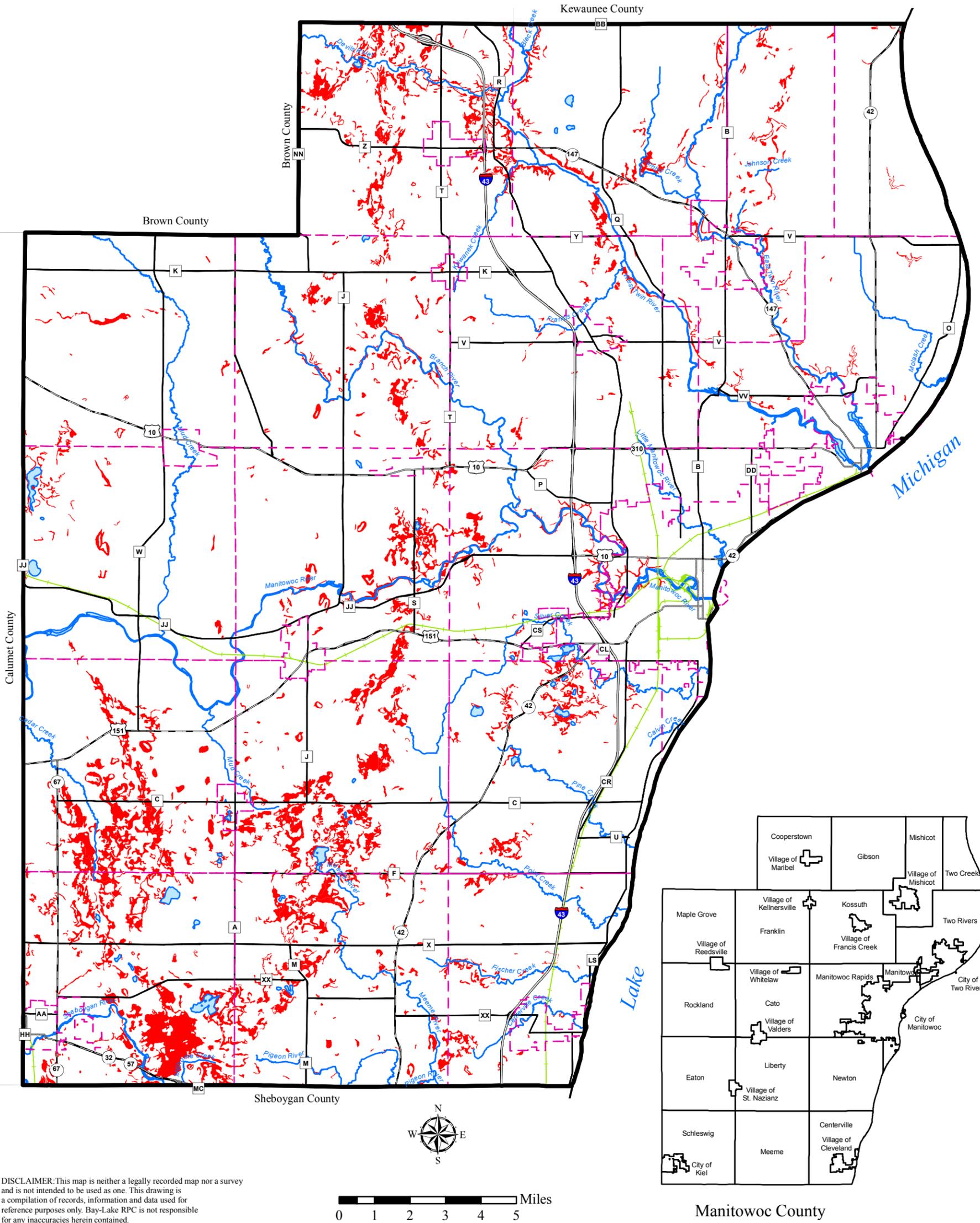
- Sinkhole*
- Shallow Depth to Bedrock (0 in. - 32 in.)
- Special Well Casing Depth Area (WDNR)

*Note:
The dataset is incomplete. Locations are estimated utilizing orthophoto background. The existence of all sinkholes in the data set has not been verified. Sinkholes are inventoried as field hazards are identified.

- Base Map Features**
- County Boundary
 - Community Boundary
 - 43 Interstate Highway
 - 10 U.S. Highway
 - 57 State Highway
 - B County Highway
 - Railroad
 - Major Surface Water

Steep Slope

Manitowoc County, Wisconsin

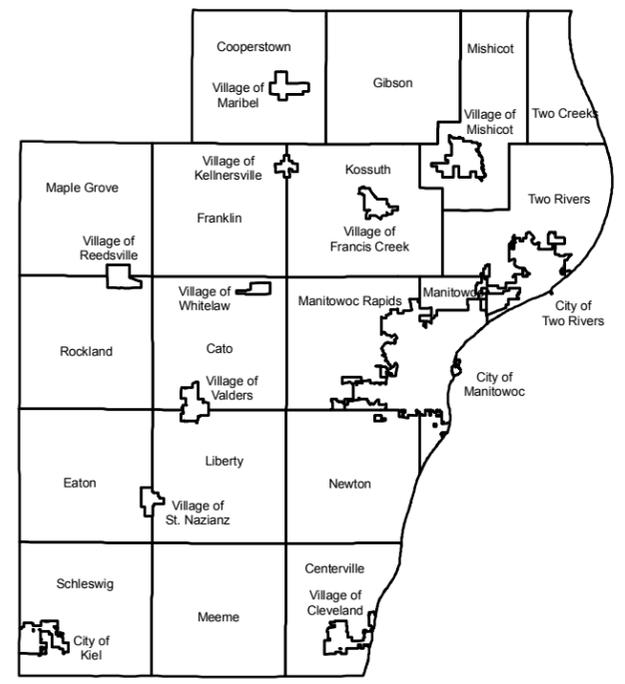


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Steep Slope (12% or greater)

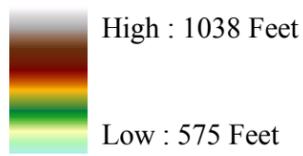
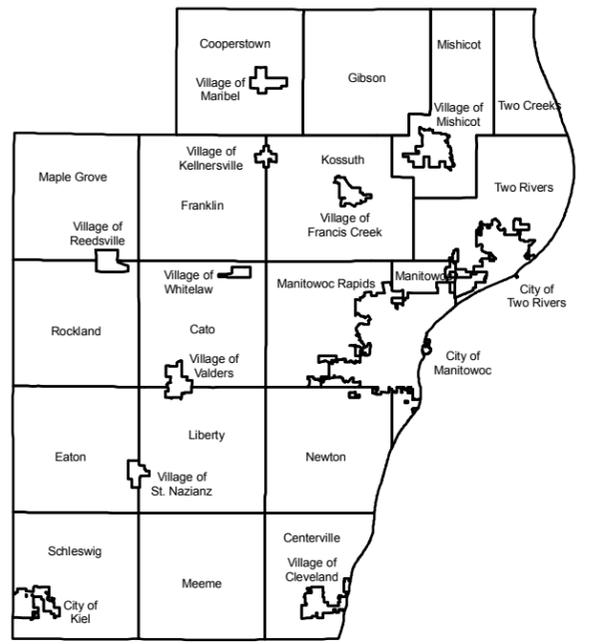
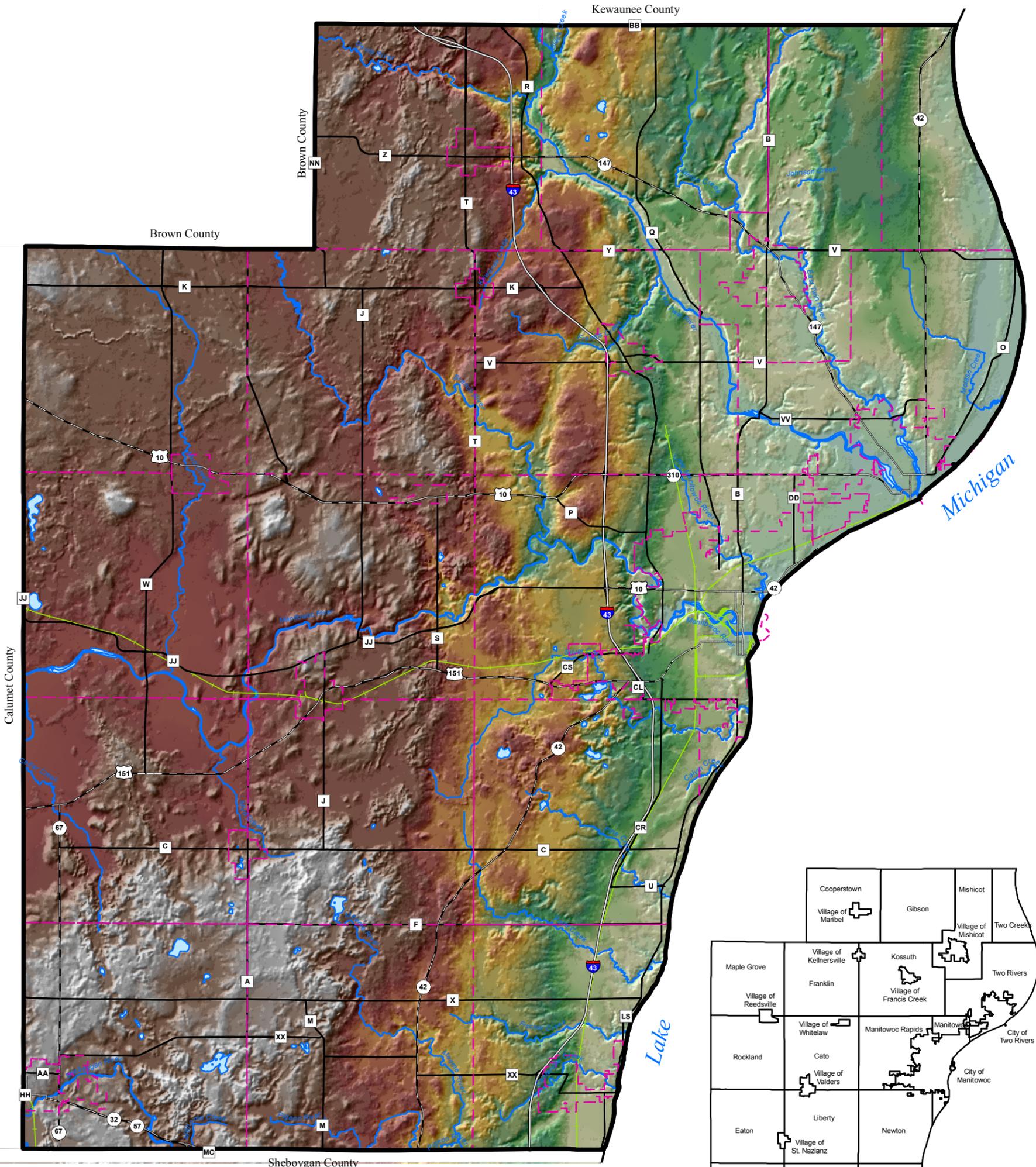
Source: NRCS, 2004; WNDR, 2005; WisDOT, 2007; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009.
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- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

Elevation

Manitowoc County, Wisconsin



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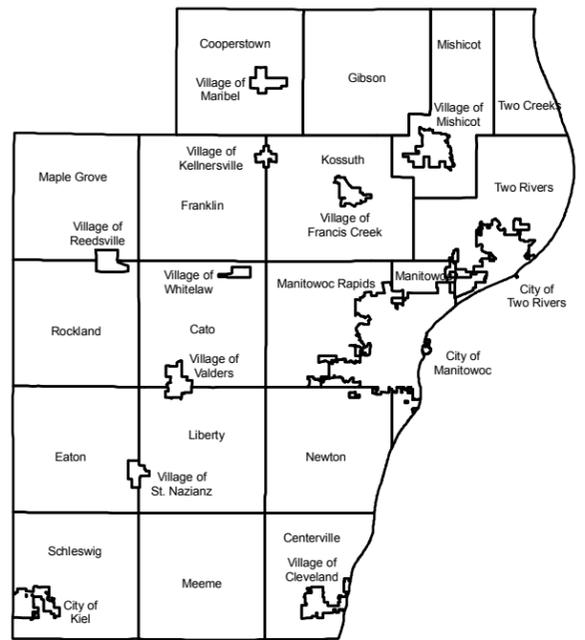
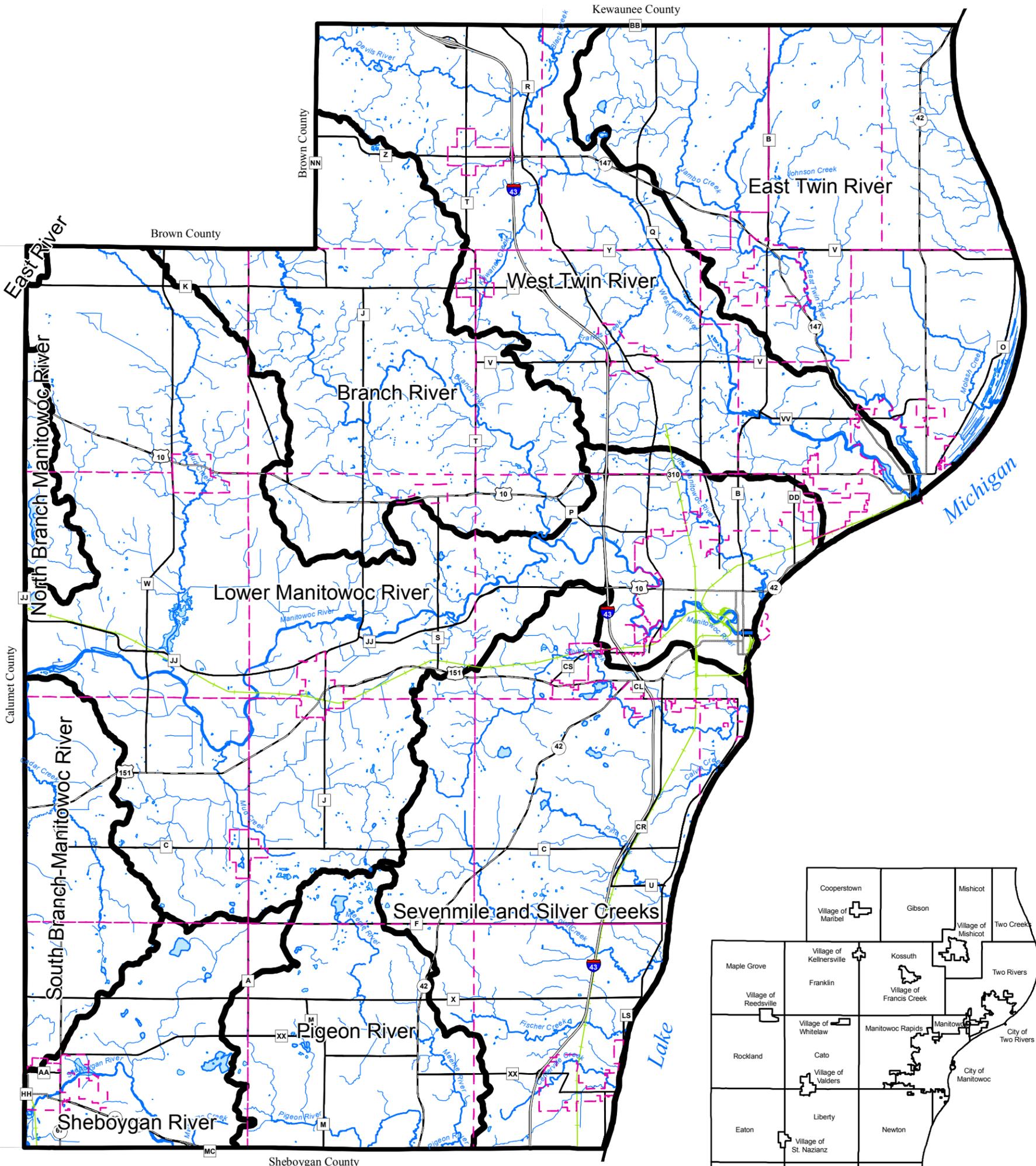


Source: USGS, 1999; WNDR, 2005; WisDOT, 2007; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009.
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- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

Watersheds

Manitowoc County, Wisconsin



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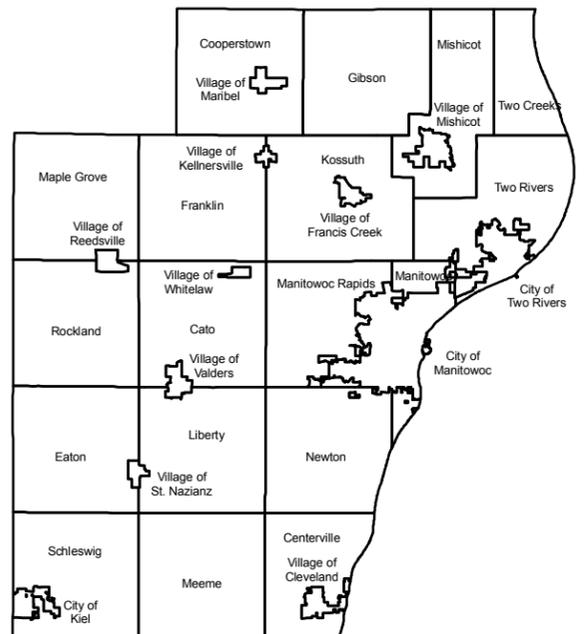
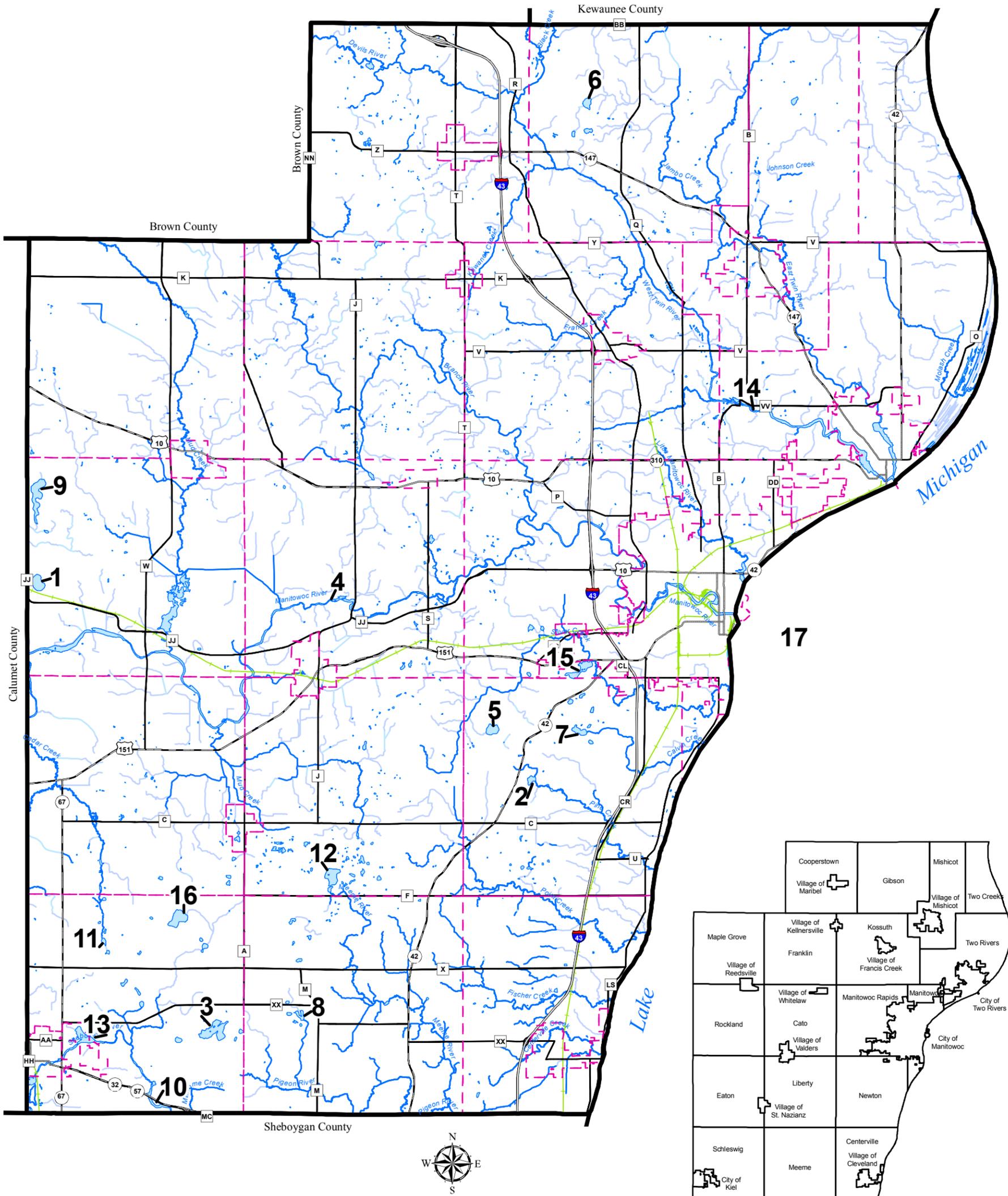
Watersheds

- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

Source: WNR, 1998, 2005; WisDOT, 2007; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

Surface Water Features

Manitowoc County, Wisconsin



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- Surface Water Features*
- Major Surface Water Features
- Minor Surface Water Features

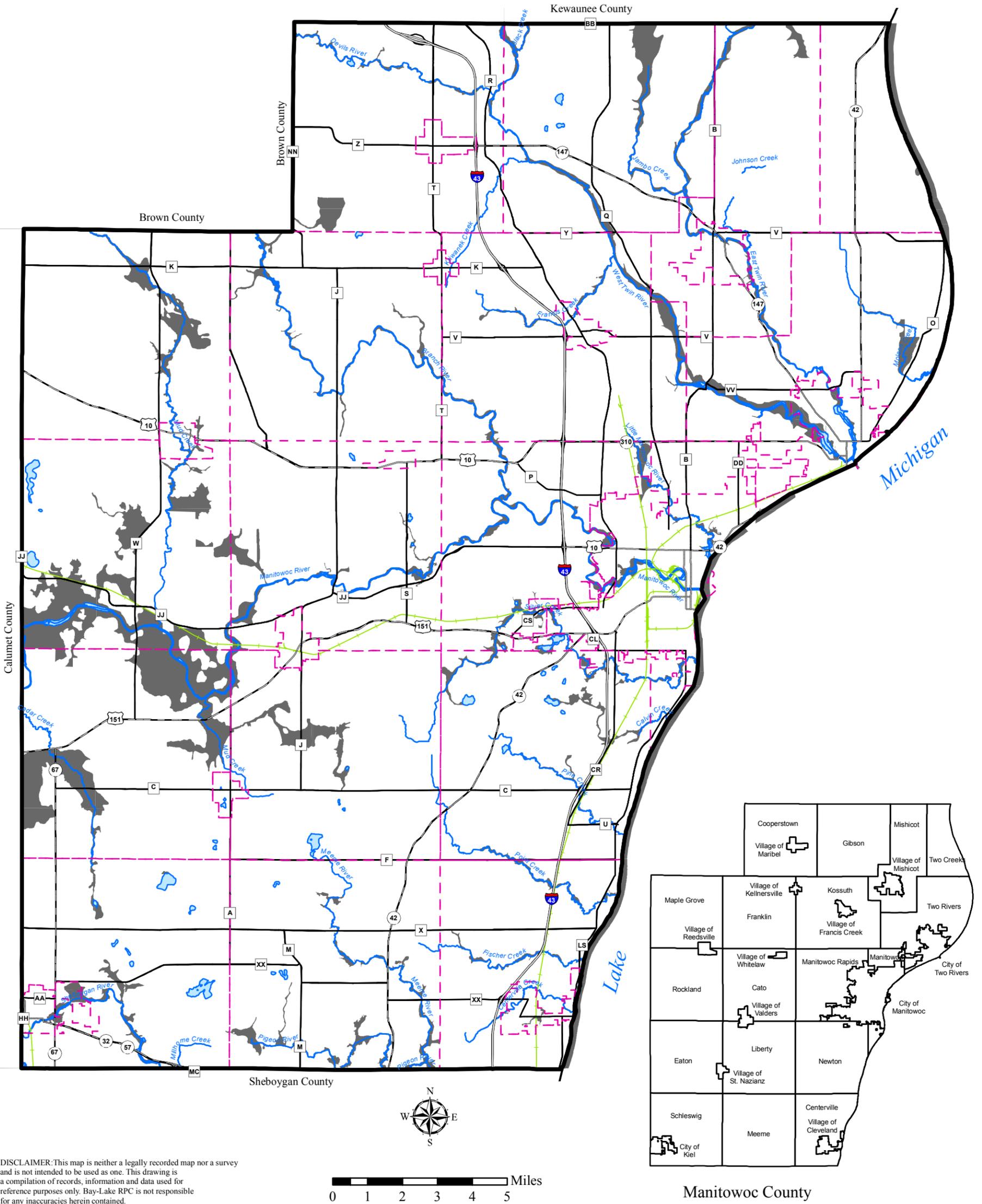
- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

Source: WNRD, 2005; WisDOT, 2007, 2008; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

*Note: Numbers correspond to Table 5.1.

Floodplains

Manitowoc County, Wisconsin



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0 1 2 3 4 5 Miles



100-Year Floodplain*

*Note:
This is a digital representation of the paper FEMA FIRM maps. Please see the paper FEMA FIRM maps for the official floodplain boundary.

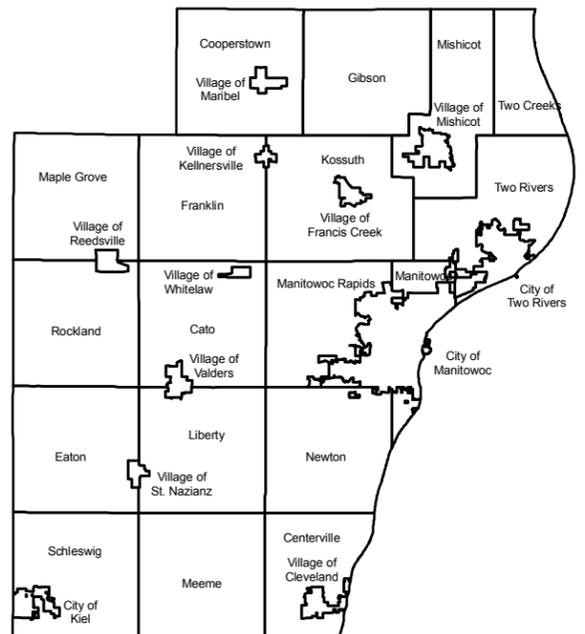
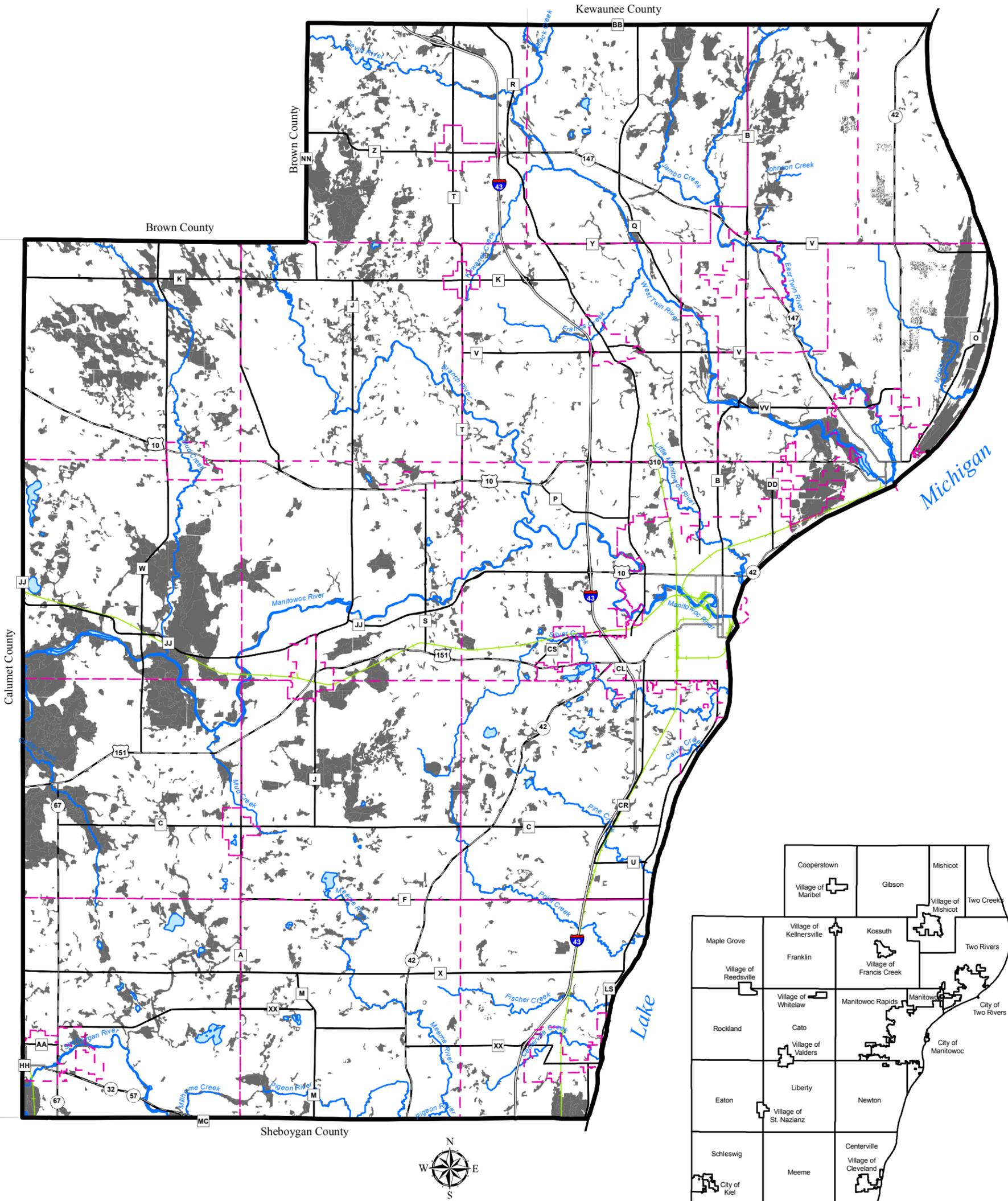


Source: FEMA, 1977-1998; DNR, 2005; WisDOT, 2007, 2008; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009.
Q:\myfiles\manitowoc\County\Comp2007\

- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

Wetlands

Manitowoc County, Wisconsin



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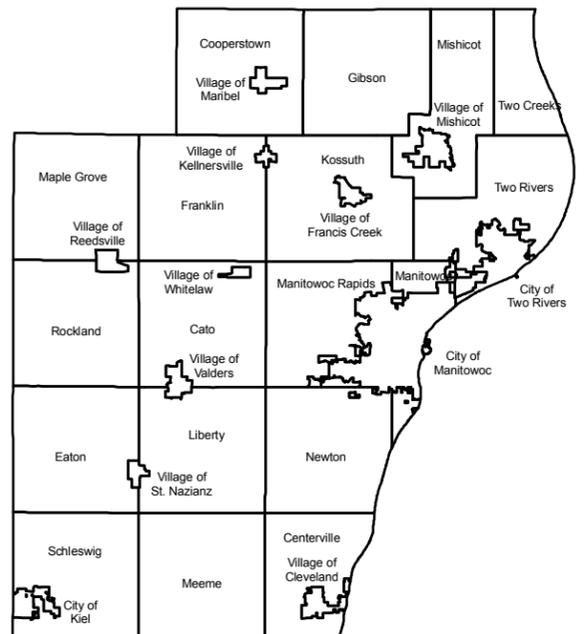
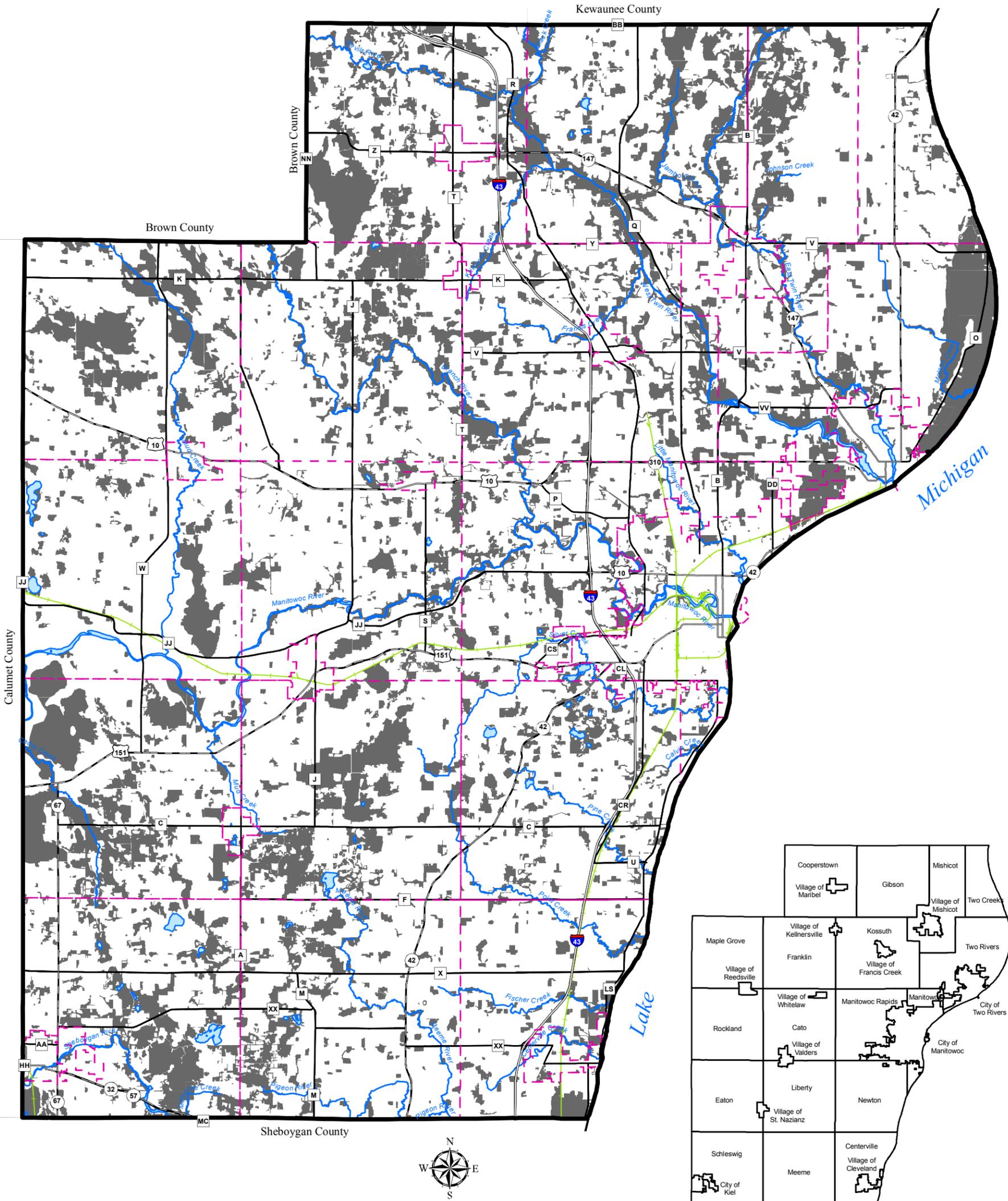
Source: DNR, 1991, 2005; WisDOT, 2007, 2008; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

Wetlands (2 Acres or Greater) & Manitowoc County Restored Wetlands

- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

Woodlands

Manitowoc County, Wisconsin



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Woodlands*

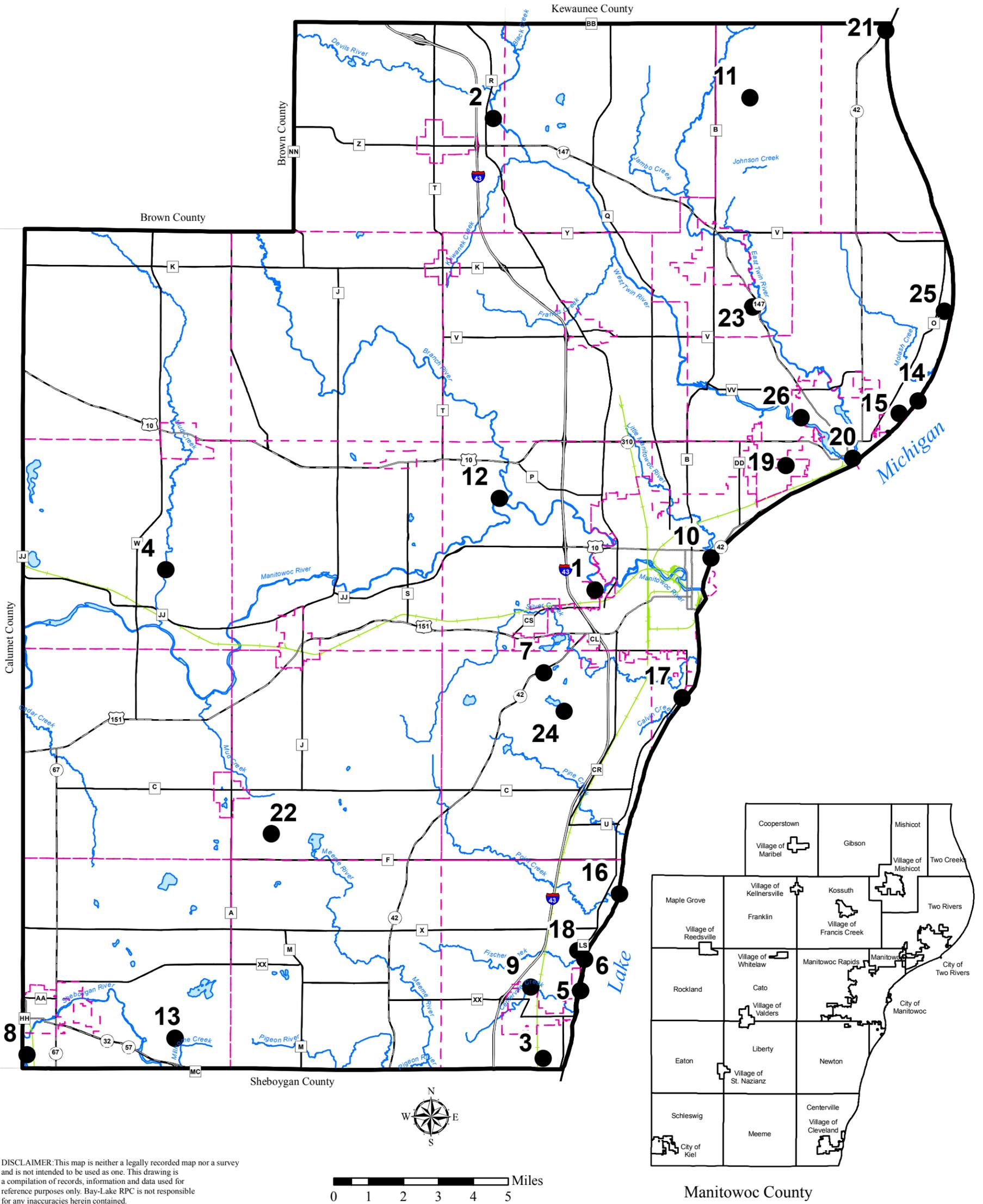
*Note: Based on the 2008 land use inventory by Bay-Lake RPC.

Source: NOAA, 2001; DNR, 2005; WisDOT, 2007, 2008; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009.
Q:\myfiles\manitowoc\County\Comp2007\

- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

Significant Natural Features

Manitowoc County, Wisconsin



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0 1 2 3 4 5 Miles

● Significant Natural Feature*

*Note: Numbers correspond to Table 5.2.

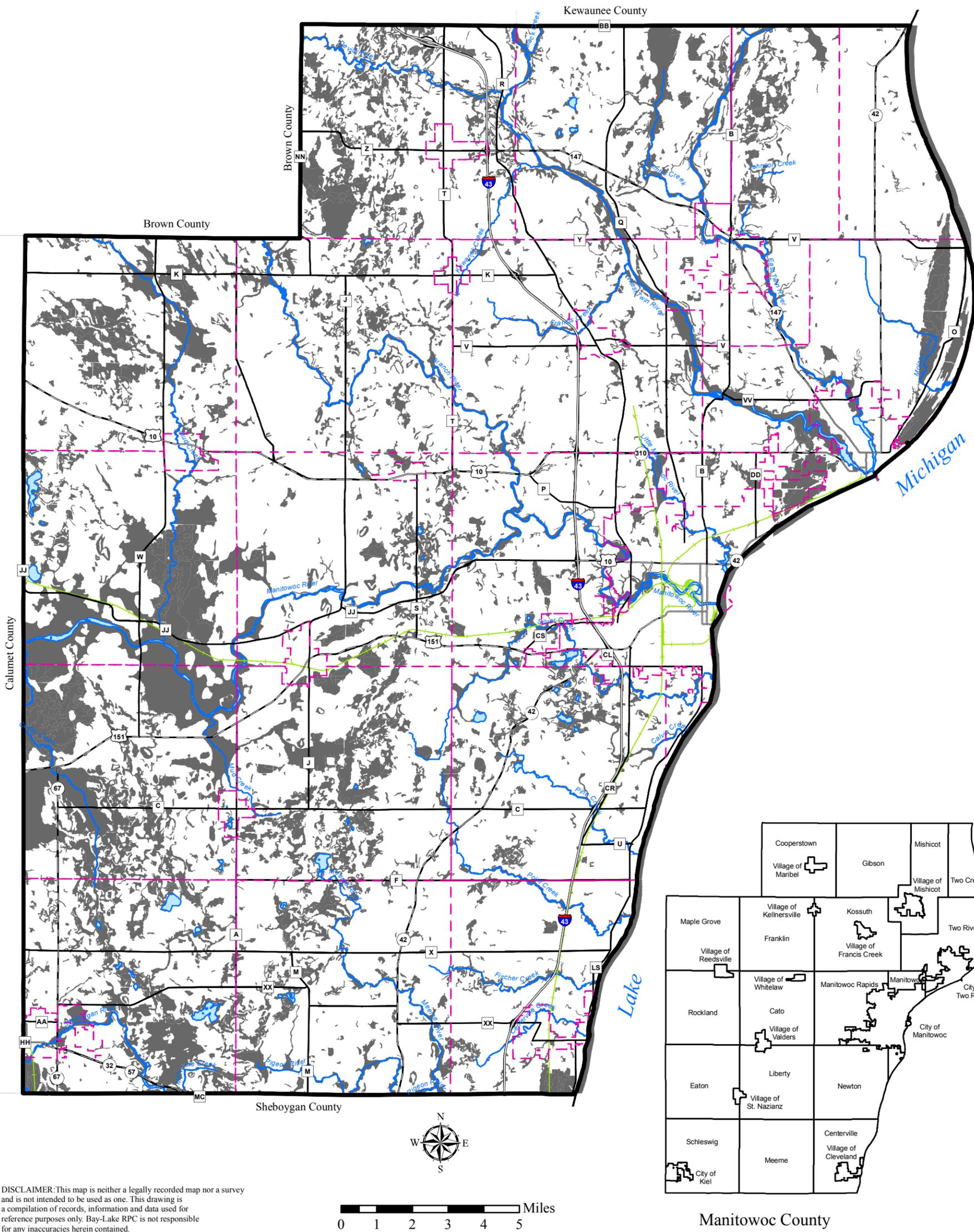


Source: DNR, 2005, 2006; WisDOT, 2007, 2008; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

- Base Map Features**
- ▭ County Boundary
 - - - Community Boundary
 - Ⓜ Interstate Highway
 - Ⓢ U.S. Highway
 - Ⓟ State Highway
 - Ⓛ County Highway
 - Railroad
 - Major Surface Water

Environmental Corridors

Manitowoc County, Wisconsin



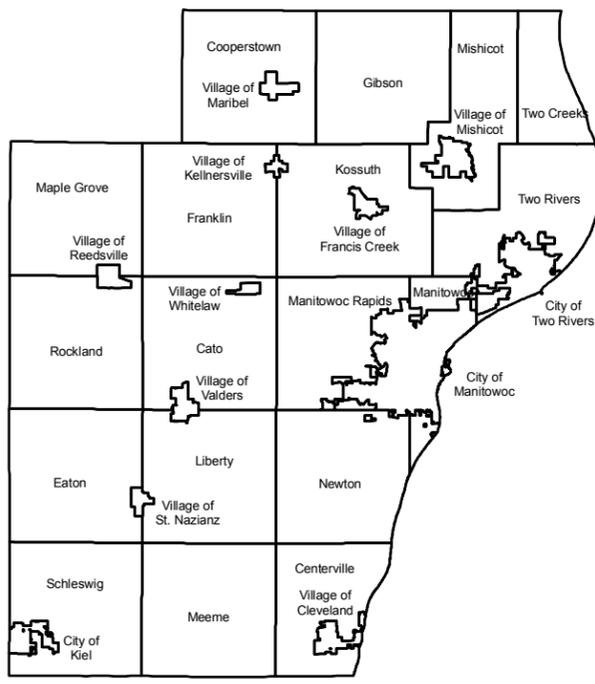
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0 1 2 3 4 5 Miles



Environmental Corridor*

- *Includes:
- Wetlands (2 Acres or Greater)
- 100-Year Floodplains
- Steep Slope (12% or Greater)
- Surface Water with 75-Foot Setback



Manitowoc County

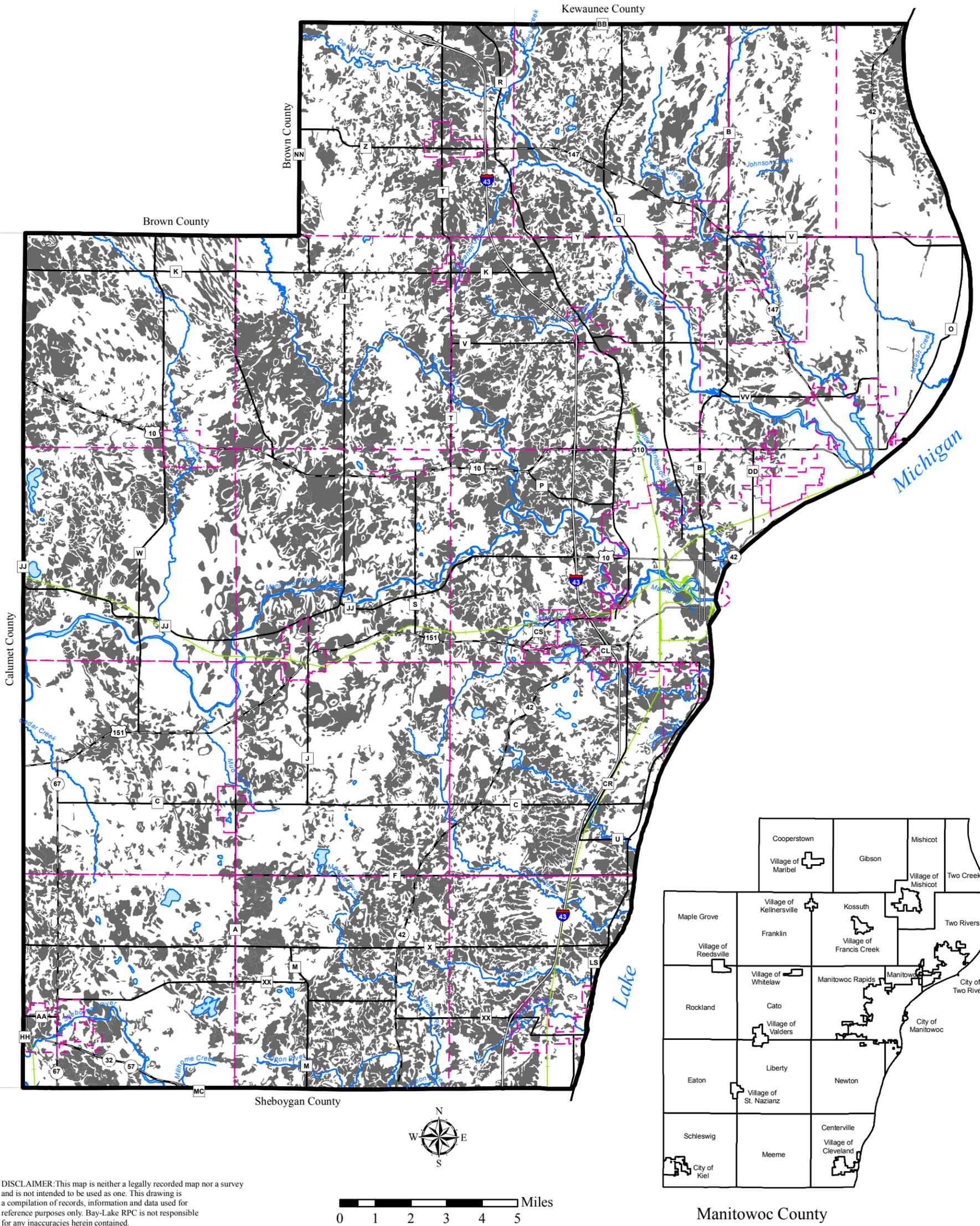
Base Map Features

- County Boundary
- Community Boundary
- Interstate Highway
- U.S. Highway
- State Highway
- County Highway
- Railroad
- Major Surface Water

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Source: FEMA, 1975-1998; DNR, 1991, 2005; NRCS, 2004;
WisDOT, 2007, 2008; Manitowoc County, 2008;
Bay-Lake Regional Planning Commission, 2009.

Prime Agricultural Soils

Manitowoc County, Wisconsin



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Prime Farmland

Base Map Features

- County Boundary
- Community Boundary
- Interstate Highway
- U.S. Highway
- State Highway
- County Highway
- Railroad
- Major Surface Water

Source: NRCS, 2004, 2009; DNR, 2005; WisDOT, 2007, 2008; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

CHAPTER 6 : POPULATION AND HOUSING

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INTRODUCTION

This section provides detailed population and housing data for Manitowoc County and its municipalities. The county’s population characteristics are instrumental in tracking past growth patterns in addition to predicting future population trends. Over time, these population figures directly influence Manitowoc County’s housing, education system, community and recreational facility capacities, and its future economic development opportunities.

The housing portion of this chapter provides an assessment of the current housing stock, structural, and occupancy characteristics. Details on future housing demands based on demographic projections for the county is also provided.

POPULATION CHARACTERISTICS

Historical Population Trends

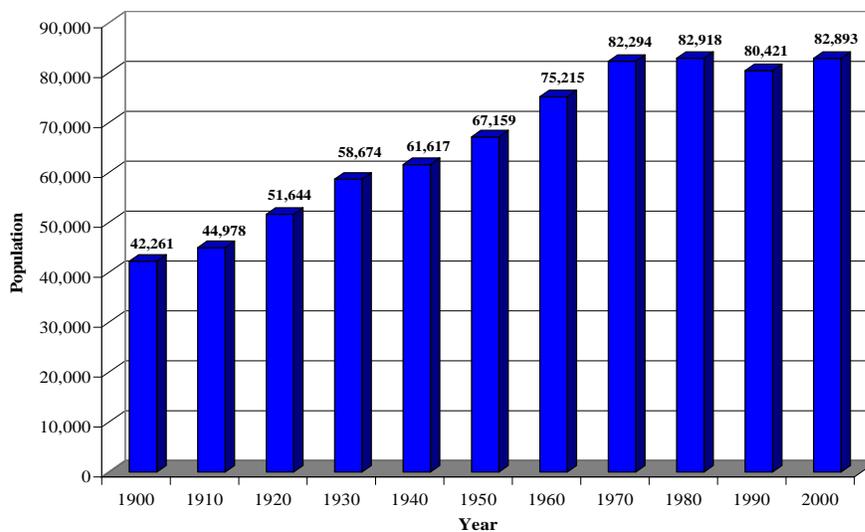
During the past century, Manitowoc County’s population increased by 96 percent or 40,632 persons. The county’s population increased every decade with the exception of a slight decline between 1980 and 1990.



The largest period of population increase in the county occurred between 1910 and 1920 with an increase of 14.8 percent.

Figure 6.1 illustrates Manitowoc County’s population change between the years of 1900 and 2000, while Table 6.1 displays the county’s population trends as well as the changes observed for Wisconsin during the same period. Historical population trends for all Manitowoc County communities can be found in Appendix B of *Volume II: Manitowoc County Resources*.

Figure 6.1: Historical Population Levels, Manitowoc County, 1900-2000



Source: U.S. Bureau of the Census, General Population Characteristics 1840-1970, Bay-Lake Regional Planning Commission, December 1975; Census 2000; and Bay-Lake Regional Planning Commission, 2009.

Table 6.1: Historical Population Levels, Manitowoc County and State of Wisconsin, 1900-2000

| Year | Manitowoc County | % Change From Previous Decade | Wisconsin | % Change From Previous Decade |
|------|------------------|-------------------------------|-----------|-------------------------------|
| 1900 | 42,261 | - | 2,069,042 | - |
| 1910 | 44,978 | 6.4 | 2,333,860 | 12.8 |
| 1920 | 51,644 | 14.8 | 2,632,067 | 12.8 |
| 1930 | 58,674 | 13.6 | 2,939,006 | 11.7 |
| 1940 | 61,617 | 5.0 | 3,137,587 | 6.8 |
| 1950 | 67,159 | 9.0 | 3,434,575 | 9.5 |
| 1960 | 75,215 | 12.0 | 3,951,777 | 15.1 |
| 1970 | 82,294 | 9.4 | 4,417,731 | 11.8 |
| 1980 | 82,918 | 0.8 | 4,705,642 | 6.5 |
| 1990 | 80,421 | -3.0 | 4,891,769 | 4.0 |
| 2000 | 82,893 | 3.1 | 5,363,715 | 9.6 |

Source: U.S. Bureau of the Census, General Population Characteristics 1840-1970, Bay-Lake Regional Planning Commission, December 1975; Census 2000; and Bay-Lake Regional Planning Commission, 2009.

Seasonal Population

The estimated seasonal population for Manitowoc County is determined by entering year 2000 Census figures into the following formula:

$$(Seasonal\ Housing\ Units * Persons\ per\ Household) = Estimated\ Seasonal\ Population$$

$$(518\ seasonal\ housing\ units) * (2.49\ persons\ per\ household) = 1,290\ seasonal\ county\ residents$$



The estimated seasonal populations for Manitowoc County and State of Wisconsin in 2000 are shown in Table 6.2.

Table 6.2: Estimated Seasonal Population, Manitowoc County and State of Wisconsin, 2000

| | Manitowoc County | Wisconsin |
|---------------------------------|------------------|-----------|
| Population | 82,887 | 5,363,675 |
| Persons Per Household | 2.49 | 2.50 |
| Total Seasonal Housing Units* | 518 | 142,313 |
| Estimated Seasonal Population** | 1,290 | 355,783 |

* Seasonal housing includes seasonal, recreational, or occasional use units, but does not include other vacant

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing and Bay-Lake Regional Planning Commission, 2009.

Age and Sex Distribution

School Age, Working Age, and Retirement Age

Table 6.3 divides the population of Manitowoc County into three age groups: school age (5-17), working age (16-64), and retirement age (65+). Similar information for each of the communities in Manitowoc County can be found in Appendix B of *Volume II: Manitowoc County Resources*.



The working age group accounted for nearly 78 percent of the county’s total population in 2000. When considering an average retirement age of 65 years and subtracting that group from the working age group, the figure drops to 62 percent.



In 2000, approximately 20 percent of the county’s total population was school age (5-17), while the retirement age group (65+) consisted of 16 percent of the county’s population.

Table 6.3: Population by Age Groups and Sex, Manitowoc County, 2000

| Age Groups | Total | Male | Female | Percent | Wisconsin Percent |
|-------------------------------|---------------|---------------|---------------|---------|-------------------|
| School Age | | | | | |
| 5-11 | 8,248 | 4,193 | 4,055 | 10.0 | 10.1 |
| 12-14 | 3,977 | 2,028 | 1,949 | 4.8 | 4.5 |
| 15-17 | 4,030 | 2,030 | 2,000 | 4.9 | 4.5 |
| Working and Voting Age | | | | | |
| 16+ | 64,453 | 31,614 | 32,839 | 77.8 | 77.5 |
| 16-64 | 51,450 | 26,320 | 25,130 | 62.1 | 64.4 |
| 18+ | 61,786 | 30,273 | 31,513 | 74.5 | 74.5 |
| 18-64 | 48,783 | 24,979 | 23,804 | 58.9 | 61.4 |
| Retirement Age | | | | | |
| 65+ | 13,003 | 5,294 | 7,709 | 15.7 | 13.1 |
| Total Population | 82,887 | 41,060 | 41,827 | | 5,363,715 |

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing, STF 1A, General Profile and Table P012; and Bay-Lake Regional Planning Commission, 2009.

Population Pyramids

Figure 6.2 illustrates Manitowoc County’s detailed population changes through population pyramids that compare age groups between males and females from 1980 to 2000. Manitowoc County’s population has experienced several shifts in its age distribution during this time span, generally showing a trend towards older age groups. Several indicators of the county’s aging population include:



The number of individuals ages 19 and under steadily declined from 1980 to 2000. In 1980, these combined age groups comprised 34 percent of the total population. Twenty years later, that percentage reduced to 28 percent.

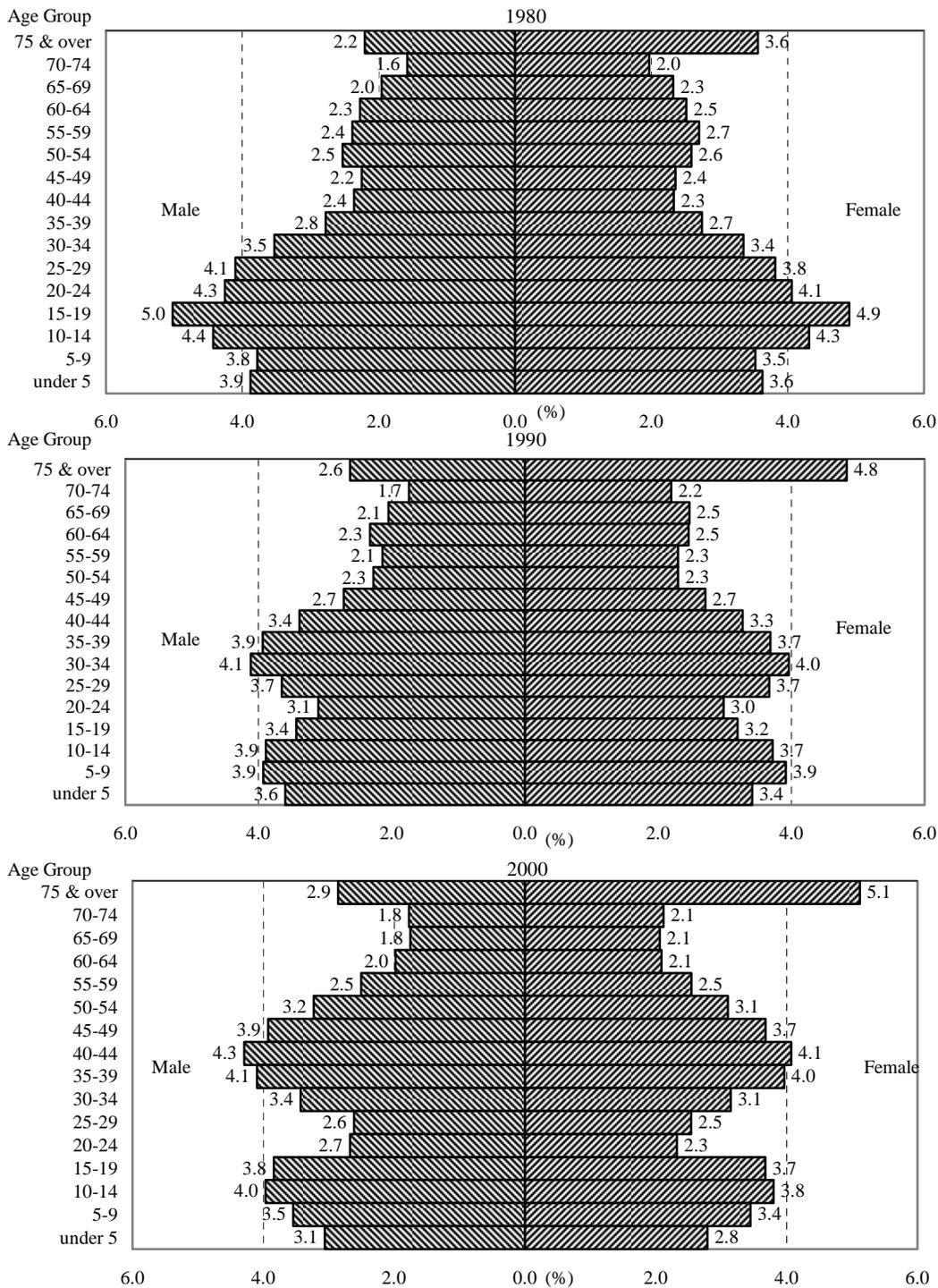


The number of individuals between the ages of 35 and 54 steadily increased. In 1980, 19 percent of the county’s population was comprised of individuals in this age group. However, by 2000, this group represented 30 percent of the total population.



The ratio of males to females in the county has been relatively equal from 1980 to 2000; however the number of females age 75 and over has consistently been higher than the number of males in the same age group.

Figure 6.2: Manitowoc County Population Pyramids, 1980-2000



Source: U.S. Bureau of the Census, 1980 Census of Population and Housing, STF 1A, Table 10; 1990 Census of Population and Housing, STF 1A, Table P012; 2000 Census of Population and Housing SF-1; and Bay-Lake Regional Planning Commission, 2009.

Median Age

The trend of an increasing median age needs to be considered when planning for the future needs of the county. An aging population generally demands additional community and specialized services such as housing, transportation, and care facilities for retirees and the elderly. Table 6.4 displays the gradual increase of median age for Manitowoc County and the State of Wisconsin from 1970 to 2000.

Table 6.4: Median Age, Manitowoc County and State of Wisconsin, 1970-2000

| Geographic Location | 1970 | 1980 | 1990 | 2000 |
|---------------------|------|------|------|------|
| Manitowoc County | 27.8 | 33.0 | 36.2 | 38.6 |
| Wisconsin | 27.2 | 29.4 | 32.9 | 36.0 |

Source: U.S. Bureau of the Census, Census of Population, General Population Characteristics, Wisconsin, 1970, Tables 33, 35; 1980 Table 14; 1990 STF 1A, General Profile; Census 2000 and Bay-Lake Regional Planning Commission, 2009.



Median age information for each community within Manitowoc County can be found in Appendix B of *Volume II: Manitowoc County Resources*.

Population Projections

Population projections are an important factor in assessing the impacts upon the area’s housing stock, as well as future need for housing, community facilities, transportation, and other facilities. They can also be used to forecast future community and county expenditures, revenues, and tax receipts.

In 2008, the Wisconsin Department of Administration (WDOA) Demographic Services Center prepared population projections to the year 2030 for each community and county in the State by utilizing a formula that calculates the annual population change over three varying time spans.



According to the WDOA formula, Manitowoc County is projected to have a population of 91,622 by 2030. This represents an increase of 8,729 persons, or 10.5 percent, from the 2000 Census count of 82,893 persons.

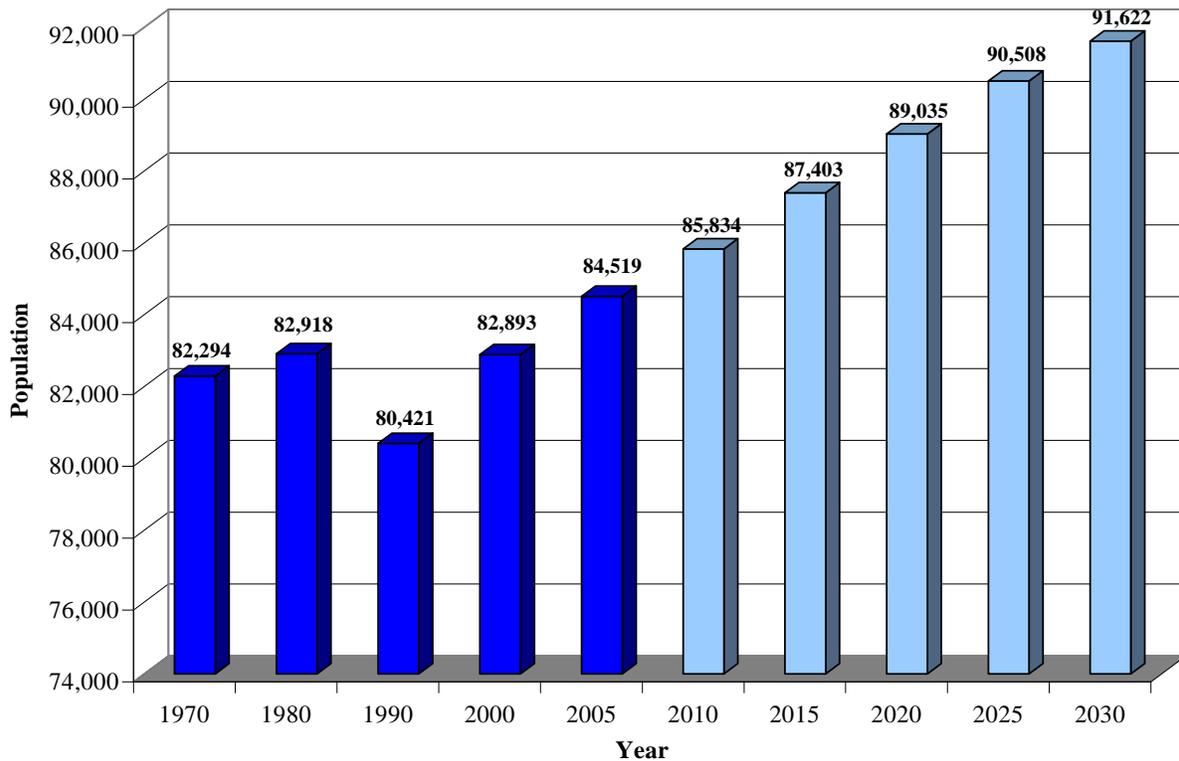
Table 6.5 identifies and Figure 6.3 displays the 2000 Census count and WDOA population projections for Manitowoc County. WDOA projections for all communities within Manitowoc County can be found in Appendix B of *Volume II: Manitowoc County Resources*.

Table 6.5: Population Projections, Manitowoc County and State of Wisconsin, 2005-2030

| Geographic Location | 2000 Census Population | WDOA Population Projections | | | | | | # Change 2000-2030 | % Change 2000-2030 |
|---------------------|------------------------|-----------------------------|-----------|-----------|-----------|-----------|-----------|--------------------|--------------------|
| | | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | | |
| Manitowoc County | 82,893 | 84,519 | 85,834 | 87,403 | 89,035 | 90,508 | 91,622 | 8,729 | 10.5 |
| Wisconsin | 5,363,675 | 5,589,920 | 5,772,370 | 5,988,420 | 6,202,810 | 6,390,900 | 6,541,180 | 1,177,505 | 22.0 |

Source: U.S. Bureau of the Census, Census of Population and Housing, 2000; Wisconsin Department of Administration, Official Population Projections, 2008; and Bay-Lake Regional Planning Commission, 2009.

Figure 6.3: Population Trends and Projections, Manitowoc County, 1970-2030



Source: U.S. Bureau of the Census, Census of Population and Housing, 1970-2000; Wisconsin Department of Administration, Official Population Projections, 2008; Bay-Lake Regional Planning Commission, 2009.

HOUSING CHARACTERISTICS

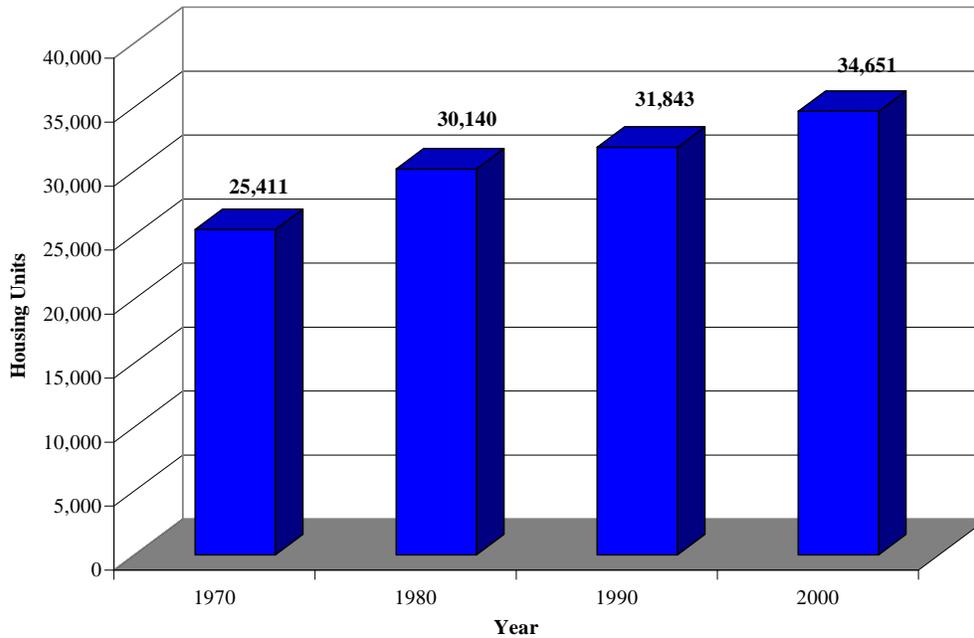
Total Housing Unit Levels by Decade

Total housing units for Manitowoc County between 1970 and 2000 are displayed in Figure 6.4 and Table 6.6. Total housing units between 1970 and 2000 for all communities within Manitowoc County can be found in Appendix B of *Volume II: Manitowoc County Resources*.



Between 1970 and 2000, the total number of housing units in Manitowoc County increased by 36 percent, with the largest growth occurring between 1970 and 1980 when 4,729 units were added.

Figure 6.4: Historic Housing Unit Levels, Manitowoc County, 1970-2000



Source: U.S Bureau of the Census, 1970 Census of Population and Housing, Series 100, Table 2; 1980 Census of Population and Housing, Table 45; 1990 Census of Population and Housing, STF 1A; State of Wisconsin Demographic Services Center, Table DP-1; and Bay-Lake Regional Planning Commission, 2009.

Table 6.6: Total Housing Units, Manitowoc County and State of Wisconsin, 1970-2000

| Geographic Location | Year | | | | Percent Change | | | |
|---------------------|-----------|-----------|-----------|-----------|----------------|-----------|-----------|-----------|
| | 1970 | 1980 | 1990 | 2000 | 1970-1980 | 1980-1990 | 1990-2000 | 1970-2000 |
| Manitowoc County | 25,411 | 30,140 | 31,843 | 34,651 | 18.6 | 5.7 | 8.8 | 36.4 |
| Wisconsin | 1,472,466 | 1,863,897 | 2,055,774 | 2,321,144 | 26.6 | 10.3 | 12.9 | 57.6 |

Source: U.S. Bureau of the Census, 1970 Census of Population and Housing, Series 100, Table 2; 1980 Census of Population and Housing, Table 45; 1990 Census of Population and Housing, STF 1A; Census 2000; and Bay-Lake Regional Planning Commission, 2009.

Housing Types - Units in Structure

According to the 2000 Census, one unit detached structures comprised nearly 72 percent of the total housing types in Manitowoc County (Table 6.7). Two units structure was the second largest housing type found in the county, accounting for 11 percent of the total housing units.

Table 6.7: Units in Structure, Manitowoc County and State of Wisconsin, 2000

| Units | Manitowoc County | | Wisconsin | |
|------------------|------------------|--------------|------------------|--------------|
| | Number | Percent | Number | Percent |
| 1 unit, detached | 24,890 | 71.8 | 1,531,612 | 66.0 |
| 1 unit, attached | 683 | 2.0 | 77,795 | 3.4 |
| 2 units | 3,831 | 11.1 | 190,889 | 8.2 |
| 3 or 4 units | 1,083 | 3.1 | 91,047 | 3.9 |
| 5 to 9 units | 830 | 2.4 | 106,680 | 4.6 |
| 10 to 19 units | 684 | 2.0 | 75,456 | 3.3 |
| 20 or more units | 1,259 | 3.6 | 143,497 | 6.2 |
| Mobile home | 1,383 | 4.0 | 101,465 | 4.4 |
| Other | 8 | 0.0 | 2,703 | 0.1 |
| Total | 34,651 | 100.0 | 2,321,144 | 100.0 |

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing, SF-1; and Bay-Lake Regional Planning Commission, 2009.

Housing Occupancy and Tenure

Housing occupancy and tenure for Manitowoc County and the State of Wisconsin are shown in Table 6.8. Similar figures for all communities in the county can be found in Appendix B of *Volume II: Manitowoc County Resources*.



Of Manitowoc County’s 32,721 occupied housing units, 24,856 were owner-occupied while 7,865 were renter-occupied.



There were a total of 1,930 vacant units in the county which includes 518 units used for seasonal, recreational, or occasional purposes.

Table 6.8: Housing Occupancy and Tenure, Manitowoc County and State of Wisconsin, 2000

| Geographic Location | Occupied | | | Vacant | | | Total Units | Percent Occupied | Percent Vacant |
|---------------------|-----------|---------|-----------|--|--------|---------|-------------|------------------|----------------|
| | Owner | Renter | Total | Seasonal, Recreational or Occasional Use | Other | Total | | | |
| Manitowoc County | 24,856 | 7,865 | 32,721 | 518 | 1,412 | 1,930 | 34,651 | 94.4 | 5.6 |
| Wisconsin | 1,426,361 | 658,183 | 2,084,544 | 142,313 | 94,287 | 236,600 | 2,321,144 | 89.8 | 10.2 |

Source: U.S. Bureau of the Census, and Bay-Lake Regional Planning Commission, 2009.

Household Relationship

The 2000 Census indicates that 81,449 of the people in Manitowoc County live in households, while the remaining 1,438 individuals reside in group quarters (e.g., jails, nursing homes college dormitories, military quarters, etc.). Table 6.9 details the household type where Manitowoc County’s population lives.

Table 6.9: Household Type and Relationship, Manitowoc County and State of Wisconsin, 2000

| Relationship | Manitowoc County | | State of Wisconsin | |
|----------------------|------------------|--------------|--------------------|--------------|
| | Number | Percent | Number | Percent |
| In Households | 81,449 | 98.3 | 5,207,717 | 97.1 |
| Householder | 32,721 | 39.5 | 2,084,544 | 38.9 |
| Spouse | 18,683 | 22.5 | 1,108,597 | 20.7 |
| Child | 25,122 | 30.3 | 1,577,549 | 29.4 |
| Other Relative | 1,749 | 2.1 | 158,295 | 3.0 |
| Non Relative | 3,174 | 3.8 | 278,732 | 5.2 |
| In Group Quarters | 1,438 | 1.7 | 155,958 | 2.9 |
| Institutionalized | 874 | 1.1 | 79,073 | 1.5 |
| Noninstitutionalized | 564 | 0.7 | 76,885 | 1.4 |
| Total Persons | 82,887 | 100.0 | 5,363,675 | 100.0 |

Source: U.S. Bureau of the Census, and Bay-Lake Regional Planning Commission, 2009.

Age of Housing

The age of housing stock identifies important issues such as amenities, size, and overall condition. Table 6.10 illustrates the Manitowoc County housing units, by year structure built.



Approximately 33 percent of the housing structures in Manitowoc County were built prior to 1940.



Between 1940 and 1990, an average of 3,690 housing units was added each decade. Structures added over this 50 year span account for approximately 53 percent of the housing structures in the county.



Between 1990 and March 2000, a total of 4,623 units were constructed that accounted for about 13 percent of the county's housing structures.

Table 6.10: Housing Units by Year Structure Built, Manitowoc County and State of Wisconsin, 2000

| Year Structure Built | Manitowoc County | | Wisconsin | |
|----------------------|------------------|------------|------------------|--------------|
| | Number | Percent | Number | Percent |
| 1999 to March 2000 | 548 | 1.6 | 50,735 | 2.2 |
| 1995 to 1998 | 2,090 | 6.0 | 170,219 | 7.3 |
| 1990 to 1994 | 1,985 | 5.7 | 168,838 | 7.3 |
| 1980 to 1989 | 2,588 | 7.5 | 249,789 | 10.8 |
| 1970 to 1979 | 5,053 | 14.6 | 391,349 | 16.9 |
| 1960 to 1969 | 3,516 | 10.1 | 276,188 | 11.9 |
| 1940 to 1959 | 7,291 | 21.0 | 470,862 | 20.3 |
| 1939 or earlier | 11,580 | 33.4 | 543,164 | 23.4 |
| Total | 34,651 | 100 | 2,321,144 | 100.0 |

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing, SF- 3; and Bay-Lake Regional Planning Commission, 2009.

Condition of Housing Stock

According to the Department of Commerce, the definition of a substandard unit is: *A housing unit which is in need of major repair or replacement in three or more of the following areas: roof, electrical, heating, plumbing, foundation/structure (including interior walls/floors/ceilings), siding, doors/windows and well/septic or water/sewer laterals.*



A large number of housing units built prior to 1960 may be an indicator of the overall condition of the housing stock in Manitowoc County. There are a total of 18,871 housing units built prior to 1960. According to the 2000 census, 252 housing units lack complete plumbing and kitchen facilities which indicate that these housing units are substandard.

Housing Values

It is important to provide a range of housing values to meet the needs of people of different income levels. A mix housing development should be considered to provide support for the economic growth in the county.

Table 6.11 illustrates the housing values of specified owner-occupied in Manitowoc County.



In 2000, the majority of Manitowoc County’s housing units (nearly 53 percent) were valued between \$50,000 and \$99,999. The median value of specified owner-occupied housing units was nearly \$91,000.

Table 6.11: Values of Specified Owner-Occupied Housing Units, Manitowoc County and State of Wisconsin, 2000

| Value* | Manitowoc County | | Wisconsin | |
|------------------------|------------------|--------------|------------------|--------------|
| | Number | Percent | Number | Percent |
| Less than \$50,000 | 1,434 | 7.3 | 73,450 | 6.5 |
| \$50,000 to \$99,999 | 10,440 | 52.9 | 396,893 | 35.4 |
| \$100,000 to \$149,999 | 5,040 | 25.5 | 343,993 | 30.6 |
| \$150,000 to \$199,999 | 1,765 | 8.9 | 173,519 | 15.5 |
| \$200,000 to \$299,999 | 811 | 4.1 | 95,163 | 8.5 |
| \$300,000 to \$499,999 | 200 | 1.0 | 30,507 | 2.7 |
| \$500,000 to \$999,999 | 41 | 0.2 | 7,353 | 0.7 |
| \$1,000,000 or more | 22 | 0.1 | 1,589 | 0.1 |
| Total Units | 19,753 | 100.0 | 1,122,467 | 100.0 |
| Median Value | \$90,900 | | \$112,200 | |

*Note: Census housing values may not be the actual assessed values; they are based on what the homeowner perceives the housing unit is worth.

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing, SF-3; and Bay-Lake Regional Planning Commission, 2009.

Housing Costs - Rents and Mortgage

Providing affordable housing which meets the needs of current and future Manitowoc County residents is an important element of planning. Housing number, type, and location greatly impacts the economic development, transportation, utilities, natural features, and various other aspects of a community.

According to the U.S. Department of Housing and Urban Development (HUD), **housing affordability** is defined as paying no more than 30 percent of household income for housing.

Rent and Income Comparison

According to the 2000 Census, the median gross rent for renter-occupied housing units in Manitowoc County was \$433.



1,877 renters out of 7,665 specified renter-occupied housing units paid more than 30 percent of their 1999 household income in gross rent. These 24 percent of renters are considered to be living in non-affordable housing.

Owner Costs and Income Comparison

For owner-occupied housing units with a mortgage in 1999, the median monthly owner cost in the county was \$860. For owner-occupied units without a mortgage, the median monthly cost was \$283.



The 2000 census indicates that 2,837 owners out of 19,753 specified owner-occupied housing units paid more than 30 percent of their 1999 income for monthly owner costs. This 14 percent of owners are considered to be living in non-affordable housing.

Housing Projections**Projected Occupied Housing Units**

Three methods were used to determine possible housing projections to the year 2030 for Manitowoc County. Methods one and two used the year 2000 “occupied housing” count of 32,723 units as a base figure. Method three used the January 2008 WDOA household projections. Table 6.12 and Figure 6.5 illustrate the three household projections for Manitowoc County. The WDOA household projections for each community in Manitowoc County are listed in Appendix B of *Volume II: Manitowoc County Resources*.



Growth Trend - Using the census “occupied” housing counts from 1970 to 2000, a “growth trend” was created to the year 2030. The projection indicated the county would have a total of 41,940 total occupied housing units in 2030, or an increase of 9,217 occupied housing units from the 2000 Census.



Linear Trend - A “linear trend” to the year 2030 also utilizes the census “occupied” housing counts from 1970 to 2000. This method indicated Manitowoc County would have 39,604 total occupied housing units or an increase of 6,881 occupied housing units by 2030.



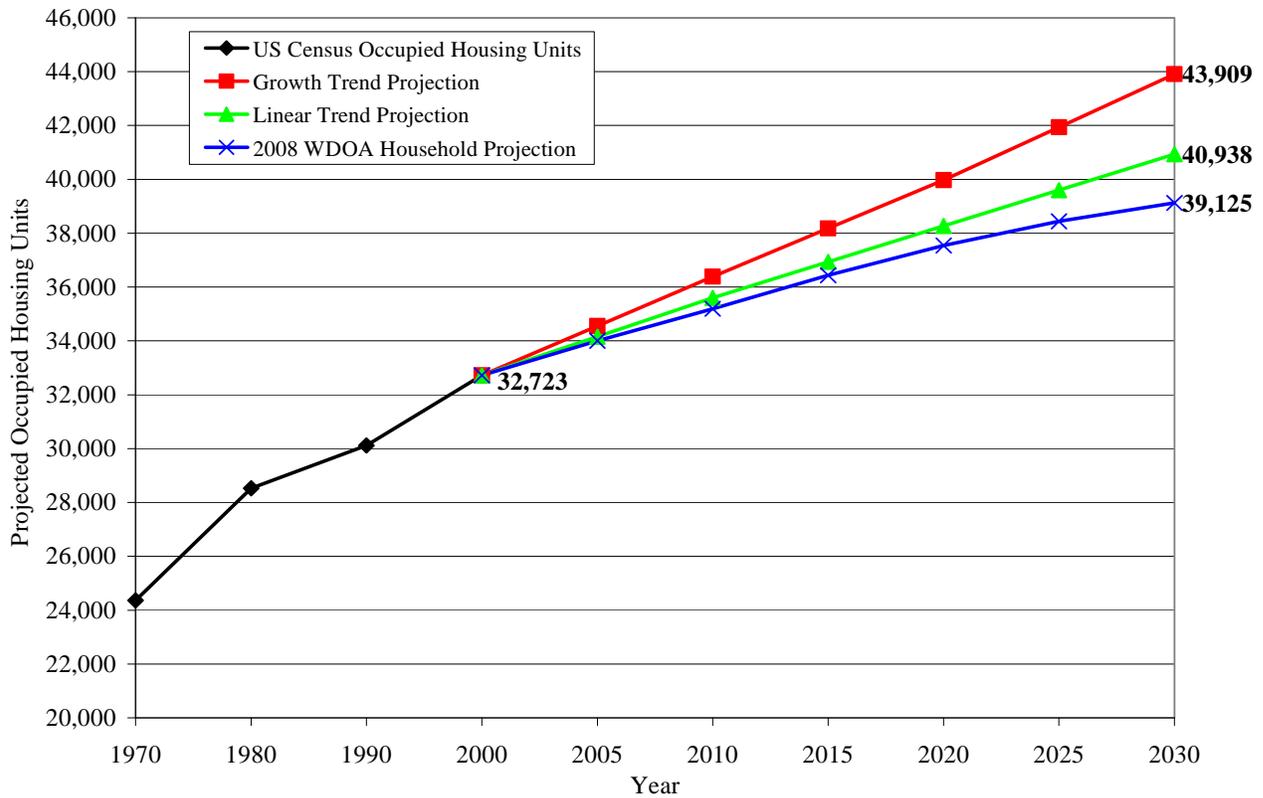
2008 WDOA Household Projections - In 2008, the Wisconsin Department of Administration, Demographic Services Center prepared WDOA Household Projections for Wisconsin Municipalities to the year 2030. This projection indicates an increase of 5,560 occupied housing units by 2030.

Table 6.12: Occupied Housing Unit Trends & Projections 1970-2030

| Manitowoc County | 1970 | 1980 | 1990 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| US Census Occupied Housing Units | 24,357 | 28,525 | 30,112 | 32,723 | | | | | | |
| Growth Trend Projection | | | | 32,723 | 34,554 | 36,384 | 38,177 | 39,970 | 41,940 | 43,909 |
| Linear Trend Projection | | | | 32,723 | 34,162 | 35,601 | 36,935 | 38,269 | 39,604 | 40,938 |
| 2008 WDOA Household Projection | | | | 32,723 | 34,000 | 35,199 | 36,439 | 37,546 | 38,440 | 39,125 |

Source: Wisconsin Department of Administration, 2008 and Bay-Lake Regional Planning Commission, 2009.

Figure 6.5: Occupied Housing Unit Trends & Projections, 1970-2030



Source: U.S. Bureau of the Census, 1970 Census of Population and Housing, Series 100, Table 2; 1980 Census of Population and Housing, Table 45; 1990 Census of Population and Housing, STF 1A; 2000 Census of Population and Housing, Table DP-1; Wisconsin Department of Administration Final Household Projections for Wisconsin Municipalities, 2000 – 2030, January 2008 ; and Bay-Lake Regional Planning Commission, 2009.

Subsidized and Special Needs Housing

Housing for seniors and special needs population are concentrated in the urbanized area such as the cities of Manitowoc and Two Rivers. However, the county does provide services for seniors and special needs population through the Manitowoc County Aging and Disability Resource Center.



In the county, agencies such as Lakeshore CAP and Manitowoc County Habitat for Humanity help locate, finance, and develop housing for persons with various physical and mental disabilities or other special needs.



State and federal agencies that help individuals or families with housing needs include the Wisconsin Housing and Economic Development Authority (WHEDA), U.S. Department of Housing and Urban Development, and USDA Rural Development.

Appendix B of *Volume II: Manitowoc County Resources* provides more information on available housing programs and organizations.

Housing Development Environment

Manitowoc County has plenty of land for housing development; however, each community within the county needs to plan appropriately to provide for orderly growth while supplying services to its residents. Communities located in rural areas have limited public utilities and services, however many other features in Manitowoc County can offer current and future residents the opportunity to live, work, and raise a family.



Manitowoc County has a scenic landscape that is comprised of farm fields, rolling hills, and majestic bluffs overlooking miles of Lake Michigan shoreline.



The county also contains a quality road system which is complemented by Interstate Highway 43, providing good access to major surrounding metropolitan areas.

CHAPTER 7 : ECONOMIC DEVELOPMENT

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INTRODUCTION

The economic development element provides an assessment of the county's labor force and economic base. The county's labor force characteristics include information on educational attainment, unemployment rates, and industry and employment forecasts. A review of the county's economic base consists of revenues by industry, location quotient analysis, and an analysis of community finances. This chapter also contains a summary of the county's economic strengths and weaknesses with respect to attracting and retaining businesses, and whether or not there is sufficient land and sites available for such businesses and industries.

The purpose of this inventory is to establish a set of strategies consisting of a set of goals, objectives, policies, and programs; to promote the retention and expansion of Manitowoc County's economy. These strategies (located in Chapter 2) work in conjunction with the General Plan Designs and land use recommendations detailed in Chapter 3 of the Manitowoc County and local comprehensive plans.

ECONOMIC DEVELOPMENT COMPONENTS

For Manitowoc County to maintain a strong, growing economy, economic development activities must function as a part of the entire socio-economic environment. This is accomplished through the development of strategies linked to four primary economic development components: 1) *infrastructure development*; 2) *business development*; 3) *workforce development*; and 4) *community cash flow*. These components in-turn consist of several individual elements that influence the quality and effectiveness of economic development within the county.

Infrastructure Development

Infrastructure provided by both government and private business is backbone for the production and delivery of goods and services. Examples include:

- Utilities (e.g., water, sanitary and storm sewer, gas, electric, natural gas)
- Transportation (e.g., roads, parking lots, airports, ports, rail, signage, sidewalks, trails)
- Social (e.g., schools, hospitals, libraries, emergency)
- Communications (e.g., telephone, radio, television, computer, satellite, cellular)

Business Development

Business development refers to business retention, expansion, attraction, and start-up activities.

- *A business retention and expansion* program should identify and monitor existing and changing needs of core industry employers. It is important to appropriately remove or offset any obstacles that restrict growth of existing businesses. Most often, business retention activities include establishment of workforce development programs, increasing access to technology, and providing valuable information critical to making business decisions.
- *Business attraction* activities are designed to encourage businesses looking to expand or relocate in Manitowoc County. Given the competitive economic development climate, a well

defined marketing plan is critical in successfully attracting businesses to the county. The plan should promote the unique qualities of the county, local economic development initiatives, as well as highlights from the general business climate, key quality of life elements, skill level of the workforce, incentives, available green sites and buildings, and existing infrastructure.

- *Entrepreneurship and new business development* helps grow and diversify the county's economic base. Building an effective support system for promising businesses is an important responsibility of the county's economic development responsibilities.

Workforce Development

Manitowoc County needs a highly skilled and educated workforce to stay competitive, keep existing businesses strong, retain young people in the county, and raise the area's income and general standard of living. Workforce development programs are primarily provided through partnerships with local development organizations, job centers, school districts, and institutions of higher education. Occasionally, local employers will provide instructors and equipment for use in these training programs. Companies have found it more economical to share training resources and facilities with other employers than to conduct training programs internally. The result is a better working relationship among those businesses participating in such collaborative training programs.

Community Cash Flow

As Manitowoc County pursues new dollars coming into the county, it can look at two primary sources: money brought in by individuals, and money brought in by organizations, businesses and governments.

- New dollars brought in by individuals consist of earned income (wages and salary) and transfer income (government payments and investment dividends).
- New dollars brought in by entities or institutions cover a wide range of sources to include tourism revenue, aids for roads and human services, shared revenue, and government contracts or grants.

LABOR FORCE CHARACTERISTICS

A key component to economic development is the quality and quantity of the area's labor force. This section focuses on several characteristics of the county's labor force including information on education levels; incomes; the types of occupations in which individuals are employed; the types of business in which people are working; commuting patterns; unemployment rates; labor participation rates; and a review of how these characteristics influence the region's employment forecast.

Educational Attainment

The education levels attained by the county's residents are often a good indicator of the type and quality of jobs and the general standard of living found locally. Table 7.1 illustrates the levels of educational attainment for individuals age 25 and over in Manitowoc County. Educational attainment for persons age 25 and over in all Manitowoc County communities can be found in Appendix C of *Volume II: Manitowoc County Resources*.



The percentage of individuals who have at a minimum a high school diploma in Manitowoc County is 43 percent, which is significantly better than the State average of nearly 35 percent.



Approximately 23 percent of Manitowoc County’s residents have an education degree higher than high school (i.e., Associate degree or higher).

Table 7.1: Educational Attainment (Age 25 and Over), Manitowoc County and State of Wisconsin, 2000

| Education Level | Manitowoc County | | Wisconsin | |
|---|------------------|---------|-----------|---------|
| | Number | Percent | Number | Percent |
| Less than 9th Grade | 3,697 | 6.7 | 186,125 | 5.4 |
| 9th to 12th grade, no diploma | 4,865 | 8.8 | 332,292 | 9.6 |
| High school graduate (includes equivalency) | 23,853 | 43.0 | 1,201,813 | 34.6 |
| Some college, no degree | 10,359 | 18.7 | 715,664 | 20.6 |
| Associate degree | 4,099 | 7.4 | 260,711 | 7.5 |
| Bachelor's degree | 6,273 | 11.3 | 530,268 | 15.3 |
| Graduate or professional degree | 2,306 | 4.2 | 249,005 | 7.2 |
| Percent high school graduate or higher | | 84.6 | | 85.1 |
| Percent bachelor's degree or higher | | 15.5 | | 22.4 |

Source: U.S. Bureau of the Census, 2000 Census, DP-2; and Bay-Lake Regional Planning Commission, 2009.

Median Household Income

The median household income is a good indicator of the general economic well-being of all households in the county.

Table 7.2 provides a comparison of median household incomes for Manitowoc County and the State of Wisconsin for 1989 and 1999. Median household incomes for all Manitowoc County communities can be found in Appendix C of *Volume II: Manitowoc County Resources*.



The 1999 median household income for Manitowoc County was \$43,286 compared to \$27,467 in 1989. This represents an encouraging 58 percent increase for the county during that ten year time span.



The county’s median income of \$43,286 in 1999 is comparable with the State’s median income of \$43,791 for the same year.

Table 7.2: Median Household Income, Manitowoc County and State of Wisconsin, 1989 and 1999

| Location | 1989 | 1999 | Percent Change |
|------------------|--------|--------|----------------|
| Manitowoc County | 27,467 | 43,286 | 57.6 |
| Wisconsin | 29,442 | 43,791 | 48.7 |

Source: U.S. Bureau of the Census, 1990 Census of Population and Housing, STF 3A Table P080A; U.S. Bureau of the Census, 2000, DP-3; and Bay-Lake Regional Planning Commission, 2009.

Occupation

Table 7.3 lists the employed persons by occupational classification for Manitowoc County in 2000. Employed persons by occupation for all Manitowoc County communities can also be found in Appendix C of *Volume II: Manitowoc County Resources*. The employment opportunities for many of the county's residents are located within the communities that comprise the Green Bay Metropolitan Area.



In 2000, the majority of Manitowoc County residents were employed in production, transportation, and material moving occupations (30 percent); or management, professional and related service fields (24 percent). The county's large public school systems, Manitowoc County, hospitals, and several larger manufacturers may explain why 58 percent of the county's residents work in occupations within the management, professional, service and sales fields.

Table 7.3: Employed Persons by Occupation, Manitowoc County and State of Wisconsin, 2000

| Occupation | Manitowoc County | | Wisconsin | |
|---|------------------|--------------|------------------|------------|
| | Number | Percent | Number | Percent |
| Management, professional, and related | 10,448 | 24.3 | 857,205 | 31.3 |
| Service | 5,793 | 13.5 | 383,619 | 14.0 |
| Sales and office | 8,880 | 20.7 | 690,360 | 25.2 |
| Farming, fishing, and forestry | 820 | 1.9 | 25,725 | 0.9 |
| Construction, extraction, and maintenance | 4,264 | 9.9 | 237,086 | 8.7 |
| Production, transportation, and material moving | 12,748 | 29.7 | 540,930 | 19.8 |
| Total | 42,953 | 100.0 | 2,734,925 | 100 |

Source: U.S. Bureau of the Census, 2000 Census, DP-3; and Bay-Lake Regional Planning Commission, 2009.

Industry

Table 7.4 and Figure 7.1 illustrate employment by major industry group for Manitowoc County.



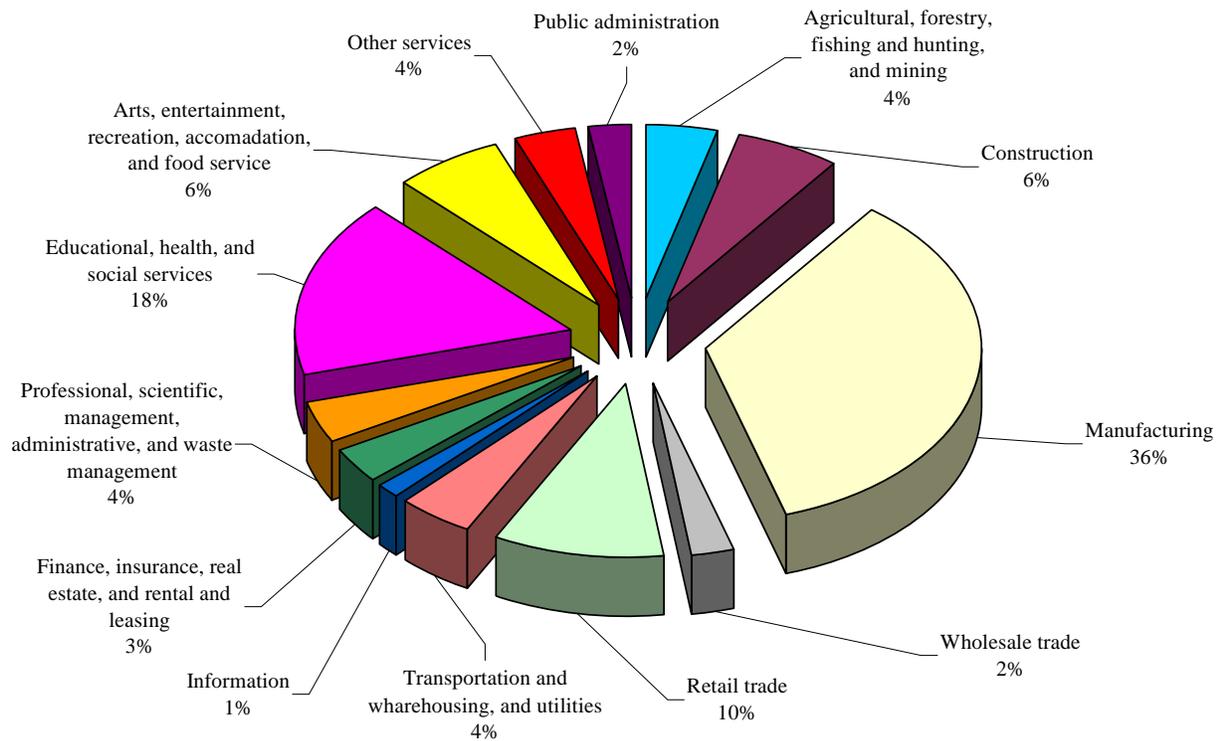
In 2000, 35 percent of employed county residents worked in manufacturing followed by educational, health and social services at 17 percent.

Table 7.4: Employed Persons by Industry Group, Manitowoc County and State of Wisconsin, 2000

| Industry | Manitowoc County | | Wisconsin | |
|--|------------------|--------------|------------------|--------------|
| | Number | Percent | Number | Percent |
| Agricultural, forestry, fishing and hunting, and mining | 1,814 | 4.2 | 75,418 | 2.8 |
| Construction | 2,566 | 6.0 | 161,625 | 5.9 |
| Manufacturing | 15,123 | 35.2 | 606,845 | 22.2 |
| Wholesale trade | 1,052 | 2.4 | 87,979 | 3.2 |
| Retail trade | 4,287 | 10.0 | 317,881 | 11.6 |
| Transportation and warehousing, and utilities | 1,910 | 4.4 | 123,657 | 4.5 |
| Information | 618 | 1.4 | 60,142 | 2.2 |
| Finance, insurance, real estate, and rental and leasing | 1,392 | 3.2 | 168,060 | 6.1 |
| Professional, scientific, management, administrative, and waste management | 1,642 | 3.8 | 179,503 | 6.6 |
| Educational, health, and social services | 7,209 | 16.8 | 548,111 | 20.0 |
| Arts, entertainment, recreation, accomadation, and food service | 2,714 | 6.3 | 198,528 | 7.3 |
| Other services (except public administration) | 1,594 | 3.7 | 111,028 | 4.1 |
| Public administration | 1,032 | 2.4 | 96,148 | 3.5 |
| Total | 42,953 | 100.0 | 2,734,925 | 100.0 |

Source: U.S. Bureau of the Census, 2000 Census, DP-3; and Bay-Lake Regional Planning Commission, 2009.

Figure 7.1: Percent Employment by Industry Group, Manitowoc County, 2000



Source: U.S. Bureau of the Census, 2000 Census, DP-3; and Bay-Lake RPC, 2009.

Commuting Patterns

Identifying and tracking commuting patterns is a labor market concept that refers to worker flows between municipalities and/or counties. These commuting patterns highlight the counties that have a strong economic base and are able to attract workers from surrounding communities and counties. Conversely, it demonstrates which areas lack local employment opportunities for their residents, or perhaps serve as “bedroom” communities with more affordable housing options in comparison to other locations.



In 2000, approximately 80 percent (33,840) of the 42,406 employed Manitowoc County residents worked within Manitowoc County (Table 7.5).



In the same year, 8,566 working residents of Manitowoc County commuted out of the county for work, whereas 3,880 workers from other counties traveled into Manitowoc County to work. The result is a net loss of 4,686 Manitowoc County working age residents to other counties for employment.



7,219 Manitowoc County residents traveled to the neighboring counties of Sheboygan, Calumet, and Brown for work. In comparison, only 2,730 individuals from those same areas traveled to Manitowoc County for employment.

Table 7.5: County-to-County Worker* Flow, Manitowoc County, 2000

| County | County Residents Commute to | County Workers Commute from | Net Commute |
|---------------------|-----------------------------|-----------------------------|---------------|
| Sheboygan | 3,676 | 1,199 | -2,477 |
| Calumet | 1,968 | 713 | -1,255 |
| Brown | 1,575 | 818 | -757 |
| Kewaunee | 292 | 427 | 135 |
| Outagamie | 281 | 100 | -181 |
| Winnebago | 136 | 21 | -115 |
| Milwaukee | 129 | 75 | -54 |
| Fond du Lac | 73 | 79 | 6 |
| Elsewhere | 436 | 448 | 12 |
| Total | 8,566 | 3,880 | -4,686 |
| Work w/in Manitowoc | 33,840 | | |

*Workers 16 years old and older
 Source: U.S. Census Bureau, 2000; WDOA; BLRPC, 2009.

Unemployment Rate

The unemployment rate is the proportion of the civilian labor force that is currently unemployed and actively seeking employment. Persons not employed and not looking for work are not counted as part of the labor force; therefore, they are not counted as unemployed. Table 7.6 and Figure 7.2 highlight the changers in Manitowoc County’s civilian labor force since 1998. Variations in the number of persons in the labor force are the result of many factors including, shifts in the age and sex characteristics of the population; the proportion of citizens age 16 and over working or seeking employment; and seasonal occupations.

Companies looking to expand operations frequently inquire about areas with higher unemployment rates, or excess labor, from which to draw labor. One of the major criteria

companies use in selecting an area in which to locate is the amount of available labor that is already skilled, or has the potential for obtaining the skills employers are seeking for their particular operations.



Based on WDOA population estimates, the civilian labor force comprised 54 percent of Manitowoc County’s population in 1998 and 53 percent in 2008.



Between 1998 and 2008 the county’s unemployment rate amongst the civilian labor force averaged 4.9 percent. The county’s unemployment rate of 3.2 percent in 2000 was the lowest during this time span, whereas the 2003 unemployment rate of 6.9 percent was the highest during this time period (Figure 7.2). The closing of the Mirro Plant in the City of Manitowoc had a significant impact not only on the county’s unemployment rate, but also the continued decline in the civilian workforce.



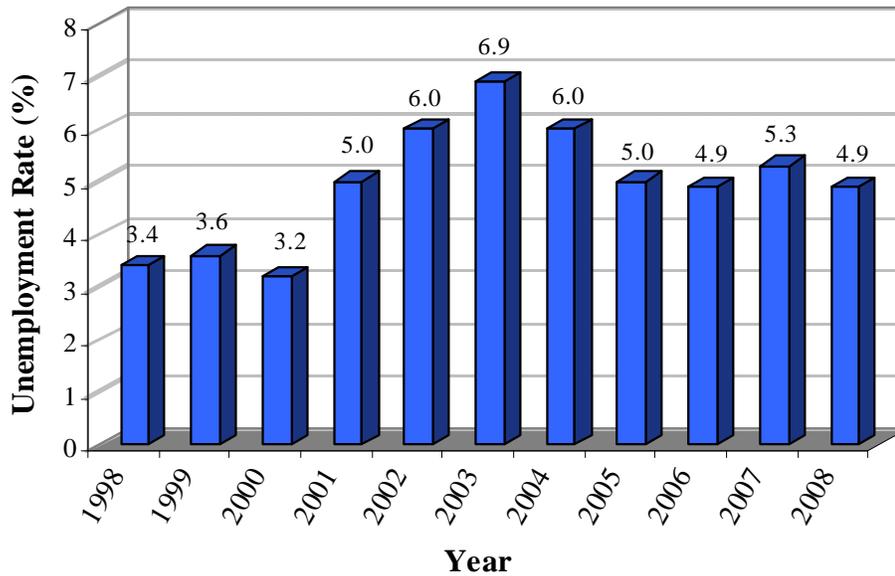
The number of employed Manitowoc County residents declined by 1,811 workers from 1998 and 2008, as individuals sought employment in neighboring communities after the closing or downsizing of some of the county’s larger employers.

Table 7.6: Average Civilian Labor Force Estimates, Manitowoc County, 1998-2008

| Year | Total Civilian Labor Force | Employed | Unemployed | % Civilian Labor Force Unemployed |
|------|----------------------------|----------|------------|-----------------------------------|
| 1998 | 45,778 | 44,226 | 1,552 | 3.4 |
| 1999 | 44,926 | 43,324 | 1,602 | 3.6 |
| 2000 | 47,189 | 45,674 | 1,515 | 3.2 |
| 2001 | 47,541 | 45,149 | 2,392 | 5.0 |
| 2002 | 46,232 | 43,443 | 2,789 | 6.0 |
| 2003 | 46,692 | 43,488 | 3,204 | 6.9 |
| 2004 | 45,631 | 42,882 | 2,749 | 6.0 |
| 2005 | 45,395 | 43,138 | 2,257 | 5.0 |
| 2006 | 45,519 | 43,267 | 2,252 | 4.9 |
| 2007 | 46,110 | 43,657 | 2,453 | 5.3 |
| 2008 | 44,603 | 42,415 | 2,188 | 4.9 |

Source: Wisconsin Department of Workforce Development, Civilian Labor Force Estimates, for years cited; and Bay-Lake Regional Planning Commission, 2009.

Figure 7.2: Unemployment Rate, Manitowoc County, 1998-2008



Source: Wisconsin Department of Workforce Development, Civilian Labor Force Estimate, 1998-2008; and Bay-Lake Regional Planning Commission, 2009.

Labor Participation Rate

According to the Wisconsin Department of Workforce Development, approximately 69 percent of Manitowoc County's population, age 16 and older, were in the labor force as of 2005. This percentage is referred to as the labor force participation rate (LFPR). The LFPR is a strong economic measure that is sometimes a better indicator of the area's labor market health than its unemployment rate. Manitowoc's LFPR of 69 percent was just below Wisconsin's LFPR of 70 percent, but higher than the national rate of 67 percent.

As outlined in the Population and Housing element (Chapter 6), Manitowoc County currently has a slightly older than average population in comparison to the State of Wisconsin. This is projected to continue as individuals age 65 and over comprise a larger percentage of the population, while the younger portion of the population decreases proportionately. From a labor market perspective, the implications of a declining labor force participation rate, due to a growing and aging population, points to future labor shortages in certain industries and occupations.

Industry and Employment Forecast

Industry and employment projections have been developed from the year 2002 to 2012 for the ten county Bay Area Workforce Development district which consists of Brown, Door, Florence, Kewaunee, Manitowoc, Marinette, Menominee, Oconto, Shawano, and Sheboygan counties. According to the Wisconsin Department of Workforce Development:

- Overall total non-farm employment in the region will increase by 12 percent or 35,980 new jobs.

- Manufacturing is currently the largest employing industry sector in the region and will remain the largest industry sector through 2012. Although manufacturing jobs will continue to increase, the rate of increase will slow down.
- Occupations in manufacturing are expected to move away from general labor positions to more semi-skilled and skilled operator and technician jobs. This is due primarily to production processes that have integrated more efficient technology.
- The education and health services sector is projected to show the largest numeric employment growth by adding 12,620 jobs from 2002 to 2012.
- Goods producing industry sectors such as construction, mining, natural resources, and manufacturing will decline slightly, from 31 percent total employment to 29 percent by 2012.
- The leisure and hospitality industry will demonstrate strong growth by adding nearly 3,600 new jobs by 2012.

Local Employment Forecast

- From 1990 to 2000, the manufacturing and the educational, health, and social services industries continued to have the largest share of employment for residents of Manitowoc County as seen in Table 7.4. This county trend does follow the regional trend, and is expected to continue for the next several years.
- According to the Wisconsin Department of Workforce Development, there are a number of occupations that will be in greater demand by the year 2012. They include:
 - Teachers
 - Waiters and Waitresses
 - Machinists
 - Welders, Cutters, Solderers, and Brazers
 - Registered Nurses
 - Nursing Aids, Orderlies, and Attendants
 - Truck Drivers



Lakeshore Technical College, University of Wisconsin-Manitowoc, Silver Lake College, and other area institutions of higher education will be instrumental in educating the area’s workforce for these growing fields.

ECONOMIC BASE

Revenues by Industry

Table 7.7 and Figure 7.3 provide an overview of how much each industry contributes to the overall Manitowoc County economy. Please note, agriculture is mentioned later in this section.

Manufacturing continues to be one of the primary industries for the county’s economy by contributing over \$520 million, or nearly 40 percent, of the total income provided by all seven industry classifications. The transportation and utilities industry grew a healthy 407 percent during this 20 year time period. Overall, income from all industries rose a robust 167 percent from 1980 to 2000, indicating the local economy is strong and growing.

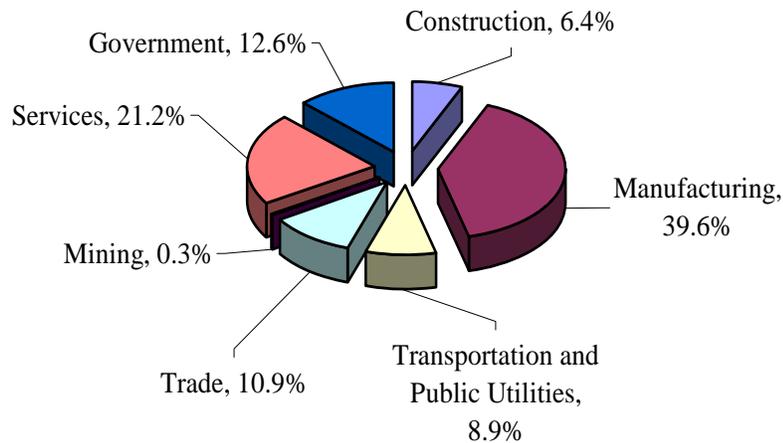
Table 7.7: Income by Industry Type*, Manitowoc County, 1980-2000

| Area | 1980 | 1990 | 2000 | Percent Change |
|-------------------------------------|------------------|------------------|--------------------|----------------|
| Mining | \$2,940 | \$3,202 | \$4,671 | 58.9 |
| Construction | \$25,872 | \$45,240 | \$84,297 | 225.8 |
| Manufacturing | \$246,597 | \$342,584 | \$520,726 | 111.2 |
| Transportation and Public Utilities | \$22,992 | \$50,599 | \$116,549 | 406.9 |
| Trade | \$68,557 | \$99,349 | \$143,059 | 108.7 |
| Services | \$74,229 | \$147,118 | \$278,286 | 274.9 |
| Government | \$51,230 | \$104,665 | \$165,749 | 223.5 |
| Total | \$492,417 | \$792,757 | \$1,313,337 | 166.7 |

*Figures Provided in Thousands

Source: Wisconsin Department of Commerce 2009.

Figure 7.3: Percent Revenue by Industry Type, Manitowoc County, 2000



Source: Wisconsin Department of Commerce 2009.

Agriculture

According to a 2004 UW-Extension report entitled, *Manitowoc County Agriculture: Value and Economic Impact*, agriculture:

- Provided jobs for 6,061 county residents, or 13 percent, of the county’s entire workforce.
- Contributed \$836 million, or 17 percent of the county’s total economic activity, and nearly 10 percent of the county’s total income. Of this \$836 million, \$592 million is the result of the sale of all farm and value-added products, \$199 million in business to business purchases, and \$46 million in the spending of earnings of those in agriculture related occupations.
- Paid nearly \$19 million in taxes (not including all property taxes paid to local schools).

The county’s milk producers and dairy industry contribute over \$444 million to the county’s economy. The on-farm production and sale of milk accounts for \$124 million, whereas milk processing accounts for an additional \$319 million. Currently, there are six plants processing dairy products in Manitowoc County.

The production of landscape trees and plants, as well as landscape and grounds maintenance, are rapidly growing segments of Manitowoc County's agricultural industry. Horticulture generates over \$7 million in county economic activity, and provides for 166 full-time and many seasonal jobs.

Tourism

Situated on Lake Michigan, Manitowoc County is strategically located adjacent to one of Wisconsin's most valuable recreational and economic assets. The county has plenty to offer everyone – the outdoor enthusiast, people interested in cultural/historical attractions, and those individuals seeking unique shopping venues. Businesses that cater to tourism such as motels, campgrounds, bed and breakfast's, and retail stores, are expanding services to meet the diverse needs of the thousands of people who come to the county to take advantage of the walking and biking trails, various parks, historic sites, and other area attractions.



Source: www.mchistsoc.org

The following information was taken from the Wisconsin Department of Tourism's 2006 Tourism Economic Impact Study conducted by Davidson-Peterson Associates, Inc. The statistics gathered from the three survey components were analyzed, averaged, and applied county by county using standard economic modeling.

- In 2006, Manitowoc County ranked 26th in the state for traveler spending down from 25th in 2004.
- Travelers spent an estimated \$132 million in Manitowoc County in 2006, up from \$127 million in 2005.
- Sixteen percent of all expenditures were made in the winter, which amounted to \$21 million; 20 percent were made in the spring (\$26 million); 37 percent in the summer (\$49 million) and 27 percent in the fall (\$36 million).
- It is estimated that employees earned \$65 million in wages generated from tourist spending.
- Traveler spending in 2006 supported 3,097 full-time equivalent jobs, up from 2,980 in 2005.
- Local revenues (property taxes, sales taxes, lodging taxes, etc.) collected as a result of travelers amounted to an estimated \$5.4 million in 2006, which was a slight increase of \$200,000 from the \$5.2 million calculated for 2005.
- Travelers generated just over \$14 million in state revenues (lodging, sales and meal taxes, etc.).
- In 1994, travelers spent \$78 million in Manitowoc County. By 2006, travelers spent \$132 million, representing an increase of 71 percent.

Major Employers

Manitowoc County boasts a variety of large employers from both the public and private sectors. Residents of Manitowoc County have a number of employment opportunities both within the county, and in the adjacent Sheboygan and Green Bay Metropolitan Areas.

-  Public sector employers include two school districts, Manitowoc County, and the cities of Manitowoc and Two Rivers.
-  Holy Family Memorial and Manitowoc Crane Group are the two largest private employers employing over 1,000 people (Table 7.8). Private sector employment comes from a number of different sectors including manufacturing, health care, and food processing.



Source: www.1-s-.com/maitowoc_888.html

Table 7.8: Top Ten Employers, Manitowoc County, 2008

| Establishment | Product or Service | Location | Employment |
|------------------------------------|--------------------|--------------------|------------|
| Holy Family Memorial | Healthcare | City of Manitowoc | 1000+ |
| Manitowoc Crane Group | Manufacturing | City of Manitowoc | 1000+ |
| Manitowoc Public Schools | Education | City of Manitowoc | 500-999 |
| Florida Power & Light Company | Utilities | Town of Two Rivers | 500-999 |
| Thermo Fisher | Manufacturing | City of Two Rivers | 500-999 |
| Lakeside Foods | Food Manufacturing | City of Manitowoc | 500-999 |
| Federal Mogul Powertrain Systems | Manufacturing | City of Manitowoc | 500-999 |
| Manitowoc County | Government | City of Manitowoc | 250-499 |
| Parker Hannifin | Manufacturing | City of Manitowoc | 250-499 |
| Aurora Medical Center of Manitowoc | Healthcare | City of Manitowoc | 250-499 |

Source: Wisconsin’s Worknet, 2008.

Employment by Economic Division

To envision Manitowoc County’s future economy requires an understanding of its present economic base. The Economic Base Analysis technique divides the economy into basic and non-basic sectors.

Basic Sector is made up of local businesses that export all, or nearly all of its production, and are dependent on external factors. Manufacturing and local resource-oriented firms depend principally upon non-local factors and usually export their goods.

Non-basic Sector is comprised of those firms that depend largely upon local business conditions.

Location Quotient Analysis

In order to strengthen and grow the county's overall economy, it is important to develop and enhance the basic sector. To conduct a Location Quotient (LQ) Analysis, there are nine basic economic divisions that are used:

Four goods-producing sectors: agriculture, forestry and fishing; mining; construction; and manufacturing.

Five services-producing sectors: transportation and public utilities; wholesale trade; retail trade; finance, insurance and real estate; and services.

The LQ technique is used to identify the basic and non-basic sectors of a local economy. LQs highlight how the balance of employment in a local economy, compares to the balance in employment in the region as a whole. The proportion of jobs in each local industrial sector is measured, as a ratio, against its corresponding sector at the regional level. The analysis uses the United States as the standard for comparison with the county's economy (Table 7.9).

When the location quotient for a particular industry increases over time, this suggests that the county's economy in that sector is getting closer to reaching and exceeding local demands. Having a strong basic sector of employment will further strengthen and diversify Manitowoc County's economy.



The most notable changes in the county's economy since 1990 are the declines in manufacturing, federal and civilian government, and construction; and the increases in employment in agriculture, forestry, fishing, retail trade, and services. Overall, Manitowoc County's economy is quite diversified providing a number of different employment opportunities for its residents.

If the LQ is less than 1.0, all employment is considered non-basic, therefore that industry is not meeting local demand and implies that the goods or services of that sector are being "imported" into the locale from somewhere outside the region.

An LQ equal to 1.0 suggests that the local employment is exactly sufficient to meet the local demand for a given good or service, employment is still considered non-basic.

An LQ greater than 1.0 suggests that local employment produces more goods and services than the local economy can use; therefore these goods and services are exported to non-local areas, which makes them basic sector employment.

Table 7.9: Employment by Industry Group, Manitowoc County and United States, Location Quotient Analysis, Manitowoc County, 1990-2000

| Item | Manitowoc County | | United States | | Percent Change 1990-2000 | | Manitowoc County Location Quotient | |
|--|------------------|--------|---------------|-------------|-----------------------------|-------|---------------------------------------|------|
| | 1990 | 2000 | 1990 | 2000 | Manitowoc | U.S. | 1990 | 2000 |
| Total full-time and part-time employment | 41,618 | 45,714 | 139,380,900 | 166,758,800 | 9.8 | 19.6 | | |
| Farm employment | 2,401 | 2,123 | 3,153,000 | 3,113,000 | -11.6 | -1.3 | 2.55 | 2.49 |
| Nonfarm employment | 39,217 | 43,591 | 136,227,900 | 163,645,800 | 11.2 | 20.1 | 0.96 | 0.97 |
| Private employment | 34,988 | 38,874 | 114,995,900 | 140,701,800 | 11.1 | 22.4 | 1.02 | 1.01 |
| Ag. Services, forestry, fishing & other | 346 | 464 | 1,454,000 | 2,121,100 | 34.1 | 45.9 | 0.80 | 0.80 |
| Mining | 131 | 106 | 1,044,100 | 784,200 | -19.1 | -24.9 | 0.42 | 0.49 |
| Construction | 1,571 | 2,208 | 7,261,800 | 9,446,300 | 40.5 | 30.1 | 0.72 | 0.85 |
| Manufacturing | 12,703 | 13,693 | 19,694,200 | 19,114,800 | 7.8 | -2.9 | 2.16 | 2.61 |
| Transportation and public utilities | 1,581 | 2,229 | 6,550,600 | 8,244,400 | 41.0 | 25.9 | 0.81 | 0.99 |
| Wholesale trade | 1,308 | 1,449 | 6,720,500 | 7,584,100 | 10.8 | 12.9 | 0.65 | 0.70 |
| Retail trade | 7,015 | 7,098 | 22,885,500 | 27,222,300 | 1.2 | 18.9 | 1.03 | 0.95 |
| Finance, insurance and real estate | 1,433 | 1,894 | 10,714,600 | 13,193,800 | 32.2 | 23.1 | 0.45 | 0.52 |
| Services | 8,900 | 9,733 | 38,670,600 | 52,990,800 | 9.4 | 37.0 | 0.77 | 0.67 |
| Government and government enterprises | 4,229 | 4,717 | 21,232,000 | 22,944,000 | 11.5 | 8.1 | 0.67 | 0.75 |
| Federal, civilian | 205 | 225 | 3,233,000 | 2,892,000 | 9.8 | -10.5 | 0.21 | 0.28 |
| Military | 408 | 293 | 2,718,000 | 2,075,000 | -28.2 | -23.7 | 0.50 | 0.52 |
| State and local | 3,616 | 4,199 | 15,281,000 | 17,977,000 | 16.1 | 17.6 | 0.79 | 0.85 |
| State | 214 | 182 | 4,404,000 | 4,949,000 | -15.0 | 12.4 | 0.16 | 0.13 |
| Local | 3,402 | 4,017 | 10,877,000 | 13,028,000 | 18.1 | 19.8 | 1.05 | 1.12 |

Source: U.S. Department of Commerce, Bureau of Economic Analysis, REIS 1969-2000; and Bay-Lake Regional Planning Commission, 2009.

Threshold Analysis

Export Base (“Basic Employment”)

In 2000, three “basic employment areas” within the Manitowoc County economy were considered exporters: manufacturing; farm employment, and local government. These sectors produce more goods, and services than the local economy can use and export excess goods to other areas.

Non-Export Base (“Non-Basic Employment”)

Several industries stand out with lower LQs: services; mining; finance, insurance, and real estate, and state and federal government. These industries are not meeting local demand for given goods or services, and therefore import those needed services from other counties.

County Finances

Table 7.10 and Table 7.11 illustrate a history of the taxes levied and collected in Manitowoc County.



From 2000 to 2007, the county’s full value increased by 41 percent or nearly \$1.5 billion. The total property tax also increased \$22.6 million or 29 percent for the same period.

Table 7.10: Comparative Tax Appropriations, Manitowoc County, 2000-2007

| Year Levied | Full Value | Total Property Tax | State Tax Credit | Full Value Rate | | Taxing Jurisdiction Share | | | | |
|-------------|-----------------|--------------------|------------------|-----------------|-----------|---------------------------|-------------|--------------|--------------|-------------|
| | | | | Gross | Effective | School | Vocational | County | Local | Other |
| 2000 | \$3,593,645,600 | \$78,807,197 | \$5,250,905 | 0.02192 | 0.02046 | \$32,897,451 | \$5,850,582 | \$20,857,127 | \$16,527,071 | \$2,674,964 |
| 2001 | \$3,929,312,200 | \$84,476,296 | \$5,205,047 | 0.02149 | 0.02017 | \$34,741,228 | \$6,385,487 | \$22,489,173 | \$17,521,647 | \$3,338,763 |
| 2002 | \$4,138,233,300 | \$89,040,116 | \$5,227,959 | 0.02151 | 0.02025 | \$36,117,819 | \$6,649,870 | \$24,353,486 | \$18,366,939 | \$3,552,006 |
| 2003 | \$4,321,880,200 | \$92,206,370 | \$5,234,672 | 0.02133 | 0.02120 | \$37,786,422 | \$6,871,097 | \$25,011,915 | \$18,460,360 | \$4,076,580 |
| 2004 | \$4,447,460,000 | \$95,654,191 | \$5,228,629 | 0.02150 | 0.02033 | \$40,003,990 | \$6,928,978 | \$25,756,507 | \$18,790,276 | \$4,174,442 |
| 2005 | \$4,600,011,700 | \$95,924,548 | \$5,188,179 | 0.02085 | 0.01972 | \$38,425,558 | \$6,900,696 | \$26,465,626 | \$19,592,000 | \$4,540,672 |
| 2006 | \$4,867,411,100 | \$97,372,848 | \$6,432,436 | 0.02000 | 0.01868 | \$38,068,569 | \$7,035,191 | \$26,920,541 | \$20,401,971 | \$4,946,572 |
| 2007 | \$5,079,420,500 | \$101,463,887 | \$7,029,281 | 0.01997 | 0.01859 | \$40,042,197 | \$7,187,019 | \$27,347,209 | \$21,534,242 | \$5,353,221 |

Source: Wisconsin Department of Revenue, City, Village and Town Taxes, for years cited; and Bay-Lake Regional Planning Commission, 2009.

The ability to finance development and infrastructure projects is calculated by general obligation debt capacity. The aggregate amount of indebtedness, including existing indebtedness of any municipality, shall not exceed five percent of the value of the taxable property located in the municipality.



Manitowoc County’s debt as of December 31, 2007, was \$23,535,000, well within its legal margin of \$230,436,025. The county’s existing debt has dropped \$8.2 million from 2002 to 2007, while the full value increased by 23 percent rate over this time period.

According to the Wisconsin Department of Revenue, the **Full Value** is the estimated value of all taxable property.

Manitowoc County is maintaining a manageable debt; as a result, the county has access to considerable financing for future projects to include emergency infrastructure or facilities improvements.

Table 7.11: Public Indebtedness, Manitowoc County, 2000-2007

| Year | Full Value | Debt Limit* | Existing Debt | Debt Margin |
|------|-----------------|---------------|---------------|---------------|
| 2000 | \$3,593,645,600 | \$179,682,280 | \$20,495,000 | \$159,187,280 |
| 2001 | \$3,929,312,200 | \$196,465,610 | \$24,455,000 | \$172,010,610 |
| 2002 | \$4,138,233,300 | \$206,911,665 | \$31,725,000 | \$175,186,665 |
| 2003 | \$4,321,880,200 | \$216,094,010 | \$34,810,000 | \$181,284,010 |
| 2004 | \$4,447,460,000 | \$222,373,000 | \$29,895,000 | \$192,478,000 |
| 2005 | \$4,600,011,700 | \$230,000,585 | \$27,943,270 | \$202,057,315 |
| 2006 | \$4,867,411,100 | \$243,370,555 | \$26,123,755 | \$217,246,800 |
| 2007 | \$5,079,420,500 | \$253,971,025 | \$23,535,000 | \$230,436,025 |

*Debt Limit equals five percent of the full value.

Source: Wisconsin Department of Revenue, Bureau of Local Finance Assistance, Equalized Value and Debt Limit Value, for years cited; and Bay-Lake Regional Planning Commission, 2009.

SITES FOR BUSINESS AND INDUSTRIAL DEVELOPMENT

Existing Site Inventory and Analysis

As detailed on the county’s 2008 land use inventory map (Map 10.2), Manitowoc County contained 1,730 acres of commercial land and an additional 3,493 acres of industrial land (extractive or mining sites account for 2,115 acres of the industrial land in the county).

Industrial / Business Park Listing

- I-43 Industrial Park, City of Manitowoc
- Columbus Drive Industrial Park, City of Two Rivers
- Pernickety Business Park, City of Kiel
- Rockville Industrial Park, City of Kiel
- Woodland Drive Industrial Park, City of Two Rivers
- Reedsville Industrial Park, Village of Reedsville
- St. Nazianz Industrial Park, Village of St. Nazianz
- Cleveland Business Park, Village of Cleveland
- Valders Business Park, Village of Valders

Evaluation of Environmentally Contaminated Sites for Commercial and Industrial Uses

According to the Wisconsin Department of Natural Resources (WDNR), there have been 1,073 environmental incidences in Manitowoc County since 1980. These incidences include:

- Abandoned Containers
- Leaking Underground Storage Tank (LUST)
- Environmental Repair (ERP)
- SPILLS
- General Property Information (GP)

The type of incident dictates whether subject matter falls under the jurisdiction of the Wisconsin Department of Agriculture, Trade, and Consumer Protection; Wisconsin Department of Commerce; or the Wisconsin Department of Natural Resources either in their Waste Management Division or the Remediation or Redevelopment Division.

As of November 2007, 58 environmental incidences in Manitowoc County are classified as open, while the status report of 1,015 incidents are either closed, were no longer in need of remediation, or were conditionally closed. A majority of the open cases are LUST's, or a site that has been identified as having some level of contaminated soil or groundwater. Community officials should understand the type and location of these incidences within their municipalities. These areas may be prime locations for redevelopment.

Refer to the Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the WDNR website (<http://dnr.wi.gov/org/aw/rr/brrts/index.htm>) for further details on environmental incident types and status reports.

ECONOMIC DEVELOPMENT PROGRAMS

There are several programs available on each government level that could potentially help build economic development capacity through infrastructure expansion and offer businesses the resources necessary to develop and grow. See Appendix C of *Volume II: Manitowoc County Resources* for a list of several economic development programs and resources.

CHAPTER 8 : TRANSPORTATION

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INTRODUCTION

This portion of *Volume II: Manitowoc County Resources* identifies the existing transportation facilities that serve Manitowoc County and its municipalities. This inventory describes the various modal elements that make up the county's transportation system which includes the county's street and highway system; public transit systems; elderly and disabled transportation services; intercity bus services; bicycle transportation; rail service; air service; and harbors and marinas. The detailed description of the street and highway system includes the functional classification of roads within the county; traffic counts; traffic flow capacity; traffic crashes; access controls; and park and ride lots.

Documented in this chapter is also an inventory and analysis of applicable transportation plans, including county functional and jurisdictional studies; transportation corridor plans; airport plans; railroad plans; bicycle plans; pedestrian plans; transit plans; and any other special transportation plans. In addition, there is a comparison of the local plans to the existing transportation plans developed at the state, regional, and county level. Attached as Appendix D of *Volume II: Manitowoc County Resources*, is a comprehensive list of federal and state programs that offer financial and/or technical assistance to the county and local communities to maintain, expand, or enhance their transportation systems.

INVENTORY OF TRANSPORTATION FACILITIES

Streets and Highways

There are over 1,502 miles of county and local streets and roads in Manitowoc County. Of these, over 285 miles (19 percent) are under county jurisdiction, while over 1,217 miles (81 percent) are under local/municipal jurisdiction. The county and local transportation system is complemented by Interstate 43, U.S. Highways 10 and 151, and State Highways 32/57, 42, 67, 147, and 310; which provide access to other communities in the region and the state.

There are several basic considerations useful in assessing the existing street and highway system within Manitowoc County. These considerations include functional classification; annual average daily traffic; and an evaluation of the system's capability to handle present and projected future traffic volumes. In addition, vehicle crash data are useful in determining problem areas pertinent to road safety. This information can provide an indication of the street and highway improvements that may be needed during the planning period.

Functional Classification of Streets and Highways

Streets and highways, which are the principal component of the traffic circulation system, can be divided into three categories: arterial, collector, and local facilities. The three categories of streets and highways are determined by the function that the street or highway in question serves in relation to traffic patterns, land use, land access needs, and traffic volumes.



Appendix D of *Volume II: Manitowoc County Resources* identifies the criteria that are used to determine the functional classification of the street and highway system for the Manitowoc and Two Rivers Urban Areas and for portions of the towns classified as "rural".



Map 8.1 illustrates the functional classification of streets and highways in rural portions of Manitowoc County.

Arterial Facilities

The function of an arterial facility is to move traffic over medium to long distances, often between regions as well as between major economic centers, quickly, safely and efficiently. Arterial facilities are further categorized into either “principal” or “minor” arterial facilities based on traffic volumes, land use service and other criteria. Since the cities of Manitowoc and Two Rivers are located in federally recognized urban areas, arterial facilities are also further classified as “urban” and “rural” arterial facilities in Manitowoc County.



Rural principal arterial routes in Manitowoc County include Interstate 43, U.S. Highway 10, and State Highways 32/57. Examples of rural minor arterial routes in Manitowoc County include State Highways 42, 67, 147, and 310, as well as U.S. Highway 151.



Urban principal arterials in the Manitowoc Urban Area include portions of U.S. Highway 10 (8th and 10th Streets and Waldo Boulevard), U.S. Highway 151 (Calumet Avenue/Washington Street), and State Highway 42 northeast of Waldo Boulevard and Rapids Road between U.S. Highways 10 and 151. The Manitowoc Urban Area also contains a vast number of urban minor arterials.



Urban principal arterials in the Two Rivers Urban Area include portions of State Highways 42, 147 and 310. There are also a large number of urban minor arterials in the Two Rivers Urban Area.

Collector Facilities

The primary function of streets and highways classified as “collectors” is to provide general “area to area” routes for local traffic. Collector facilities take (“collect”) traffic from the local streets and highways (and the land based activities supported by the local streets and highways) and provide relatively fast and efficient routes to farm markets, agricultural service centers and larger urban areas. With an overall socioeconomic trend that is characterized by the decline of small and medium agricultural concerns, and a significant increase in the number of rural single-family residential properties, collector facilities generally serve the same function but with different trip purposes. Collector facilities serve to distribute traffic between local and arterial facilities, between home and the work place, home and the place of worship, home and school, and between the home and those places where business and commerce are conducted.



Collector facilities in the areas of Manitowoc County outside of the Manitowoc and Two Rivers Urban Areas are known as “rural collectors.” Rural collectors are divided into rural major and minor collectors. Rural major collectors include portions of County Highways A, B, BB, C, CR, J, JJ, K, LS, NN, Q, R, T, V, VV, W, X, XX, and Z. Rural minor collectors include portions of County Highways CS, F, G, J, K, M, O, Q, S, U, V, X, and Y; as well as a small number of town roads with higher traffic volumes.



Collector facilities in the Manitowoc and Two Rivers Urban Areas are known as “urban collectors.” Some examples of “urban collectors” in the Manitowoc Urban Area include

portions of Viebahn Street, South 30th Street and South 35th Street on Manitowoc’s south side, and include portions of Michigan Avenue (between County Highways Q and R) and Albert Drive (between County Highways B and DD) on Manitowoc’s north side. Examples of “urban collectors” in the Two Rivers Urban Area include portions of Columbus Street, Roosevelt Avenue, 12th Street and County Highway O.

Local Facilities

The primary and most important function of local roads and streets is to provide direct access to adjacent lands. Local roads and streets are constructed to serve individual parcels of land and properties. They also tend to serve the ends of most trips within the urban and rural areas of the county. All roads not classified as arterial or collector facilities within the county are classified as local streets.

Local Mileage Certification

Manitowoc County and any local government that increased or decreased the mileage of its streets or highways are required to file a certified plat with WisDOT by December 15 of each year. Local governments that have no changes in total local street and highway miles are required to file a certified plat or a certified statement that no mileage increases or decreases have occurred. In addition, Manitowoc County and each of its communities are required to provide WisDOT with a numeric based evaluation of the pavement condition of each segment of street and highway in each municipality every two years.



Table 8.1 lists each town, village, and city within Manitowoc County and the street and highway mileage under county or municipal jurisdiction by function. Over 40 miles, or 2.7 percent, of Manitowoc County’s 1,502 miles of transportation facilities are arterials, while over 312 miles (20.8 percent) of these facilities are collectors, and over 1,150 (76.5 percent) miles of these facilities are local streets and roads. Table 8.1 does not include the functional classification of state trunk highways (including Interstate and U.S. marked highways).

Table 8.1: Street and Highway Miles by Functional Classification and Jurisdiction, Manitowoc County, 2007

| Local Jurisdiction | Gross Miles | County Miles | Municipal Miles | County Jurisdiction | | | Municipal Jurisdiction | | |
|--------------------------|-----------------|---------------|-----------------|---------------------|---------------|-------------|------------------------|--------------|-----------------|
| | | | | Arterial | Collector | Local | Arterial | Collector | Local |
| Town of Cato | 82.47 | 16.81 | 65.66 | | 16.17 | 0.64 | | | 65.66 |
| Town of Centerville | 51.77 | 13.81 | 37.96 | | 13.81 | | | 1.01 | 36.95 |
| Town of Cooperstown | 79.05 | 17.71 | 61.34 | | 17.71 | | | | 61.34 |
| Town of Eaton | 54.90 | 8.07 | 46.83 | | 8.07 | | | | 46.83 |
| Town of Franklin | 85.24 | 20.05 | 65.19 | | 18.74 | 1.31 | | | 65.19 |
| Town of Gibson | 74.31 | 14.63 | 59.68 | | 14.63 | | | 0.91 | 58.77 |
| Town of Kossuth | 88.68 | 23.70 | 64.98 | | 23.70 | | | 0.50 | 64.48 |
| Town of Liberty | 74.02 | 13.84 | 60.18 | | 13.84 | | | 2.14 | 58.04 |
| Town of Manitowoc | 18.93 | 6.98 | 11.95 | 2.45 | 4.53 | | | 1.00 | 10.95 |
| Town of Manitowoc Rapids | 62.38 | 10.99 | 51.39 | 0.96 | 10.03 | | | 0.81 | 50.58 |
| Town of Maple Grove | 76.88 | 13.86 | 63.02 | | 13.86 | | | 1.05 | 61.97 |
| Town of Meeme | 72.36 | 20.72 | 51.64 | | 20.72 | | | | 51.64 |
| Town of Mishicot | 61.75 | 8.93 | 52.82 | | 8.93 | | | 1.34 | 51.48 |
| Town of Newton | 82.11 | 18.77 | 63.34 | | 16.26 | 2.51 | | 0.85 | 62.49 |
| Town of Rockland | 66.49 | 13.51 | 52.98 | | 13.51 | | | 1.29 | 51.69 |
| Town of Schleswig | 68.60 | 12.52 | 56.08 | 0.17 | 12.35 | | | 3.37 | 52.71 |
| Town of Two Creeks | 27.17 | 1.89 | 25.28 | | 1.89 | | | | 25.28 |
| Town of Two Rivers | 57.73 | 16.10 | 41.63 | 1.06 | 15.04 | | 0.36 | | 41.27 |
| Village of Cleveland | 16.02 | 4.17 | 11.85 | | 4.17 | | | 0.56 | 11.29 |
| Village of Francis Creek | 7.27 | 2.90 | 4.37 | | 2.90 | | | | 4.37 |
| Village of Kellnersville | 2.94 | 2.01 | 0.93 | | 2.01 | | | | 0.93 |
| Village of Maribel | 4.09 | 2.92 | 1.17 | | 2.92 | | | | 1.17 |
| Village of Mishicot | 11.18 | 2.35 | 8.83 | | 2.35 | | | 0.83 | 8.00 |
| Village of Reedsville | 9.39 | 0.43 | 8.96 | | 0.43 | | | 1.82 | 7.14 |
| Village of St. Nazianz | 6.98 | 2.08 | 4.90 | | 2.08 | | | 0.18 | 4.72 |
| Village of Valders | 7.72 | 1.69 | 6.03 | | 1.69 | | | 1.12 | 4.91 |
| Village of Whitelaw | 3.52 | 0.30 | 3.22 | | 0.18 | 0.12 | | | 3.22 |
| City of Kiel | 20.19 | 1.18 | 19.01 | 0.80 | 0.38 | | | 0.98 | 18.03 |
| City of Manitowoc | 169.93 | 10.90 | 159.03 | 7.25 | 3.65 | | 21.07 | 19.70 | 118.26 |
| City of Two Rivers | 58.66 | 1.70 | 56.96 | 1.13 | 0.57 | | 4.90 | 5.61 | 46.45 |
| Total Mileage | 1,502.73 | 285.52 | 1,217.21 | 13.82 | 267.12 | 4.58 | 26.33 | 45.07 | 1,145.81 |

Note: This table does not include the functional classification of state trunk highways (including Interstate and U.S. marked highways). Most state trunk highways are functionally classified as principal arterials.

Source: Wisconsin Department of Transportation, Wisconsin Information System for Local Roads (WISLR), 2007; and Bay-Lake Regional Planning Commission, 2009.

Traffic Counts

An analysis of past and present traffic volumes is beneficial in determining the traffic conditions in a community. Traffic volumes are usually presented as an Annual Average Daily Traffic (AADT) figure, and are calculated for a particular intersection or segment of roadway. In the past, the Wisconsin Department of Transportation, as part of its traffic count program, provided highway traffic volumes from selected highways and roads for all state communities on a rotating basis by providing these counts once every three years. For Manitowoc County, traffic volumes were last counted in 2005, with counts also taken in 1996, 1999, and 2002. The daily traffic counts are taken for 48 hours, and are reported as a 24 hour average weekday count for a specific data collection period.

Beginning in 2006, principal arterials and minor arterials over 5,000 AADT will be counted by WisDOT every three years. Minor arterials under 5,000 AADT and collectors over 5,000 AADT will be counted every six years. Collectors under 5,000 AADT are to be counted every ten years. Special counts can be requested for highways where significant projects are planned.



Table 8.2 lists the average annual daily traffic counts for Interstate Highway 43 in Manitowoc County for 2002 and 2005. Table 8.2 indicates that all segments of Interstate Highway 43 in Manitowoc County increased in traffic between 2002 and 2005.

Table 8.2: Annual Average Daily Traffic, Interstate Highway 43, Manitowoc County, 2002 and 2005

| Count Location | Number | | Percentage | |
|---|---------------------|---------------------|---------------------------|---------------------------|
| | 2002 ^{1,2} | 2005 ^{1,2} | Difference 2002 - 2005 | Difference 2002 - 2005 |
| North of STH 147/CTH Z | 18,300 | 19,200 | 900 | 4.92% |
| CTH K to STH 147/CTH K | 15,900 | 17,400 | 1,500 | 9.43% |
| CTH V to CTH K | 17,000 | 18,100 | 1,100 | 6.47% |
| USH 10 West/STH 310 to CTH V | 17,500 | 18,700 | 1,200 | 6.86% |
| CTH JJ/USH 10 East/STH 42 North to USH 10 West/STH 310 | 17,400 | 21,300 | 3,900 | 22.41% |
| USH 151/STH 42 South to CTH JJ/USH 10 East/STH 42 North | 19,600 | 21,500 | 1,900 | 9.69% |
| CTH C to USH 151/STH 42 South | 20,700 | 21,000 | 300 | 1.45% |
| CTH XX to CTH C | 21,900 | 23,600 | 1,700 | 7.76% |

Notes:

⁽¹⁾ Annual average daily traffic volumes were collected at interchange ramps in 2002, but not in 2005.

⁽²⁾ Directional traffic counts were collected for Interstate Highway 43 in 2002, but only total counts were collected in 2005.

Source: Wisconsin Department of Transportation, Wisconsin Highway Traffic Volume Data, 2002 and 2005; and Bay-Lake Regional Planning Commission, 2008.



Table 8.3 lists the average annual daily traffic counts for all other U.S. and State highways within Manitowoc County for 2002 and 2005. These facilities include U.S. Highways 10 and 151, as well as State Trunk Highways 32/57, 42, 67, 147 and 310. Traffic on Manitowoc County's U.S. and state highways fluctuated between 2002 and 2005, including decreases in observed traffic volumes along several highways in cities and larger villages.

Table 8.3: Annual Average Daily Traffic, U.S. and State Trunk Highways, Manitowoc County, 2002 and 2005

| Count Location | 2002 | 2005 | Number Difference 2002 - 2005 | Percentage Difference 2002 - 2005 |
|--|--------|--------|----------------------------------|--------------------------------------|
| U.S. Highway 10 | | | | |
| Between N. 8th St. and N. 10th St., City of Manitowoc | 19,100 | 15,700 | (3,400) | -17.80% |
| Between N. 12th St. and Menasha Ave., City of Manitowoc | 16,100 | 13,700 | (2,400) | -14.91% |
| Between Menasha Ave. and N. 18th St./CTH Q, City of Manitowoc | 15,900 | 12,200 | (3,700) | -23.27% |
| East of North 21st St., City of Manitowoc | 13,600 | 11,700 | (1,900) | -13.97% |
| Between N. 23rd St. and N. 21st St., City of Manitowoc | 13,500 | 11,000 | (2,500) | -18.52% |
| West End of USH 10 Viaduct, City of Manitowoc | 13,300 | 12,100 | (1,200) | -9.02% |
| East of Rapids Rd., City of Manitowoc | 12,500 | 10,500 | (2,000) | -16.00% |
| IH 43 to Rapids Road | 6,200 | 6,500 | 300 | 4.84% |
| West of IH 43 | 4,200 | 4,400 | 200 | 4.76% |
| East of CTH T | 6,700 | 6,600 | (100) | -1.49% |
| At CTH S, Village of Whitelaw | 7,600 | 7,600 | 0 | 0.00% |
| East of CTH J | 5,400 | 6,200 | 800 | 14.81% |
| West of CTH J | 5,400 | 5,800 | 400 | 7.41% |
| Between CTH W and CTH G | 5,600 | 5,600 | 0 | 0.00% |
| State Highways 32/57 | | | | |
| West of STH 32/57 Split | 6,600 | 7,500 | 900 | 13.64% |
| East of Kiel/STH 67 | 7,400 | 7,300 | (100) | -1.35% |
| West of STH 67, City of Kiel | 3,600 | 3,700 | 100 | 2.78% |
| At Sheboygan River Bridge, City of Kiel | 4,500 | 4,200 | (300) | -6.67% |
| East of STH 149, City of Kiel | 5,800 | 5,200 | (600) | -10.34% |
| East of CTH AA/Calumet County Line, City of Kiel | 3,100 | 2,900 | (200) | -6.45% |
| State Highway 42 | | | | |
| South of CTH X | 1,900 | 2,000 | 100 | 5.26% |
| South of CTH C | 2,000 | 1,900 | (100) | -5.00% |
| South of USH 151 | 4,500 | 4,400 | (100) | -2.22% |
| East of North 8th St., City of Manitowoc | 11,600 | 9,900 | (1,700) | -14.66% |
| Between Johnston Dr. and Reed Ave., City of Manitowoc | 16,800 | 15,600 | (1,200) | -7.14% |
| Between Reed Ave. and CTH DD, City of Manitowoc | 18,100 | 16,300 | (1,800) | -9.94% |
| Between CTH DD and Woodland Dr., City of Manitowoc | 19,000 | 16,700 | (2,300) | -12.11% |
| West of Columbus St., City of Two Rivers | 14,900 | 14,500 | (400) | -2.68% |
| East of Columbus St., City of Two Rivers | 14,300 | 13,600 | (700) | -4.90% |
| East of Roosevelt Ave., City of Two Rivers | 13,700 | 12,300 | (1,400) | -10.22% |
| West of Washington St., City of Two Rivers | 9,700 | 8,500 | (1,200) | -12.37% |
| At West Twin River Bridge, City of Two Rivers | 12,400 | 10,100 | (2,300) | -18.55% |
| South of STH 310/16th St., City of Two Rivers | 11,400 | 9,100 | (2,300) | -20.18% |
| South of STH 147/22nd St., City of Two Rivers | 9,500 | 8,200 | (1,300) | -13.68% |
| East of Washington St., City of Two Rivers | 10,700 | 10,100 | (600) | -5.61% |
| At East Twin River Bridge, City of Two Rivers | 11,100 | 10,500 | (600) | -5.41% |
| At Intersection of 22nd St. and Lincoln Ave., City of Two Rivers | 8,400 | 8,200 | (200) | -2.38% |
| North of 30th St., City of Two Rivers | 4,500 | 4,900 | 400 | 8.89% |
| North of CTH V | 3,800 | 3,200 | (600) | -15.79% |
| State Highway 67 | | | | |
| South of STH 32/STH 57, City of Kiel | 3,600 | 3,000 | (600) | -16.67% |
| North of STH 32/STH 57, City of Kiel | 7,800 | 6,900 | (900) | -11.54% |
| Between Sheboygan River and CTH AA, City of Kiel | 7,700 | 7,500 | (200) | -2.60% |
| North of CTH AA, City of Kiel | 5,700 | 4,800 | (900) | -15.79% |
| North of CTH X | 3,000 | 2,900 | (100) | -3.33% |

(Table 8.3 continued on next page)

Table 8.3 (continued): Annual Average Daily Traffic, U.S. and State Trunk Highways, Manitowoc County, 2002 and 2005

| Count Location | 2002 | 2005 | Number Difference 2002 - 2005 | Percentage Difference 2002 - 2005 |
|--|--------|--------|----------------------------------|--------------------------------------|
| State Highway 147 | | | | |
| West of Washington St., City of Two Rivers | 6,300 | 5,900 | (400) | -6.35% |
| Forest Ave. Northwest of 22nd St., City of Two Rivers | 11,400 | 9,300 | (2,100) | -18.42% |
| Forest Ave. Southeast of Tannery Rd., City of Two Rivers | 9,900 | 8,900 | (1,000) | -10.10% |
| Between Tannery Rd. and 34th St., City of Two Rivers | 6,800 | 6,500 | (300) | -4.41% |
| Southeast of CTH VV, City of Two Rivers | 5,000 | 4,500 | (500) | -10.00% |
| Southeast of CTH V, Village of Mishicot | 3,200 | 3,000 | (200) | -6.25% |
| Northwest of CTH B, Village of Mishicot | 3,600 | 2,900 | (700) | -19.44% |
| East of IH 43 | 3,100 | 3,100 | 0 | 0.00% |
| U.S. Highway 151 | | | | |
| Between S. 8th St. and S. 9th St., City of Manitowoc | 10,400 | 10,200 | (200) | -1.92% |
| Between S. 9th St. and S. 10th St., City of Manitowoc | 11,200 | 10,300 | (900) | -8.04% |
| Between S. 10th St. and S. 11th St., City of Manitowoc | 12,000 | 10,400 | (1,600) | -13.33% |
| Between S. 14th St. and S. 16th St., City of Manitowoc | 14,300 | 10,700 | (3,600) | -25.17% |
| Between S. 20th St. and S. 21st St., City of Manitowoc | 15,300 | 11,400 | (3,900) | -25.49% |
| Between S. 24th St. and S. 25th St., City of Manitowoc | 16,800 | 12,800 | (4,000) | -23.81% |
| Southwest of S. 26th St., City of Manitowoc | 22,400 | 17,700 | (4,700) | -20.98% |
| Between S. 30th St. and S. 35th St., City of Manitowoc | 19,200 | 17,600 | (1,600) | -8.33% |
| Between S. 35th St. and S. 39th St./Division St., City of Manitowoc | 19,900 | 16,700 | (3,200) | -16.08% |
| Between S. 39th St./Division St. and CTH CR/Dewey St., City of Manitowoc | 14,600 | 13,500 | (1,100) | -7.53% |
| Between CTH CR/Dewey St. and CTH R/Rapids Rd., City of Manitowoc | 18,100 | 16,100 | (2,000) | -11.05% |
| Between CTH R/Rapids Rd. and IH 43, City of Manitowoc | 19,800 | 20,100 | 300 | 1.52% |
| Between IH 43 and STH 42, City of Manitowoc | 13,100 | 13,300 | 200 | 1.53% |
| West of STH 42, City of Manitowoc | 5,800 | 6,800 | 1,000 | 17.24% |
| East of CTH S | 4,400 | 4,500 | 100 | 2.27% |
| East of CTH A | 3,400 | 3,500 | 100 | 2.94% |
| East of STH 67 | 3,100 | 3,200 | 100 | 3.23% |
| State Highway 310 | | | | |
| West of Washington St., City of Two Rivers | 5,000 | 3,100 | (1,900) | -38.00% |
| At West Twin River Bridge, City of Two Rivers | 11,500 | 9,800 | (1,700) | -14.78% |
| Between Hawthorne St. and Madison St., City of Two Rivers | 4,400 | 3,800 | (600) | -13.64% |
| Northwest of 14th St., City of Two Rivers | 3,900 | 3,300 | (600) | -15.38% |
| West of Columbus St., City of Two Rivers | 4,400 | 4,500 | 100 | 2.27% |
| East of Johnston Dr. | 4,700 | 4,800 | 100 | 2.13% |
| East of CTH Q | 8,200 | 8,500 | 300 | 3.66% |
| East of CTH R/Rapids Rd. | 8,900 | 8,400 | (500) | -5.62% |

Source: Wisconsin Department of Transportation, *Wisconsin Highway Traffic Volume Data*, 2002 and 2005; and Bay-Lake Regional Planning Commission, 2008.



Of the 31 county trunk highways located in Manitowoc County, only 10 had traffic counts that were measured in 2002 and 2005, and only five (5) of these were counted in more than one location (Table 8.4). Total traffic volumes in both 2002 and 2005 are within the capacities of these highways to handle the traffic, and steep increases and decreases are often the result of local conditions at the time of the traffic volume count.

Table 8.4: Annual Average Daily Traffic, Select County Trunk Highways, Manitowoc County, 2002 and 2005

| Count Location | 2002 | 2005 | Number Difference 2002 - 2005 | Percentage Difference 2002 - 2005 |
|--|--------|--------|----------------------------------|--------------------------------------|
| County Highway A | | | | |
| North of County Highway X | 1,800 | 1,700 | (100) | -5.56% |
| County Highway B | | | | |
| North of Magnolia Dr., City of Manitowoc | 5,400 | 5,800 | 400 | 7.41% |
| South of CTH VV/Shoto | 6,000 | 6,200 | 200 | 3.33% |
| County Highway P | | | | |
| Menasha Ave. Northwest of Waldo Blvd., City of Manitowoc | 2,900 | 2,500 | (400) | -13.79% |
| West of CTH Q, City of Manitowoc | 5,600 | 5,500 | (100) | -1.79% |
| Between N. 21st. St. and N. 23rd St., City of Manitowoc | 5,600 | 5,700 | 100 | 1.79% |
| East of CTH R/Rapids Rd., City of Manitowoc | 4,500 | 3,900 | (600) | -13.33% |
| County Highway Q | | | | |
| North of USH 10/STH 42/Waldo Blvd., City of Manitowoc | 5,800 | 5,200 | (600) | -10.34% |
| South of CTH P/Menasha Ave., City of Manitowoc | 5,600 | 4,700 | (900) | -16.07% |
| County Highway R | | | | |
| North of USH 151, City of Manitowoc | 7,800 | 7,100 | (700) | -8.97% |
| At Manitowoc River Bridge, City of Manitowoc | 10,600 | 11,200 | 600 | 5.66% |
| South of USH 10/STH 42/Waldo Blvd., City of Manitowoc | 13,500 | 12,300 | (1,200) | -8.89% |
| Between USH 10/STH 42/Waldo Blvd., and Wildwood Dr., City of Manitowoc | 8,900 | 8,600 | (300) | -3.37% |
| Between Wildwood Dr. and Fleetwood Dr., City of Manitowoc | 8,000 | 7,200 | (800) | -10.00% |
| South of CTH P/Menasha Ave., City of Manitowoc | 7,000 | 6,000 | (1,000) | -14.29% |
| South of CTH P/Homestead Rd., City of Manitowoc | 8,100 | 6,100 | (2,000) | -24.69% |
| County Highway AA | | | | |
| West of STH 67, City of Kiel | 6,200 | 7,300 | 1,100 | 17.74% |
| East of STH 32/57, City of Kiel | 5,400 | 5,400 | 0 | 0.00% |
| County Highway CR | | | | |
| Between Dewey St. and CTH CL/Viebahn St | 4,000 | 3,800 | (200) | -5.00% |
| County Highway DD | | | | |
| North of STH 42/Memorial Dr. | 2,500 | 2,100 | (400) | -16.00% |
| County Highway JJ | | | | |
| West of IH 43 | 3,100 | 3,800 | 700 | 22.58% |
| County Highway VV | | | | |
| East of STH 147 | 2,700 | 2,900 | 200 | 7.41% |

Source: Wisconsin Department of Transportation, *Wisconsin Highway Traffic Volume Data*, 2002 and 2005; and Bay-Lake Regional Planning Commission, 2008.

Traffic Flow Capacity

Table 8.5 details the maximum level of traffic that roads are designed and engineered to accommodate. Volume-to-capacity ratios used for this measurement are determined by the Peak Hourly Traffic (PHT), regardless of traffic distribution by direction. The maximum capacity values presented in Table 8.5 should be considered the average maximum volume on various types of roads under ideal conditions.

Table 8.5: Uninterrupted Traffic Flow Capacities Under Ideal Conditions

| Highway Type | Capacity Peak Hour Traffic |
|---------------------------------|----------------------------|
| Multi-Lane and Divided Highways | 2,000 vehicles per lane |
| Two-Lane, Two-Way Highways | 2,000 vehicles both lanes |
| Three-Lane, Two-Way Highways | 4,000 vehicles all lanes |

Source: Highway Capacity Manual (3rd Edition), Transportation Research Board, 1985; and Bay-Lake Regional Planning Commission, 2008.



Based on Table 8.5, the maximum total capacity of Interstate 43 under ideal conditions is 2,000 vehicles per hour per lane. The maximum total capacity of most county highways and nearly all town roads under ideal conditions is 2,000 vehicles per hour in both lanes.

At present, there are no known roads or road segments located within Manitowoc County that have approached their design capacity as listed in Table 8.5.

Traffic Crashes

Vehicle crash reports filed with local police departments, Manitowoc County Sheriff’s Department, and the Wisconsin Department of Transportation provide the detail of the time, location, type and severity of the crash that has occurred. These reports are often excellent indicators of problems with road alignments, roadway construction, and geometric design of the road. The number, location and severity of accidents can often indicate problem areas (in terms of traffic safety) which may be alleviated through a variety of measures including alterations in the street geometry, enlargement of the intersection turning radii, placement of more prominent signs, relocation of access drives and speed changes.



Table 8.6 analyzes motor vehicle crashes in Manitowoc County for calendar years 2004 through 2006 by crash severity. The vast majority of crashes from 2004 through 2006 (3,875 of 5,471, or nearly 71 percent) were property damage only crashes.

Table 8.6: Motor Vehicle Crashes in Manitowoc County, 2004-2006

| Year | Total Crashes | Fatality Crashes | Persons Killed | Injury Crashes | Persons Injured | Property Damage Crashes |
|-------|---------------|------------------|----------------|----------------|-----------------|-------------------------|
| 2004 | 1,872 | 8 | 9 | 518 | 721 | 1,346 |
| 2005 | 1,865 | 11 | 11 | 525 | 742 | 1,329 |
| 2006 | 1,734 | 6 | 6 | 528 | 724 | 1,200 |
| Total | 5,471 | 25 | 26 | 1,571 | 2,187 | 3,875 |

Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2008.

Table 8.7 analyzes intersection and non-intersection crashes by highway jurisdiction in Manitowoc County for calendar years 2004 through 2006. Intersection crashes often may be indicators of a problem with the sight triangle at the intersection (visibility), location and visibility of signs, and/or the geometric configuration of the roadway itself.



The majority of crashes (nearly 46 percent) in the county were on local streets and roads; approximately 31 percent of crashes in the county occurred on U.S. and state highways; over 15 percent of crashes in the county were on county highways; and the remaining eight (8) percent of the crashes in the county were on Interstate Highway 43. It should be noted that the number of crashes on local streets and roads may be over-reported, since many of these facilities are also county highways but were coded as local facilities.

Table 8.7: Intersection and Non-Intersection Crashes by Highway Jurisdiction in Manitowoc County, 2004-2006

| Crash Location | Total Crashes | Intersection Crashes | Non-Intersection Crashes |
|-------------------------|---------------|----------------------|--------------------------|
| Interstate Highway 43 | 458 | 39 | 419 |
| U.S. and State Highways | 1,685 | 806 | 879 |
| County Highways | 832 | 117 | 715 |
| Local Streets and Roads | 2,496 | 1,014 | 1,482 |
| Total | 5,471 | 1,976 | 3,495 |

Note: The number of crashes on local streets and roads may be over-reported, since many of these facilities are also county highways but were coded as local facilities.

Source: Wisconsin Department of Transportation (for all years listed); and Bay-Lake Regional Planning Commission, 2008.

Access Controls

Access to the State Highway system is managed in several ways. It can be managed through the purchase of access controls, through statutory authority to limit access, and through the driveway permitting process. Currently, the following highways have restricted access through either purchased controls or statutory controls:

- State Highway 42 (in the Cities of Manitowoc and Two Rivers);
- State Highway 67 (from the City of Kiel to U.S. Highway 151);
- State Highway 310;
- U.S. Highway 151 (from the Village of Valders to the City of Manitowoc);
- U.S. Highway 10; and
- Interstate Highway 43.

The following actions along State and U.S. Highways require an access permit:

- Changing the type of land use of a driveway (e.g., residential to commercial);
- Physically modifying the existing driveway (e.g., paving, widening);
- Relocating a driveway;
- Removing a driveway; and
- Constructing a new driveway.

In addition, state statutes allow counties, cities, and villages through an adopted ordinance to control access on county highways that have traffic counts in excess of 1,000 vehicles daily.

Park and Ride Lots

Situated at various locations along major transportation routes, park and ride lots can be used to form carpools and vanpools and, in some major metropolitan areas, catch a ride on a commuter bus. There are numerous park and ride lots located throughout the state, and all of them are wheelchair accessible. In Manitowoc County, park and ride lots simply offer free parking.



There are five (5) park and ride lots in Manitowoc County (Map 8.1):

- Interstate 43/County Highway C exit (Exit 144, Town of Newton): Lighted asphalt lot with parking for 15 vehicles.
- Interstate 43/U.S. Highway 151 exit (Exit 149, City of Manitowoc), access via frontage road south of U.S. Highway 151: Asphalt lot with parking for 75 vehicles. This parking lot is served by Maritime Metro Transit.
- Interstate 43/U.S. Highway 10 East and State Highway 42 exit (Exit 152, west of the City of Manitowoc), access via Michigan Avenue: Lighted asphalt lot with parking for 13 vehicles.
- Interstate 43/U.S. Highway 10 West and State Highway 310 exit (Exit 154, west of the City of Two Rivers), access via Wagon Wheel Road: Lighted asphalt lot with parking for 93 vehicles.
- Interstate 43/County Highway Z and State Highway 147 exit (Exit 164, east of the Village of Maribel), access east of County Highway R: Lighted gravel lot with parking for 20 vehicles.

Transit

The Maritime Metro Transit System (MMT) is the only urban transit operation serving Manitowoc County. MMT is a publicly owned and operated fixed route transit system serving the cities of Manitowoc and Two Rivers.

MMT is a department of the City of Manitowoc and is funded by federal, state, local municipality, and farebox funding sources. MMT provided more than 290,000 rides in 2007, and ridership was expected to surpass 300,000 in 2008.



Hours of service on most routes are between 5:00 a.m. and 8:00 p.m. on weekdays and between 9:00 a.m. and 4:00 p.m. on Saturdays. There is no service on Sundays or on major holidays.

MMT has six (6) fixed routes as follows:

- **Route 1** provides service on an hourly basis between the cities of Manitowoc and Two Rivers. This route does not connect at the downtown Manitowoc transfer point, but connects with Route 2 at the Meadow Links Transfer Point on Johnston Drive. Much of the core of the City of Two Rivers is served by Route 1, including downtown Two Rivers and the northwest and east sides of the city.
- **Route 2** provides service every ½ hour to the northeast side of the City of Manitowoc.
- **Route 3** provides service every ½ hour to the west side of the City of Manitowoc. Routes 2 and 3 interface with each other.
- **Route 4** provides service every ½ hour to the mostly residential southeastern part of the City of Manitowoc.
- **Route 5** provides service every ½ hour to the southwestern portion of the City of Manitowoc.

- **Route 6** provides service every ½ hour to the northwest part of the City of Manitowoc.

Passenger facilities include about ten passenger shelters at locations where there are frequent passenger boardings, as well as the Intermodal Transfer Center in downtown Manitowoc.

MMT has a contract with Assist-to-Transport to provide ADA paratransit service in the MMT service area. The ADA service area is defined as ¾ of one mile around each of the six (6) MMT fixed routes.

Elderly and Disabled Transportation

Elderly and disabled transportation systems refer to those programs that provide rides through scheduled bus services, volunteer programs with private vehicles, etc. The Manitowoc County Aging and Disability Resource Center (ADRC) is the manager of the Section 85.21 elderly and disabled transportation program.

The Manitowoc County ADRC works with several transportation providers in coordinating elderly and disabled transportation in the county. These providers include: Maritime Metro Transit, Assist-to-Transport, and volunteer escort services coordinated by the Manitowoc County ADRC. In addition, several taxi, charter bus and accessible transportation services are available within the county.

The *Public Transit – Human Services Transportation Coordination Plan* also assists with elderly and disabled transportation in the county.

Intercity Bus Transportation

Intercity bus service via Indian Trails Bus Lines is available from the City of Manitowoc, with service provided to Milwaukee and Green Bay. The Indian Trails station serving Manitowoc is located at the Shell station at 1701 South 41st Street, in close proximity to the Interstate 43 interchange with U.S. Highway 151. One northbound bus and one southbound bus serve the Manitowoc area, with the northbound bus leaving each day for Green Bay and points north, and the southbound bus leaving each day for Sheboygan, Milwaukee, and Chicago.

It appears that Jefferson Bus Lines will also come into this market in mid July of 2008. The route proposed by Jefferson Bus Lines would connect Minneapolis-St. Paul to Green Bay, then Green Bay to Milwaukee.

In addition, the Sheboygan Parking and Transit Utility (Sheboygan Transit) was awarded Congestion Mitigation and Air Quality (CMAQ) funds to provide more frequent intercity bus service between Green Bay and Milwaukee, including the Manitowoc and Sheboygan areas. Sheboygan Transit will select a private operator to run the service which, hopefully, will begin operating in early 2009.

Bicycle Transportation

Currently, the county has a limited number of facilities (e.g., signed and unsigned shared roadways, shared use paths and bicycle lanes) to serve bicyclists. In spite of having limited facilities, the county's local street and road system can and does safely and efficiently serve the needs of bicyclists in cases where traffic levels remain low to moderate.



Manitowoc County bicycle facilities include:

- **Shared Roadways (No Bikeway Designation)**

In the City of Manitowoc, a paved road shoulder utilized by bicyclists and pedestrians is located on the east side of Memorial Drive, along the Elks Lodge Golf Course. This is a bituminous paved shoulder that is approximately three feet wide. The shoulder begins at the intersection of Waldo Boulevard, and proceeds north approximately ¼ mile to its intersection with Johnston Drive.

- **Signed Shared Roadways**

There is only one known publicly defined and signed bicycle route in Manitowoc County. This signed shared roadway is along North 11th Street and North 10th Street between Waldo Boulevard and York Street in the City of Manitowoc.

- **Shared Use Paths**

Manitowoc County has no shared use paths located within street rights-of-way, nor are they located in rural areas of the county. However, the Mariner's Trail is an off-street shared use path. This shared use trail begins in downtown Manitowoc, runs along Maritime and Memorial Drives into the City of Two Rivers, where it connects with the Rawley Point Recreational Trail. Bicyclists can then utilize the Rawley Point Trail to arrive at Point Beach State Forest.

Point Beach State Forest is home to the Red Pine Trail, which is four miles in length. The Red Pine Trail was developed in 1993 by the Wisconsin Department of Natural Resources (DNR). Another trail is being planned which will begin at the Point Beach State Forest headquarters and will link the Red Pine Trail to the City of Two Rivers.

- **Bicycle Lanes**

Currently, there are no bicycle lanes located in Manitowoc County.

- **Bicycle Facilities in Progress**

The Manitowoc County Highway Department received a Congestion Mitigation and Air Quality (CMAQ) grant from WisDOT to “design and construct 3.7 miles of five foot bike lanes and 1.36 miles of off-road shared use path along County Highway Q from Magnolia Avenue to the Devil’s River State Trail crossing on Shoto Road.”

Manitowoc County received Wisconsin DNR Stewardship funding in 2006 to develop the Devil’s River State Trail along an abandoned railroad corridor from the Manitowoc County / Brown County line, south to Rockwood Road in the Town of Kossuth.

State Assessment of Bicycle Routes in Manitowoc County

The *Wisconsin Bicycle Transportation Plan 2020* assessed conditions for bicycling in Manitowoc County.

The Wisconsin State Bike Map classifies state and county highways throughout the state in terms of bicycling conditions. The map also identifies bicycle trails and mountain bike facilities, and provides contacts for local bicycle route information. Town roads are not rated for their bicycling conditions, but are identified with their road names and surface type. Each county map in the *Wisconsin Bicycle Transportation Plan 2020* highlights the most favorable bicycling conditions while presenting the full range of roadways, from narrow town roads to U.S. Highways. This approach enables cyclists of all abilities to select their own routes to meet their individual transportation and recreational needs.

Refer to the *Wisconsin Bicycle Transportation Plan 2020* for a listing of roads in Manitowoc County that are classified as having the best conditions, having moderate conditions, or having undesirable conditions for bicycle travel. Also reference the *Wisconsin State Bike Map* which identifies “local roads with higher traffic volumes” that may not offer suitable conditions for bicycle travel.

Rail Service

Over the last several years, the amount of Wisconsin track miles owned and operated by railroads has declined, due in large part to the consolidation of railroad operators and the subsequent elimination of duplicate routes. Four Class I railroads now own approximately 80 percent of the rail lines within Wisconsin. The Canadian National, Escanaba and Lake Superior and Union Pacific Railroads are the dominant rail lines in northeastern Wisconsin.



In Manitowoc County, the dominant rail line is the Canadian National (CN). One CN line connects Manitowoc and Valders to the Appleton/Neenah/Menasha area. A second CN line connects Rockwood and Manitowoc to Cleveland, with further connections to the south via the Union Pacific Railroad. A third CN line connects Kiel to New Holstein, Chilton, Hilbert and the Appleton/Neenah/Menasha area. A Wisconsin and Southern Railroad (WSOR) line connects Kiel to Elkhart Lake, Plymouth, Waldo, Adell, Random Lake and Saukville, which connects to a CN line to the south which travels to the Milwaukee area. The WSOR came into the market between Kiel and Saukville when the CN intended to no longer provide service on the Kiel to Saukville rail line. The CN also abandoned service between Rockwood and Denmark, which was turned into a “rails to trails” bicycle and pedestrian facility known as the Devil’s River State Trail.

Rail connections to the Appleton/Neenah/Menasha area connect to destinations in Wisconsin and adjacent states to the north, west and south.

Air Service

The inventory of air transportation systems and facilities includes both public airports that service the region and also the private or semi-public airport facilities that service private commercial and recreational interests.

Regional Airports

Residents of Manitowoc County are provided with two (2) regional airports for commercial passenger and air freight service: General Mitchell International Airport in Milwaukee, and Austin Straubel International Airport in metropolitan Green Bay.

General Mitchell International Airport

General Mitchell International Airport (MKE) is a medium-hub airport owned and operated by Milwaukee County. Mitchell's thirteen airlines offer roughly 235 daily departures (plus 235 daily arrivals). About 90 cities are served nonstop or direct from General Mitchell International Airport, which is the largest airport in Wisconsin.

Austin Straubel International Airport

Austin Straubel International Airport (GRB) is located in the Village of Ashwaubenon in Brown County. The airport is owned and operated by Brown County. Austin Straubel International Airport is a full service regional connector that currently provides direct service flights on six airlines to eight cities, including Chicago, Cincinnati, Detroit, Las Vegas, Marquette, Milwaukee, Minneapolis-St. Paul, and Phoenix. Austin Straubel is the third largest airport in Wisconsin.



Manitowoc County Airport

(Note: Much of the information provided regarding the Manitowoc County Airport is courtesy of Curt Drumm, President of Lakeshore Aviation, and has been condensed).

The Manitowoc County Airport was founded in 1927. The airport was operated by the City of Manitowoc until 1975, at which time title and operations were purchased by Manitowoc County. Manitowoc County has operated the airport ever since, most currently under the direction of the Manitowoc County Highway Department, which oversees all daily operations, financial planning and airport/runway development and maintenance. It is one of 132 public use airports in Wisconsin. The airport has two runways, the longest of which is 5,002 feet long. The secondary runway is 3,343 feet long. Both runways are 100 feet in width. The airport is served by several instrument approaches and high intensity lighting systems, allowing landing in reduced visibility and inclement weather.

As of March 2008, the airport covered 482 acres and had 30 hangars. All hangars are privately owned, but are built on county-owned property under long-term land leases. These hangars vary greatly in size. The airport has tremendous potential (and land available) for expansion for additional hangars, industrial aviation-related development, and for potential runway extension. Over 70 airplanes of various types are based at the airport, including jets, multi-engine aircraft, seaplanes and single-engine aircraft. The airport has reported over 38,000 takeoff and landing operations annually.

A recent economic impact study prepared by the WisDOT Bureau of Aeronautics indicated that in 2000, activity at the airport generated a total estimated economic impact of \$5.5 million in economic output (sales), supported 89 full-time equivalent jobs, and contributed \$3.9 million in personal income to the county.

Commercial operations at the airport are managed by the Fixed Base Operator (FBO), Lakeshore Aviation. Under a long-term contract with the county, Lakeshore Aviation provides general aviation services, including: aviation fuel, aircraft parking, hangars (including hangar leasing and sales), a passenger terminal and lounge, flight weather briefing, flight training, aircraft rental, aircraft maintenance, aerial tours and sightseeing, and aircraft charters. Lakeshore Aviation owns a variety of single- and multi-engine aircraft, and employs eight staff. All parking at the Manitowoc County airport is free of charge.

Interesting facts about the Manitowoc County Airport include: (1) the airport has an importer of light sport airplanes on the airport grounds; (2) the airport is home to an active local EAA chapter; and (3) the airport hosts an annual air show.

The Manitowoc County Airport is classified as a Transport/Corporate (T/C) Airport. According to the WisDOT Bureau of Aeronautics, T/C class airports “are intended to serve corporate jets, small passenger and cargo jet aircraft used in regional service and small airplanes (piston or turboprop) used in commuter air service. These aircraft have a gross takeoff weight of less than 60,000 pounds, with approach speeds below 141 knots and wingspans of less than 118 feet.” The WisDOT Bureau of Aeronautics also notes that T/C class airports in Wisconsin “normally have a primary runway length of 4,800 to 6,000 feet.” Although Manitowoc was served by commercial air carriers in the past, none is currently serving the area, due primarily to deregulation of the airline industry, cutbacks in federal subsidies, and the nearby location of other larger airports which do currently offer commercial service.

Access to the airport is best achieved by taking County Highway P/Menasha Avenue from the east or the west to Freedom Way, where the airport is located. Airport users coming from the west can use U.S. Highway 10 and County Highway R/Rapids Road to get to County Highway P and Freedom Way. Airport users coming from the east (Cities of Manitowoc and Two Rivers) can take Waldo Boulevard to Menasha Avenue to get to Freedom Way and the airport.

Private Recreational Airports

There are also several privately owned airstrips located within Manitowoc County providing general small craft services and/or recreational flights to the public. These small, private airport facilities offer minimal services, and are generally utilized by recreational fliers. Private recreational airports are generally characterized by short (2,000 to 3,000 foot) turf covered runways which can accommodate small single engine and light twin engine aircraft.

Private airport facilities are required to obtain a certificate of approval or permit from the Wisconsin Department of Transportation’s Bureau of Aeronautics. The permit is issued if the Department determines that the location of the proposed airport is compatible with existing and planned transportation facilities in the area. Generally, permits are granted provided that the proposed air strip is located such that approaching and departing aircraft clear all public roads, highways, railroads, waterways or other traverse ways by a height which complies with applicable federal standards. The permit is issued upon satisfactory review of the application by WisDOT, the county, the local jurisdiction in which the proposed facility would be located, and by the applicable regional planning commission.

Manitowoc County airstrips recorded in WisDOT files in 1990 that have not been abandoned or deactivated included: Wind Haven in Collins; Larrabee Airport in Larrabee; Mueller Farm Vintage Area in Mishicot; Flying Dollar Ranch in Maribel, and Triple S Ranch in Whitelaw. In

addition, helipads were recorded for hospitals serving the Manitowoc-Two Rivers area. It is important to note that the last tabular records of these airstrips were documented in 1990, and circumstances may have changed since then.

Harbors and Marinas

The source of this information is the *Port, Harbor and Recreational Marina Study for the Bay-Lake Region* produced by the Bay-Lake Regional Planning Commission in 2004.

Manitowoc Harbor

Manitowoc Harbor consists of an entrance channel, an outer harbor of approximately 78 acres formed by a north and south breakwater, and an inner harbor extending from the mouth of the Manitowoc River to just downstream of the second rail bridge, adjacent to the Burger Boat Company. Project depth in the inner harbor is 22 feet, in the outer harbor within the channel is 23 feet, and in the entrance channel beyond the harbor is 25 feet.

Harbor Channel

A dredged entrance channel leads from deep water in Lake Michigan between converging breakwaters through Manitowoc Harbor to the mouth of the Manitowoc River, and then upstream for about 1.7 miles to a point about 200 feet below the railroad bridge. In May 2003, U.S. Army Corps of Engineers surveys indicate that the controlling depths were 20.4 feet at mid-channel in the entrance and through Manitowoc Harbor to the mouth of the river, then 20.2 feet to the first railroad bridge, then 16.9 feet at mid-channel to the second railroad bridge, and finally 5.7 feet at the head of the project. It should be noted that work after 2003 led to the harbor channel having a depth of 18 feet to Burger Boat.

A small-boat basin, entered through an opening in the north breakwater, is about a quarter mile above the Manitowoc Breakwater Light. The east side of the entrance is protected by a short jetty, marked at its outer end by a light. The ends of the breakwater are marked by a light and a day beacon. In May 2002, the controlling depths were 6.3 feet (10.4 feet at mid-channel) in the entrance, then depths of 8 to 10 feet were in the basin and channel east of the docking piers, except for lesser depths at the extreme north end of the channel.

Manitowoc Shoal, on the south side of the approach to the harbor, has its minimum depth of 14 feet about 0.65 miles southeast of the Manitowoc Breakwater Light. The northeast side of the shoal area is marked by a buoy. A shoal with a minimum depth of 14 feet is about 1.2 miles southeast of the breakwater light.

Industrial and Commercial Uses

Major industrial and commercial users of the Manitowoc Harbor include; Anheuser-Busch Inc., Burger Boat Company, the Manitowoc Company, Medusa Cement Company, the Canadian National Railroad, Chessie System Railroad ferries, the Consumer Steel Company, and the C. Reiss Coal Company.

The Lake Michigan Carferry (i.e., S.S. Badger) carries passengers and autos, and operates from the east side of the slip at the mouth of the Manitowoc River. The ferry operates between Manitowoc and Ludington, Michigan.

Water Related Recreational Uses

The Manitowoc Marina is located at the mouth of the Manitowoc River. The marina has 250 permanent slips and 30 transient slips available. Transient berths, electricity, water, ice, gasoline, diesel fuel, a marine railway with lift capacity of 35 tons for vessels up to 70 feet for hull and engine repairs, sewage pump-out facilities and a launching ramp are available on the north side of the river mouth.

The maximum boat size that the marina can accommodate is 100 feet, and the average water depth is 10 feet. Other facilities include six launch ramps, a lift, dock attendant, a store, gas and diesel fuel, electricity, pump out, dry storage, chartered fishing and sailing.

Two Rivers Harbor

The harbor at Two Rivers consists of an outer harbor formed by two parallel piers, an inner harbor basin at the confluence of the East and West Twin Rivers, and a channel one half mile in length extending from the basin upstream in the East Twin River to the 22nd Street Bridge.

The city's central business district is adjacent to the harbor area. Other uses include a commercial fishing village, heavy industrial uses, and recreational boating facilities. Major uses of the harbor include charter and commercial fishermen, recreational boaters and fishermen that use the government pier for fishing purposes.

Harbor Channel

A dredged entrance channel leads northwest from deep water in Lake Michigan between parallel piers to a harbor basin at the confluence of the East Twin River and the West Twin River and then leads upstream in the East Twin River for about a half mile to the 22nd Street Bridge. The outer ends of the piers are marked by lights, and the rivers are partially marked by private buoys; the buoys are unnumbered, and are shifted to mark the best water.

In September 2001, the controlling depths were 8.9 feet (11.0 feet at mid-channel) in the entrance channel and between the piers to the basin, then 14 to 16 feet in the basin, then 5.0 feet (6.5 feet at mid-channel) in the East Twin River to about 20th Street, then 3.3 feet to the head of the project at about the 22nd Street bridge.

The West Twin River has depths of about 9 feet in the south part of the channel from the basin to the Washington Street Bridge. The nominal head of navigation on the East Twin River is three miles from the mouth, while the nominal head of navigation on the West Twin River is seven miles from the mouth. The navigable depth of both rivers is not more than four feet. Only small recreational craft operate on these rivers above the dredged channels.

Industrial and Commercial Uses

The major commercial user of the Two Rivers Harbor is the Susie Q Fish Company, which maintains fifteen commercial boats in the Rogers Street Fishing Village on the east bank of the East Twin River between the 17th Street Bridge and the 22nd Street Bridge. There is a city-owned dock that has been used for the unloading of petroleum products and caustic soda located just downstream of the Washington Street Bridge on the west bank of the East Twin River. A pipeline from the dock connects with a 212,000 barrel petroleum storage facility located upstream on the West Twin River. Schwarz Marine Company, a boat builder, is located upstream of the 22nd Street Bridge on the north bank of the East Twin River.

Water Related Recreational Uses

A marina on the south side of the West Twin River provides transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, and a launching ramp. A 40-ton crane is available for engine and electronic repairs.

In 2002, there were approximately 280 berthing facilities and 17 boat launch ramps available in the City of Two Rivers. Of these, 269 berthing facilities and launch ramps were private. Some 201 of the private berthing facilities were located on the West Twin River and the remaining 68 berthing facilities were located on the East Twin River. Approximately 92 spaces are located within the limits of the federal navigation project.

Smaller Recreational Marinas in Manitowoc County***Seagull Marina and Campgrounds***

Seagull Marina is located along the West Twin River in the City of Two Rivers. The marina has 30 permanent slips and 20 transient slips. The maximum boat size that the marina can accommodate is 38 feet. The average water depth is 10 feet. Other facilities include a ramp, a nearby lift, ships store, gas, electricity, pump out, and dry storage. Charter fishing companies and campgrounds are located within the marina.

Stop and Dock Marina

This marina is located along the West Twin River in the City of Two Rivers. The marina has 40 permanent slips and five transient slips. The maximum boat size that the marina can accommodate is 30 feet. The average water depth is three feet. Other facilities include a ramp, a nearby lift, electricity, pump out, dry winter storage, a picnic area and recreational vehicle parking.

Twin Cities Marine, Inc

This marina is located along the West Twin River in the City of Two Rivers. The marina has 25 permanent slips and five transient slips. The maximum boat size that the marina can accommodate is 26 feet. The average water depth is 12 feet. Other facilities include a ramp, a nearby lift, nearby gas, ships store, electricity, pump out, and dry and winter storage. There is an indoor marina onsite.

Sims Marina

This marina is located along the West Twin River in the City of Two Rivers. The marina has 20 permanent slips and six transient slips. The marina offers dockage facilities for boats up to 28 feet. The average water depth is six feet. Other facilities include a ramp, a nearby lift, nearby gas and diesel fuel, electricity, and a fish cleaning area. This marina also has a campground.

Harbor Assistance Program

The Harbor Assistance Program (HAP) was designed to “assist harbor communities along the Great Lakes and Mississippi River in maintaining and improving waterborne commerce.” The Wisconsin Department of Transportation has indicated that eligible “port projects typically include dock restoration, mooring structure replacement, dredging, and the construction of facilities to hold dredged material.” Grant applications are accepted twice a year, and “there are

23 ports in the state (including Manitowoc) that are potentially eligible for funding through the HAP.”

WisDOT has established the following eligibility guidelines for the HAP program:

- The project must benefit facilities that are used for cargo transfer, ship building, commercial fishing or regular ferry service;
- The applicant must be a local unit of government or a private owner of a harbor facility;
- The project must pass a rigorous benefit-cost analysis; and
- The project must have been identified in a current Three-Year Harbor Development Plan.

The Manitowoc Harbor has secured HAP funding three times from 1980 through 2006: over \$38,000 in 1982 for dredging for a channel extension; over \$2.8 million in 2003 for dock wall construction; and nearly \$1.2 million in 2006 (jointly with Burger Boat) for launch well construction.

Commercial Trucking

Commercial trucking terminals exist in the cities of Kiel, Manitowoc and Two Rivers, as well as in the Town of Newton.

INVENTORY OF APPLICABLE TRANSPORTATION PLANS AND PROGRAMS

The following section of this chapter presents information on existing state, regional, county, and local transportation related plans that apply to Manitowoc County.

Wisconsin State Highway Plan

The *Wisconsin State Highway Plan 2020* states that, “Wisconsin's State Trunk Highway system, consisting of approximately 11,800 miles of roads, is aging and deteriorating at the same time traffic congestion is increasing.” In response to this critical issue, WisDOT, in partnership with its stakeholders, developed the State Highway Plan 2020, a 21-year strategic plan which considers the highway system's current condition, analyzes future uses, assesses financial constraints and outlines strategies to address Wisconsin's preservation, traffic movement and safety needs. The plan will be updated every six years to reflect changing transportation technologies, travel demand and economic conditions in Wisconsin.

The Wisconsin State Highway Plan 2020 addresses three key elements or issues of concern relative to the State Highway System:

- Preserving the system by improving or replacing aging pavements and bridges;
- Facilitating movement of people and goods through an efficiently designed system, and with programs that reduce traffic congestion; and
- Improving highway safety through combined strategies of engineering, education and enforcement.

Connections 2030

Connections 2030 will be the statewide long-range transportation plan with a horizon year of 2030. *Connections 2030* will address all modes of transportation – roadways, air, water, rail, bicycle, pedestrian, and transit – and ways to make the individual modes work better as an integrated transportation system.

Connections 2030 will be a policy-based plan. The policy recommendations include a series of action steps to be accomplished within two to four years, five to ten years, or more than ten years into the future. WisDOT may also identify critical priorities that metropolitan planning organizations (MPOs) must maintain if funding were to decrease during the timeframe covered by the plan.

While the final plan will include statewide policy recommendations, some of these recommendations may differ by specific corridors in the state. *Connections 2030* will also include recommendations on such issues as economic development, land use, transportation finance and the environment. The goal of *Connections 2030* is to provide a plan that can aid policy makers in future transportation decisions.

Six-Year Highway Improvement Program

The Wisconsin Department of Transportation develops a *Six-Year Highway Improvement Program* which addresses the *rehabilitation* of Wisconsin’s state highways. Rehabilitation falls into three major categories (resurfacing, reconditioning and reconstruction) giving it the often used abbreviation “3-R Program.”

Resurfacing entails provision of a new surface for a better ride and extended pavement life;

Reconditioning entails addition of safety features, such as wider lanes or softening of curves and steep grades; and

Reconstruction entails complete replacement of worn roads, including the road base and rebuilding roads to modern standards.



WisDOT Northeast Region staff has indicated that within the current Six-Year Program (covering the period from 2008 through 2013), the following projects will occur. Note that WisDOT staff has also indicated that “the six-year highway improvement schedules may change.”

U.S. Highway 10

- Madison Street from 10th Street to 8th Street, City of Manitowoc: urban reconstruction (2008).
- 8th Street from Madison Street to Washington Street, City of Manitowoc: urban reconstruction with traffic calming (2008).
- Branch River to County Highway R: rubblize and overlay the existing concrete pavement, including pavement repair and overlay of ramps. Provides a five foot paved shoulder to Wagon Wheel Road (2008).
- Interstate Highway 43 to Rapids Road: pavement maintenance – concrete joint repair on the ramps at the Interstate Highway 43/U.S. Highway 10 interchange (2008).
- Branch River Bridge and Approaches: bridge replacement (2010 – 2013).

- Within village limits of Village of Reedsville: reconstruction to an urban section (2010 – 2013).

State Highway 42

- Lincoln Avenue from 22nd Street to 35th Place, City of Two Rivers: urban reconstruction with storm sewer repair/replacement (2010 – 2013).
- Sheboygan County line to U.S. Highway 151: reconditioning, plus provide a three foot paved shoulder (2010 – 2013).

Interstate Highway 43

- At State Highway 147, County Highway K and County Highway V Interchanges: concrete joint repair and inlet repair of ramps and on Interstate 43 between ramp terminals (2008).
- From North Junction of U.S. Highway 10 to State Highway 96 in Brown County: resurfacing of northbound and southbound lanes (2010 – 2013).

State Highway 67

- State Highways 32/57 to U.S. Highway 151: resurfacing and reconditioning, plus widen shoulders to accommodate bikes to County Highway X (2008 - 2009).

State Highway 147

- County Highway B/Village of Mishicot to Interstate Highway 43: patch joints as needed and diamond grind; spot repair of the asphaltic shoulders as needed (2010 – 2013).
- City of Two Rivers to Village of Maribel: concrete repair and overlay from County Highway VV to Mishicot. Concrete repair in driving and parking lanes and grinding in driving lanes only in portion of the Village of Mishicot east of County Highway B. Mill and overlay in driving lanes only in portion of the Village of Mishicot west of County Highway B. Other work from west of Mishicot to the Village of Maribel. (2010 – 2013).

U.S. Highway 151

- County Highway A to the east village limits of Valders: resurfacing (2010 – 2013).
- I-Tec Drive to State Highway 42: reconstruction with increase from two to four lanes (2010 – 2013).

State Highway 310

- County Highway R to Columbus Street: resurfacing (2009).
- Hawthorne and 14th Streets in the City of Two Rivers: reconstruction and resurfacing (2010 – 2013).
- County Highway R Intersection: mill and resurface; investigate traffic calming and intersection modifications (2009).
- County Highway Q Intersection: mill and resurface; investigate traffic calming and intersection modifications (2009).
- County Highway B Intersection: mill and resurface; investigate traffic calming and intersection modifications (2010 - 2013).

Local Projects

- County Highway T Bridge and Approaches, Town of Cooperstown, Devils River: remove and replace the existing structure with a new structure on the same alignment with improvements to the approach vertical geometrics (2009).
- Valley Drive Bridge and Approaches, Town of Manitowoc Rapids, Silver Creek: remove and replace the existing structure with a new structure on the same alignment with minimal approach work (2009).
- Newton Road Bridge and Approaches, Town of Newton, Point Creek: remove and replace the existing structure with a new structure on the same alignment with minimal approach work; consider channel change work in the vicinity of the structure to maintain structural integrity (2009).
- 17th Street Bridge and Approaches, City of Two Rivers, East Twin River: bridge replacement and preservation (2010 – 2013).

State Airport Plan

The *Wisconsin State Airport System Plan 2020* (SASP 2020) provides a framework for the preservation and enhancement of the system of public-use airports adequate to meet the current and future aviation needs of Wisconsin. The plan determines the number, location, and type of aviation facilities required to adequately serve the state's aviation needs over the 21-year planning period from 2000 through 2020.

State Highway Corridor Plans

WisDOT is partnering with the City of Two Rivers to study how a future four-lane extension of State Highway 310 should access the City of Two Rivers.

Maritime Metro Transit Development Program

The Maritime Metro Transit Development Program (TDP) was completed by the Bay-Lake Regional Planning Commission in 2002. The period covered by the TDP was 2003 through 2007. The *Maritime Metro TDP* involved an “alternatives analysis” process that involved examination of several alternative configurations for the future of this transit operation which serves the cities of Manitowoc and Two Rivers. Key recommendations from the Maritime Metro TDP included extension of transit service on weekday evenings and on Saturday afternoons (2004), as well as reconfiguration of Maritime Metro Transit's bus routes (2006). The Recommended Plan chapter of the TDP also included a financial plan, a fare policy, recommended capital improvements, marketing recommendations, a monitoring program, land use planning recommendations, contingency measures, other recommendations, and an implementation strategy.

The Bay-Lake Regional Planning Commission will be working with Maritime Metro Transit staff in the completion of a TDP Update for 2010 through 2014.

Public Transit – Human Services Transportation Coordination Plan for Manitowoc County

In 2006, Manitowoc County Aging and Disability Resource Center (ADRC), with assistance from the Bay-Lake Regional Planning Commission, developed the *Public Transit – Human Services Transportation Coordination Plan*. These plans are required under federal law for counties to receive federal funding under three programs: 1) the Section 5310 capital program, 2) the Job Access Reverse Commute (JARC) program, and 3) the New Freedom program.

The Bay-Lake Regional Planning Commission also assisted the Manitowoc County ADRC in amending its *Public Transit – Human Services Transportation Coordination Plan* in 2007, along with an update to the plan over the summer of 2008; this new plan will cover a five year period.

State Pedestrian Plan

The *Wisconsin Pedestrian Policy Plan 2020* outlines statewide and local measures to increase walking and to promote pedestrian comfort and safety. The plan provides a policy framework addressing pedestrian issues and clarifies WisDOT’s role in meeting pedestrians’ needs. It establishes actions and policies to better integrate pedestrian facilities into the transportation system over the next twenty years.

The state plan also provides recommendations to assist local officials in meeting their communities’ pedestrian transportation responsibilities. The plan outlines specific design guidance for local officials found in WisDOT’s Facilities Development Manual (FDM); state funding for local pedestrian projects provided primarily through the General Transportation Aids (GTA) Program; and safety and education program funding provided by WisDOT to local agencies.

Ice Age Trail Plan

The Bay-Lake Regional Planning Commission collaborated with the Wisconsin Department of Natural Resources, the National Park Service and the Ice Age Park and Trail Foundation to produce the *Ice Age National Scenic Trail Corridor Plan for Kewaunee, Manitowoc and Sheboygan Counties, Wisconsin*; this plan was completed in late 2006.



According to the plan’s Executive Summary, “the proposed corridor in Manitowoc County is approximately 65 miles in length,” and “the corridor includes the Cities of Manitowoc and Two Rivers, as well as the Villages of St. Nazianz and Valders.”

Additional information concerning the Ice Age Trail Plan can be found in the plan document on the WDNR website (http://www.dnr.state.wi.us/master_planning/lmiat), as well as in Chapter 9 of *Volume II: Manitowoc County Resources*.

State, Regional and Local Bicycle Plans

State Bicycle Plan

The *Wisconsin Bicycle Transportation Plan 2020* has as its two primary goals:

- Increase levels of bicycling throughout Wisconsin, doubling the number of trips made by bicycles by the year 2010 (with additional increases achieved by 2020); and

- Reduce crashes involving bicyclists and motor vehicles by at least 10 percent by the year 2010 (with additional decreases achieved by 2020).

Recommended actions include 1) developing local bicycle transportation plans; 2) providing suitable space for bicyclists when designing roadway projects; 3) following accepted bikeway guidance and standards; and 4) routinely considering bicyclists when developing roadway projects.



The Wisconsin Department of Transportation produced a set of maps that identified bicycle conditions on major routes and roads for Manitowoc County. The maps assessed and identified bicycling conditions, planned state highway priority corridors and key linkages between major destination points. Refer to the *Wisconsin Bicycle Transportation Plan 2020* for an analysis of the bicycling conditions for Manitowoc County.

Regional Bicycle Plan

The *Bicycle Facility Transportation Plan for the Bay-Lake Region* completed in 2002 identified a system of connecting routes and needed improvements connecting all municipalities and major destination points throughout the eight-county region, including Manitowoc County.



The regional plan proposes transportation facility improvements (paving road shoulders to a usual width of five feet) to provide safe and efficient travel paths between communities located within Manitowoc County and the adjoining communities in adjacent counties. The Regional Bicycle Plan mostly recommends paving road shoulders (five feet in width) on several U.S., state and county highway segments in Manitowoc County, as well as a limited number of local road segments in the county with significant traffic. The Regional Bicycle Plan also recommends “adding a separated multipurpose trail within the right-of-way along the entire length of U.S. Highway 10 from Interstate 43 west to Appleton.”

City of Manitowoc Bicycle Facilities Plan

The *City of Manitowoc Bicycle Facilities Plan* developed in 1995 includes goals and objectives; an inventory of bicycle facilities and plans; potential bicycle traffic generation sites; bicycle facility design guidelines; motor vehicle traffic conditions; and bicycle facility and system recommendations.

FUNDING AND TECHNICAL ASSISTANCE PROGRAMS

There are a number of Wisconsin Department of Transportation (WisDOT) programs that provide technical and financial support for the operation, maintenance and planning of the county’s transportation systems. Attached in Appendix D of *Volume II: Manitowoc County Resources*, is a list of federal and state programs that offer financial and/or technical assistance to the county and local communities to maintain, expand, or enhance their transportation systems.

General Transportation Aids

The county and local municipal jurisdictional responsibilities to the local road system include maintenance, repair, and reconstruction of streets and roads as required. The cost of constructing,

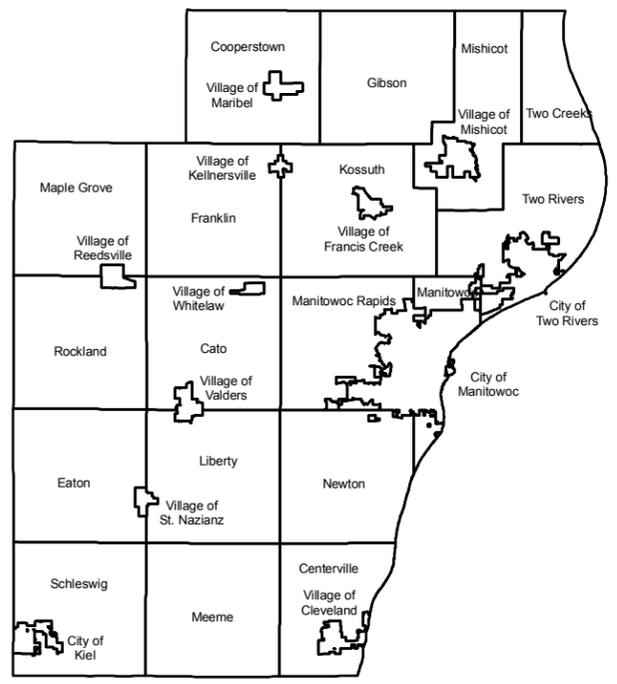
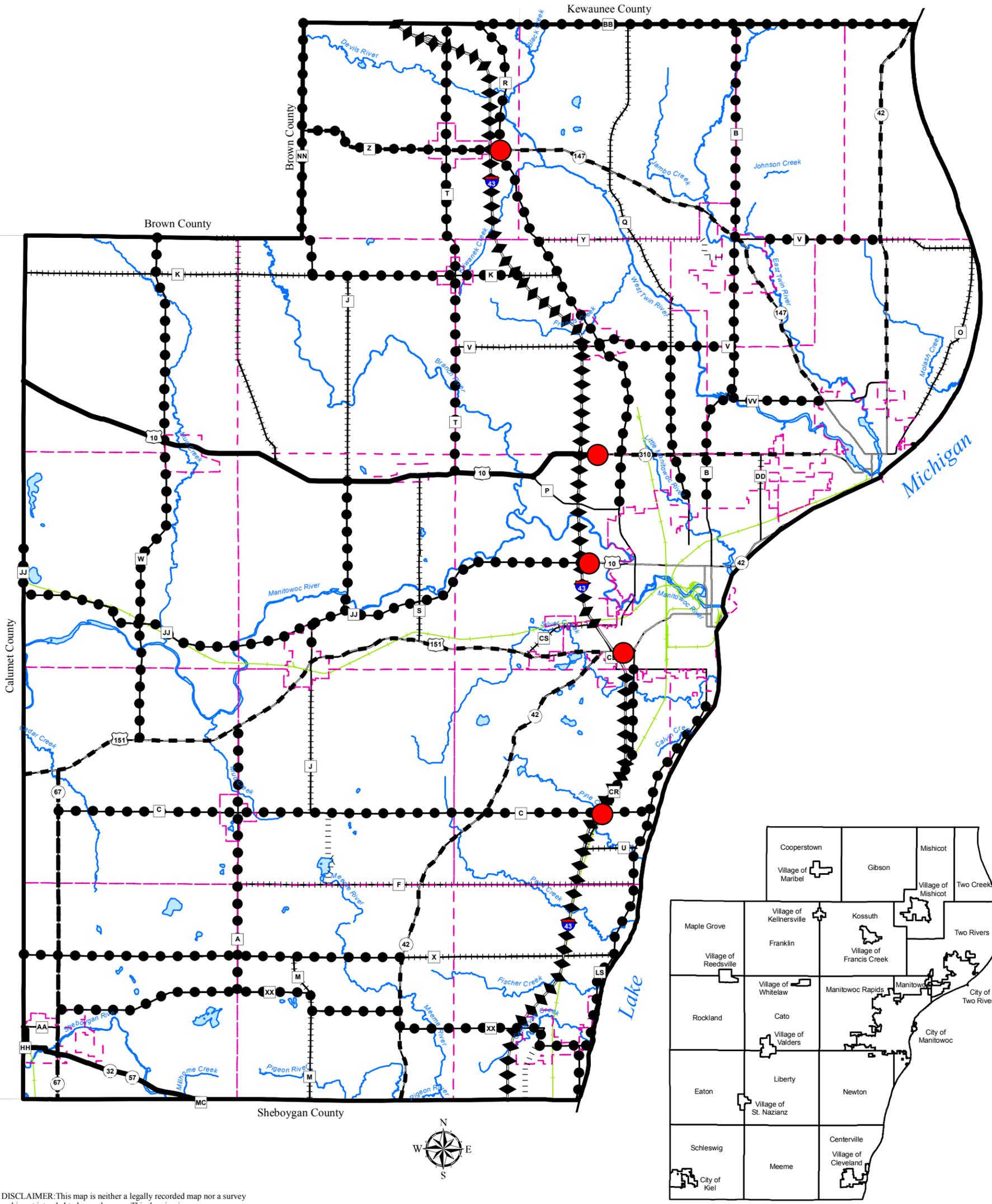
maintaining and operating the county highway and local road systems is defrayed through the provision of General Transportation Aids. General Transportation Aids are distributed to all Wisconsin municipalities through a highway aids formula administered by the Wisconsin Department of Transportation. Under the formula, local aid is distributed either as a share of eligible highway-related expenditures incurred by the municipality or on a per-mile basis, whichever is higher.

Eligible expenditures generally include all road construction and maintenance within the right-of-way, as well as a percentage of eligible law enforcement, street lighting maintenance and construction, and storm sewer construction. The share of cost rate is determined by the available funding and the average costs reported by the municipality. Each municipality's share of costs is determined by multiplying the six-year average costs by the percentage rate.

The 2008 flat rate has been set at \$1,956 per mile (this will increase to \$2,015 per mile in 2009). Transportation Aids for local units of government and for counties are derived primarily from motor fuel taxes and vehicle registration fees.

Functional Classification

Manitowoc County, Wisconsin



DISCLAIMER: This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. Bay-Lake RPC is not responsible for any inaccuracies herein contained.



- Park and Ride
- ◆◆◆◆ Principal Arterial- Interstate
- Principal Arterial- Other
- - - - Minor Arterial
- Major Collector
- ⋯⋯⋯ Minor Collector

- Base Map Features**
- County Boundary
 - Community Boundary
 - 43 Interstate Highway
 - 10 U.S. Highway
 - 57 State Highway
 - B County Highway
 - Railroad
 - Major Surface Water

Source: DNR, 2005; WisDOT, 1996, 2007, 2008; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

CHAPTER 9 : UTILITIES AND COMMUNITY FACILITIES

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INTRODUCTION

This chapter provides an inventory of the location, use, and capacity of existing utilities and community facilities in Manitowoc County. Public utilities and community facilities are important infrastructure needed to support a healthy, safe, and sustainable environment for individuals to live, work, and raise a family.

The availability, quality, and level of service are all contributing factors that attract and retain families and businesses in a community. These services include sanitary sewer service, storm water management, water supply, solid waste disposal, on-site wastewater treatment technologies, recycling facilities, parks, telecommunications facilities, power-generating plants and transmission lines, cemeteries, health care facilities, child care facilities and other public facilities, such as police, fire and rescue facilities, libraries, schools and other governmental facilities.

ELECTED OFFICIALS AND COMMITTEES

Manitowoc County Board of Supervisors

Manitowoc County is governed by an elected Board of Supervisors that represent 25 Supervisory Districts. These districts cover the county's eighteen towns, nine villages, and three cities. All Supervisors serve a two-year term.

The County Board of Supervisors oversees many services provided by Manitowoc County. The Board of Supervisors has the responsibility of adopting and enforcing policies; establishing an operating budget; overseeing human resources; generating revenues through grants, taxes, and fees; making land use decisions through zoning; and ensuring services meet defined levels and quality. Much of this work is accomplish through committees comprised of Supervisors and supported by county staff.

Manitowoc County Committees

- Executive
- Finance
- Grievance
- Health Care Center
- Highway
- Natural Resources and Education
- Personnel
- Public Safety
- Public Works
- Special Health Care Center Study

UTILITIES INVENTORY AND ANALYSIS

Electric Service

Wisconsin Public Service (WPS) and We Energies supply the majority of power to Manitowoc County communities; serving residential, farm, commercial and industrial customers. Electricity is generated by the Manitowoc Power Plant found in the City of Manitowoc and Point Beach Nuclear Plant located in the Town of Two Creeks. However, most of the power from the Point Beach facility is distributed to the Green Bay area and communities along the Lake Michigan shoreline of



Point Beach Nuclear Plant
Source: www.nucleartourist.com

Southeastern Wisconsin. As a result a number of power plants located in surrounding areas, including the Kewaunee Power Station in Kewaunee County and Pulliam Power Plant located in Green Bay, supply a great deal of power to customers in Manitowoc County.

The cities of Manitowoc and Kiel are members of Great Lakes Utility (GLU). The purpose of GLU is to give its member communities the flexibility to arrange for their own power supply as the electric market evolves. The GLU organization deals with a variety of activities such as coordination of bulk power programs, the purchasing and selling of power to and from its members and others, and ownership of power facilities.

The City of Two Rivers purchases its electric necessities from Wisconsin Public Power Inc. (WPPI). Two Rivers Water and Light then distributes the power to its customers.

Transmission Lines

Electric power for the county is transmitted along high voltage electric transmission lines owned and operated by the American Transmission Company (ATC). Major transmission lines within Manitowoc County include several 345 kilovolts (kV) lines and 138 kV lines that originate from the Point Beach Nuclear Plant and Kewaunee Power Station. Smaller 69-kV lines also distribute power throughout Manitowoc County. Most of these lines originate from the Manitowoc Power Plant.



Map 9.1 illustrates the location of the various transmission lines that distribute power to customers of the county.

Natural Gas

The main natural gas pipeline corridor found in the county is owned by El Paso Corporation / ANR Pipeline Company (ANR). The line enters the county from the south and leads into the City of Two Rivers. Smaller feeder lines from the major pipeline supply natural gas to the various local distributors including WPS, which provides natural gas service to the county's communities.

Renewable Energy Sources

Renewable Energy Sources are sources that are essentially inexhaustible. Such sources include water, solar, wind and biomass (e.g., wood, waste, geothermal, wind, photovoltaic, and solar thermal energy).



The Lakeshore Technical College Wind Generation Facility located in the Village of Cleveland.



Biomass, in addition to coal, petroleum coke, natural gas, and oil is used in the Manitowoc Public Utilities (MPU) power generating station. Biomass materials include paper pellets, cork, and wood charcoal. The MPU facility is certified by the Public Service Commission of Wisconsin as a renewable energy provider.

Telecommunication Facilities

Telecommunications facilities include such services as broadcasting, two-way radio, fixed point microwave, commercial satellite, cellular radio, etc.

Local, long distance, and cellular telephone services are offered through a variety of providers. Telecommunication towers can be found throughout Manitowoc County.

A number of companies provide dialup internet, while special lines are also located in the county for accessing high-speed internet including T1, DSL and cable, but are only accessible to several of the county's communities.

Cable television is provided to the incorporated communities and portions of the towns. Various satellite dish providers are also available for enhanced television viewing. Satellite providers can also offer broad band solutions.

Water Supply

Municipal water systems serve the majority of residential, commercial and industrial users in 11 communities within Manitowoc County.



Nine (9) of the public water systems are supplied from groundwater through community wells including the villages of Cleveland, Kellnersville, Maribel, Mishicot, Reedsville, St. Nazianz, Valders, and Whitelaw, along with the City of Kiel.



The cities of Manitowoc and Two Rivers utilize Lake Michigan for their public water supply needs.

Each community's water system should be sufficient to meet the everyday demands of the customer in addition to demands for higher volumes, as would be the case for fire protection. Future expansion needs for each community's public water service areas will be dependant upon storage capacity and density of homes that could be accommodated using the existing systems of the community.

The Village of Francis Creek and 18 towns within the county not serviced by public systems have individual or shared wells that are owned and maintained by the property owner(s).

MPU Potable Water System

Manitowoc Public Utilities (MPU) utilizes state-of-the-art Microfiltration Membrane technology to treat Lake Michigan water to the residents of the City of Manitowoc and Central Brown County Water Authority (CBCWA). The current treatment capacity is approximately 35 million gallons per day (MGD). Microfiltration provides a physical barrier to water borne pathogens such as Cryptosporidium and Giardia. MPU also has two high-quality Ranney Collector groundwater wells with a capacity of 14 MGD to partially supplement the surface water treatment plant.

Central Brown County Water Authority Pipeline

In 2004, The City of Manitowoc, MPU, and the Central Brown County Water Authority (CBCWA) signed an agreement to provide MPU-treated Lake Michigan water to the community members of the CBCWA, including the villages of Allouez, Bellevue and Howard, the City of De Pere, and the towns of Lawrence and Ledgeview. The CBCWA communities are provided Lake Michigan water through this 65-mile water pipeline originating from the City of Manitowoc (Map 9.1). These Green Bay suburbs purchase the water from the City of

Manitowoc. Other communities near the pipeline corridor may also have the opportunity to connect to this water system.

Sanitary Sewer Service

Wastewater Treatment Facilities

Wastewater in the urbanized and developed rural areas of Manitowoc County is treated by municipal wastewater treatment facilities. The sanitary sewer systems collect, pump, treat, and dispose of sewage discharged from residences, office buildings, factories, and other buildings.

Sewer Districts

A sewer district is an independent special district which provides wastewater collection, treatment, and disposal services to residents and businesses in a pre-determined geographic area. Users are assessed a tax that is collected bi-annually by the district to cover costs associated with the facilities.

The following sanitary districts serve communities in Manitowoc County:

- Clark Mills Sanitary District
- Kossuth Sanitary District #2 (Rockwood)
- Liberty Sanitary District #1 (Pigeon Lake)
- Rockland Sanitary District #1 (Collins)

Several areas in the county also have established sanitary districts, but have yet to install the infrastructure to make them operational.

- Manitowoc Rapids Sanitary Districts 1 & 2
- Schleswig Sanitary Districts 1 & 2
- Silver Creek Sanitary District
- Silver Lake Sanitary District
- Two Rivers Sanitary District

Sewer Service Area

A Sewer Service Area (SSA) identifies established lands where sewer services are intended to be made available during a 20-year planning period. The SSA is delineated using the 20-year population projection, an acceptable residential population density, and a forecast of non-residential development (e.g. commercial and industrial growth) which would result in acreage demand and allocation. Delineating a service boundary is critical in designing sewage collection and treatment facilities to serve existing and future residents of the SSA in the most cost effective and environmentally sound manner.



The Manitowoc-Two Rivers Sewer Service Area (SSA) Plan, which encompasses both cities along with the Village of Mishicot, is the only SSA plan in Manitowoc County.

Communities with Municipal Wastewater Treatment Systems

- City of Manitowoc
- City of Two Rivers
- City of Kiel
- Village of Cleveland
- Village of Francis Creek
- Village of Kellnersville
- Village of Maribel
- Village of Mishicot
- Village of Reedsville
- Village of St. Nazianz
- Village of Valders
- Village of Whitelaw

Private Onsite Wastewater Treatment Systems

Private onsite wastewater treatment systems (POWTS), also known as “septic systems”, employ biological and mechanical processes to remove the viruses, bacteria, and other contaminants contained in the wastewater discharged from a dwelling or public building. The most common POWTS are conventional seepage trenches; mound systems; and at-grade systems. Holding tanks are also regulated as a POWTS.

Storm Sewer

The primary purpose of the storm sewer system is to drain excess rainfall, prevent flooding and provide drainage for roads and adjacent properties. A storm sewer is a system designed to carry the rainfall runoff and other drainage, but not sewage. The runoff is carried in underground pipes or open ditches and discharges (untreated) into streams or other surface water bodies.

Municipal storm sewer systems are found primarily in the incorporated communities and consist of curbed streets, gutters, and a variety of pipeline. In the majority of the rural areas of the county, storm water drains through a series of maintained ditches and culverts.

COMMUNITY FACILITIES INVENTORY, AND ASSESSMENT

Administrative Facilities

Manitowoc County Administration Office Building and Courthouse

The county’s administration building is located at 1110 South 9th Street. The facility houses the County Administrative Coordinator, Personnel, and Public Works.

The Manitowoc County Courthouse is located at 1010 South 8th Street. It houses the County Clerk, Circuit Court Judge, Family Court, District Attorney, Child Support, Register in Probate, Corporation Counsel, Register of Deeds, and County Treasurer.



Manitowoc County Courthouse

Other County Facilities

- Manitowoc County Office Complex, 4319 Expo Drive
- Manitowoc County Sheriff’s Department, 1025 South 9th Street
- Manitowoc County Expo, 4921 Expo Drive
- Manitowoc County Courthouse Annex Building, 823 Washington Street
- Manitowoc County Health Care Center, 2021 S. Alverno Road
- Manitowoc County Highway Commission, 3500 State Hwy 310
- Manitowoc Human Services Department, 926 S. 8th Street
- Manitowoc County Materials Recycling Facility, 3000 Basswood Road

Solid Waste Disposal & Recycling Facilities

A majority of communities in the county have either curbside pickup of refuse or maintain drop-off sites. Waste is collected and disposed of through public works departments, private haulers,

or residents transport the refuse themselves. The waste is taken to the Ridgeview Landfill in the Town of Franklin.

Recycling is regulated under Chapter 287 of the Wisconsin Statutes. Enacted in 1990, the Recycling Law effectively made recycling a mandatory activity by prohibiting certain materials from being disposed in landfills within the state.

Each municipality within Manitowoc County is responsible for implementing a recycling program. Several communities in the county have curb side pickup, while the majority of the towns maintain or share drop-off sites to provide residents a nearby facility to dispose of their recyclables. The recyclables are then taken to the nearest recycling center by private haulers or by the communities' public works department. Refer to the Manitowoc County website (Public Works-Recycling Center) for a listing of local drop-off site locations and hours.



Manitowoc County Recycling Center

The Manitowoc Recycling Center at 3000 Basswood Road in the Town of Manitowoc Rapids maintains a residential recycling drop-off area that is intended for use by all county residents. There is no trash or garbage drop off at this location.

Manitowoc County Recycling Center also oversees two compost sites, the Basswood Compost Site and the Woodland Compost Site (4191 Woodland Drive in Two Rivers), to serve Manitowoc County residents.

Road Maintenance

The Manitowoc County Highway Department, located at 3500 Hwy 310 in the Town of Kossuth, is responsible for maintaining the County and State Trunk Highway System for safety and convenience of people traveling through Manitowoc County. The department provides road, winter, and construction maintenance for State and County Trunk Highways throughout the county.

- County road maintenance includes: patching, crack sealing, wedging/rut filling, milling, grinding bumps, traffic control, surveillance, repairing joints, punchouts/blowups, drainage, safety appurtenances, seal coating, shoulder maintenance, mowing, roadside vegetation control, bridge inspection and repair, signing, pavement marking, litter pickup, culvert replacement, and concrete pavement repair.
- Winter road maintenance includes: plowing and blowing snow, application of salt, sand and chlorides, and drift prevention.
- County road construction includes: reconstructing or asphaltting 18-21 miles of the 287 miles of highway each year. Rehabilitating the highway system every 15 years.

Facility Maintenance

The Manitowoc County Courthouse Maintenance Department maintains the courthouse complex and grounds. Services of the department include: preventative maintenance, repairing, remodeling, light construction, cleaning and grounds maintenance.

Some of the individual communities also have their own equipment, or contract with businesses, to perform services such as grass cutting, seal coating, gravel and other maintenance on their community facilities.

Postal Services

Postal services for Manitowoc County residents and businesses are provided by U.S. Post Offices and private parcel carriers (UPS, DHL, FedEx, etc.). Listed below are the U.S. Post Offices that serve Manitowoc County communities.

- Village of Cleveland
- Village of Mishicot
- Village of Kellnersville
- Village of Francis Creek
- City of Kiel
- City of Manitowoc (3)
- Village of Maribel
- Town of Newton
- Collins (Town of Rockland)
- Village of Reedsville
- Village of St. Nazianz
- City of Sheboygan
- City of Two Rivers
- Village of Valders
- Village of Whitelaw
- City of Chilton
- City of Brillion
- Village of Elkhart Lake
- City of New Holstein

Protective and Emergency Services

Law Enforcement and Protection

The Manitowoc County Sheriff Department is located within the City of Manitowoc at 1025 South 9th Street. The sheriff’s department provides 24-hour emergency assistance to a majority of the communities of the county. The county operates a county-wide 911 emergency dispatch system located in the Communications Center of the Manitowoc County Jail. Assistance is also provided to the fire departments, rescue squads, and city and village police departments in the county.

The following communities in Manitowoc County maintain their own Police Departments:

- *City of Manitowoc Police Department*, 910 Jay Street, City of Manitowoc
- *Cleveland Police Department*, 1150 W. Washington Avenue, Village of Cleveland
- *Kiel Police Department*, 621 Sixth Street, City of Kiel
- *Mishicot Police Department*, 511 East Main Street, Village of Mishicot
- *Reedsville Police Department*, 217 Menasha, Village of Reedsville
- *St. Nazianz Police Department*, 218 W. Main Street, Village of St. Nazianz
- *Two Rivers Police Department*, 1717 East Park Street, City of Two Rivers
- *Valders Police Department*, 207 Liberty Street, Village of Valders

Fire Station/Protection

Fire protection for Manitowoc County residents is provided by 25 local fire departments. Table 9.1 lists the fire departments, while their service areas are illustrated on Map 9.2.

Table 9.1: Fire Departments Serving Manitowoc County

| Map 9.2 Number | Fire Department | Location |
|----------------|---|-------------------------------------|
| 1 | Ada Fire Department | W3984 Highway 32 Hwy, Elkhart Lake |
| 2 | Branch Fire & Rescue | 8124 Village Dr, Whitelaw |
| 3 | Brillion Fire Department | 130 Calumet St, Brillion |
| 4 | City of Manitowoc Fire Department | 911 Franklin Street, Manitowoc |
| 5 | City of Two Rivers Fire Department | 2122 Monroe Street, Two Rivers |
| 6 | Cleveland Fire Department | 1274 W Washington Avenue, Cleveland |
| 7 | Collins Fire Department | 901 Milwaukee St, Collins |
| 8 | Francis Creek Fire Volunteer Department | 310 Norwood Dr, Francis Creek |
| 9 | Howards Grove Fire Department | 1013 S Wisconsin Dr, Howards Grove |
| 10 | Kellnersville Fire Station | 807 Main St, Whitelaw |
| 11 | Kiel Fire/Town of Schleswig Department | 99 E. Fremont St, Kiel |
| 12 | Maribel Fire Department | 15127 North Maribel Rd, Maribel |
| 13 | Menchalville Fire Department | 3999 Highway H Rd, Reedsville |
| 14 | Mishicot Fire Department | 214 S. Main St, Mishicot |
| 15 | Newton Fire Department | 6528 Carstens Lake Rd, Manitowoc |
| 16 | Reedsville Fire Department | 100 Industrial Dr, Reedsville |
| 17 | Rockwood Fire Department | 5401 County Road R, Manitowoc |
| 18 | Silver Creek Fire Department | 6510 Hwy 151, Manitowoc |
| 19 | St. Nazianz Fire Department | 202 N. 4th Ave, St. Nazianz |
| 20 | Tisch Mills Fire Department | 110 N County Hwy B, Tisch Mills |
| 21 | Town of Two Rivers Fire Department | County Hwy B, Shoto |
| 22 | Two Creeks Fire Department | 5128 E Tapawingo Rd, Two Rivers |
| 23 | Valders Fire Department | 103 Eisenhower St, Valders |
| 24 | Wayside Volunteer Fire Department | 8257 Hwy W, Greenleaf |
| 25 | Whitelaw Fire Department | 330 E Menasha Ave, Whitelaw |



Source: Bay-Lake Regional Planning Commission, 2008.

Each department maintains mutual aid agreements with neighboring departments to ensure there is adequate response and coverage during large fire events. Also, each of the departments looks to continually upgrade equipment such as radios, hoses, turn-out gear, imaging devices, and pagers to meet state standards.

Insurance Service Office (ISO) - Public Protection Classification (PPC)

The adequacy of fire protection within a fire protection district is evaluated by the Insurance Service Office (ISO). ISO collects information on municipal fire-protection efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data using their Fire Suppression Rating Schedule (FSRS) and assigns a Public Protection Classification (PPC) - a number from 1 to 10. Class 1 represents the best protection, and Class 10 indicates that the area’s fire protection does not meet ISO's minimum criteria.

ISO helps communities evaluate their public fire-protection services. The program provides an objective, countrywide standard that helps fire departments in planning and budgeting for facilities, equipment, and training. Throughout the United States, insurers of homes and business property use ISO's Public Protection Classifications in calculating premiums.

EMS/Ambulance

All areas of the county are covered by six municipal based EMS/ambulance service providers in or adjacent to Manitowoc County.



Map 9.3 displays the service areas of each of the EMS/ambulance providers covering Manitowoc County.

- EMS/Ambulance Providers*
- Kiel Fire Department Ambulance Service
 - Manitowoc Rescue
 - Mishicot Area Ambulance Service
 - Two Rivers Fire Department
 - Valders Fire Department Ambulance Service
 - Viking Community Rescue Squad Inc.

First Responders

There are a number of First Responders throughout Manitowoc County that consist of firefighters and other volunteers that are certified for patient care. Many of the First Responders in outlying areas are supplied with an emergency response kit to provide care prior to the rescue squad arriving. Below is a list of First Responders in Manitowoc County.

- Branch First Responders
- Cleveland First Responders
- Collins First Responders
- Francis Creek First Responders
- Kellnersville First Responders
- Newton First Responders
- Reedsville First Responders
- Silver Creek First Responders
- St. Nazianz First Responders

Manitowoc County Emergency Management

Manitowoc County Emergency Management directs and supports response agencies and departments within Manitowoc County in the event of a major technological or natural emergency. Emergency Management provides organized analysis, planning, decision making and assignment of available resources to mitigate (lessen the effect of or prevent), prepare for, respond to and recover from the effects of all hazards.

Education

Manitowoc County is located within 12 public school districts as illustrated on Map 9.4. The following six school districts maintain facilities located within Manitowoc County:

Kiel Area School District

- Kiel High School , 210 Raider Heights, Kiel
- Kiel Middle School 502 Paine Street, Kiel
- Meeme LEADS, 12121 County XX, Newton
- Zielanis Elementary School, 1010 Adams Street, Kiel
- Kiel’s Integrated Electronic Learning Charter School, 416 Paine Street, Kiel

Manitowoc Public School District

- Franklin Elementary, 800 S. 35th Street
- Jackson Elementary, 1201 N. 18th Street
- Jefferson Elementary, 1415 Division Street
- Lincoln Senior High, 1433 S. 8th Street
- Madison Elementary, 701 N. 4th Street
- Monroe Elementary, 2502 S. 14th Street
- Stangel Elementary School, 1002 E. Cedar Avenue
- Washington Junior High, 2101 Division Street
- Wilson Junior High, 1201 N 18th Street



Manitowoc Lincoln Senior High
Source: www.education-world.com

Mishicot School District

- O.H. Schultz Elementary School, 510 Woodlawn Drive
- Mishicot Middle School, 660 Washington Street
- Mishicot High School, 660 Washington Street Po Box 280

Reedsville School District

- Reedsville Elementary, 350 South Park Street
- Reedsville Middle School, 350 South Park Street
- Reedsville High School, 340 Manitowoc Street

Valders Area School District

- Valders Elementary School, 331 West Wilson Street
- Valders Middle School, 138 Jefferson Street
- Valders High School, 201 West Street

Two Rivers Public Schools

- Koenig Joseph Elementary School (Preschool), 3505 Glenwood
- Magee J F Elementary School, 3502 Glenwood Street
- Case C.C. Elementary School, 1322-33rd Street
- Koenig Joseph Elementary School, 114 Lowell Street
- L B. Clarke Middle School, 4608 Bellevue Place
- Two Rivers High School, 4519 Lincoln Avenue



Two Rivers High School
www.twriverseconomicdevelopment.org

There are also 27 private school facilities found within Manitowoc County that provide education opportunities to residents of the area including Manitowoc Lutheran High School and Roncalli High School, both of which are located in the City of Manitowoc.

The additional six school districts also covering Manitowoc County with facilities located in their respective communities include:

- Brillion Public School District
- Chilton Public Schools
- Denmark School District
- Howards Grove School District
- Kewaunee School District
- Sheboygan Area School District

Post-Secondary Institution

Manitowoc County has three post-secondary institutions to offer its residents and surrounding communities. These institutions include:

- *Silver Lake College*, 2406 S. Alverno Road, Manitowoc
- *Lakeshore Technical College*, 1290 North Avenue, Cleveland
- *University of Wisconsin-Manitowoc*, 705 Viebahn, Manitowoc



Other higher education institutions located in nearby counties include UW-Sheboygan and Lakeland College in Sheboygan and UW-Green Bay.

Library

Manitowoc County residents utilize library services provided through the Manitowoc-Calumet Library System (MCLS). The library system is part of the overall seventeen public library systems in covering Wisconsin. The public libraries located in Manitowoc County include:

- *Kiel Public Library*, 511 Third Street, City of Kiel
- *Lester Public Library*, 1001 Adams Street, City of Two Rivers
- *Manitowoc Public Library*, 707 Quay Street, City of Manitowoc

In addition to these public libraries, there are numerous school, church, health science, academic, and business libraries located throughout the county.

Health Care Facilities

Residents of the county are able to utilize the *Holy Family Memorial Medical Center* located at 2300 Western Avenue in the City of Manitowoc, or the *Aurora Medical Center* situated at 5000 Memorial Drive in the City of Two Rivers for their medical needs.

Additional healthcare centers and clinics are also available within many of the communities in Manitowoc County. Several chiropractic, dental, and vision practitioners are also located within the county.



Holy Family Memorial Medical Center
Source: www.manitowocchamber.com/

Child Care Facilities

Child care is a significant consideration for families and employers alike, since it is becoming the norm that both parents are part of the workforce and more families are headed by a single parent.



There are a total of 61 licensed/certified childcare facilities in Manitowoc County, most of which are privately owned. Twenty-nine facilities are classified as family (up to 8 enrolled), 30 facilities classified as group (9 or more enrolled), and 2 are classified as Day Camps (4 or more children under age 7 in an outdoor setting).

Information detailing each childcare facility's classification, hours, days of operation, and capacity is available through the Wisconsin Department of Health and Family Services website.

In addition, residents also utilize in-home/private unlicensed childcare facilities located throughout the county and surrounding areas.

Adult Care Facilities

Manitowoc County contains several adult care facilities including nursing homes, Adult Family Homes (AFH), Community Based Residential Facilities (CBRF), and assisted rental housing.

- *AFHs* are facilities where three or four adults who are not related to the operator reside and receive care, treatment or services that are above the level of room and board and that may include up to seven hours per week of nursing care per resident.
- *CBRFs* are facilities where five or more unrelated people live together in a community setting. Services provided include room and board, supervision, support services, and may include up to three hours of nursing care per week.
- A *nursing home* is a place of residence for people who require constant medical care, at a lower level than a hospital. Usually the residents are elderly, but the term can apply to places of care for the mentally or physically ill.



An October 2007 Wisconsin Department of Health and Family Services inventory indicated Manitowoc County contained 10 AFHs, 30 CBRFs, and six nursing homes. In addition, Manitowoc County contains an Adult Dare Care Program.

Cemeteries

According to *Cemetery Locations in Wisconsin, 3rd Edition*, there are a combined total of 101 known cemeteries located within Manitowoc County. Some smaller family cemeteries can be difficult to identify and may not be included in this inventory. In addition, cemeteries in communities adjacent to Manitowoc County are also utilized for burials.

Parks and Recreation

The Manitowoc County Parks Department maintains five major parks and three special purpose parks. These parks contain a number of amenities in addition to various passive and active recreational opportunities.

Point Beach State Forest

According to the WDNR, Point Beach offers 6 miles of Lake Michigan shoreline, with dunes, a lighthouse, camping (127 sites), and hiking, biking, skiing, nature, and snowmobile trails.

Killsnake Wildlife Area

According to the WDNR, Killsnake Wildlife Area is located in both southwestern Manitowoc and southeastern Calumet counties. The property is approximately 7,000 acres with a desired goal of 9,106 acres. The area consists of prairie grasslands, uplands with large wetland-grassland complex, bottomland hardwood forest, a small area of cedar swamp, a small area of tamarack and bog, agricultural landscape, small areas of upland forest and over 50 small wetland restorations.

Collins Marsh Wildlife Area

According to the WDNR, Collins Marsh Wildlife Area is a 4,200 acre property located approximately 12 miles west of the City of Manitowoc and 2 miles south of Reedsville. The area is comprised mostly of marsh, wetlands, grasslands, and bottomland hardwood forest.



The county and state park and recreation facilities are illustrated on Map 9.5.

Other Manitowoc County Recreation Facilities



Accesses for boating and fishing are located on Bullhead, Carstens, Cedar, English, Gass, Harpt, Hartlaub, Pigeon, Shoe, Spring, Tuma, Long Lake, and Wilke lakes, in addition to the Manitowoc River and West Twin River.



Two (2) county/state owned beaches exist at Point Beach State Park and Fischer Creek Conservation Area (Map 9.5).

Manitowoc County Ice Center

Located at 4931 Expo Drive in the City of Manitowoc, the Manitowoc County Ice Center offers a recreational skating facility, in addition to hosting concerts, dances, and other community events.



Manitowoc County Ice Center
Source: www.mcicenter.org

**Park Facilities
in Manitowoc County**

County Facilities

- Cherney Maribel Caves
- Fischer Creek
- Horseshoe Lake
- Long Lake
- Lower Cato Falls
- Point Creek
- Silver Lake
- Walla Hi

State Facilities

- Point Beach State Forest
- Killsnake Wildlife Area
- Collins Marsh Wildlife Area

Manitowoc County Expo

The Manitowoc County Expo Center is the home of the Manitowoc County Fair and hosts other events including horse shows, motorcycle shows, monthly flea markets and weekly bingo. The Expo Center is located at 4921 Expo Drive in the City of Manitowoc.

Local Parks

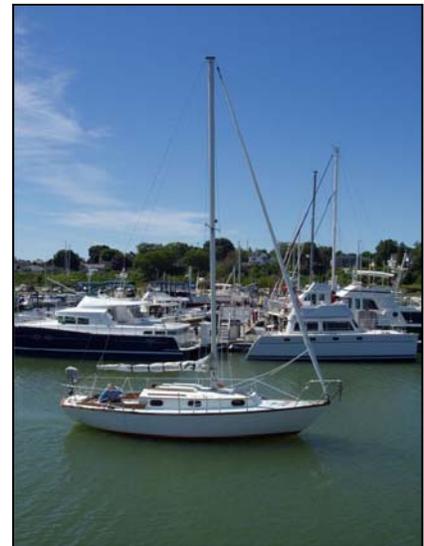
The incorporated communities along with many of the towns operate their own park and recreation systems. Local parks located throughout the county provide a wide range of recreational activities. Amenities offered at some of the local parks include, but are not limited to, picnic areas, ball diamonds, soccer and football fields, swimming pools, tennis courts, and playground areas. Appendix A of *Volume II: Manitowoc County Resources* lists all municipal parks along with state and county parks located in Manitowoc County.

Marinas

- *Manitowoc Marina*, 425 Maritime Drive, Manitowoc
- *Seagull Marina*, 1400 Lake Street, Two Rivers
- *Twin Cities Marina*, 1600 12th Street, Two Rivers

Golf Courses

- *Autumn Ridge Golf*, Valders (18 holes)
- *Badger Creek Golf Course*, New Holstein (18 holes)
- *Branch River Country Club*, Cato (Private 18 holes)
- *Eastwin Valley Golf Course*, Two Rivers (Par 3 course)
- *Elk Club Golf Course*, Manitowoc (Private 9 holes)
- *Emerald Hills Golf Course*, Two Rivers (9 holes)
- *Fairview Golf Course*, Two Rivers (9 holes)
- *Fox Hills Resort*, Mishicot (45 holes)
- *Meadow Links Golf Course*, Manitowoc (18 holes)
- *Seven Lakes Golf Course*, Cato (Par 3 course)
- *Wander Springs Golf Course*, Greenleaf (27 holes)



Manitowoc Marina
Source: www.manitowoc.org



Ice Age Scenic Trail

The Ice Age Trail is a National and State scenic trail that passes through 30 counties in Wisconsin. The portion of the trail that passes through Manitowoc County is illustrated on Map 9.5. The purpose of the trail is to tell the story of the Ice Age and continental glaciation along a scenic footpath.

Devil's River State Trail

The Devil's River Trail is the former rail grade that was converted into a "rails-to-trails" bicycle and pedestrian facility. This county-operated 14-mile trail runs from the community of Rockwood in the Town of Kossuth to the Village of Denmark in Brown County.

Manitowoc Mariners Trail

The Manitowoc Mariners Trail is a 5.5 mile paved trail connecting the cities of Manitowoc and Two Rivers. The trail is located along the shore of Lake Michigan and is utilized for hiking, biking, walking, or jogging. The Mariners Trail is considered to be the longest continuous scenic view of Lake Michigan in the state.

Rawley Point Recreational Trail

The Rawley Point Recreational Trail connects the City of Two Rivers with Point Beach State Forest. This six (6) mile trail consists of a hard-packed limestone base and winds through pine and hemlock forests, dunes and fields to the historic Rawley Point Lighthouse at Point Beach State Park.

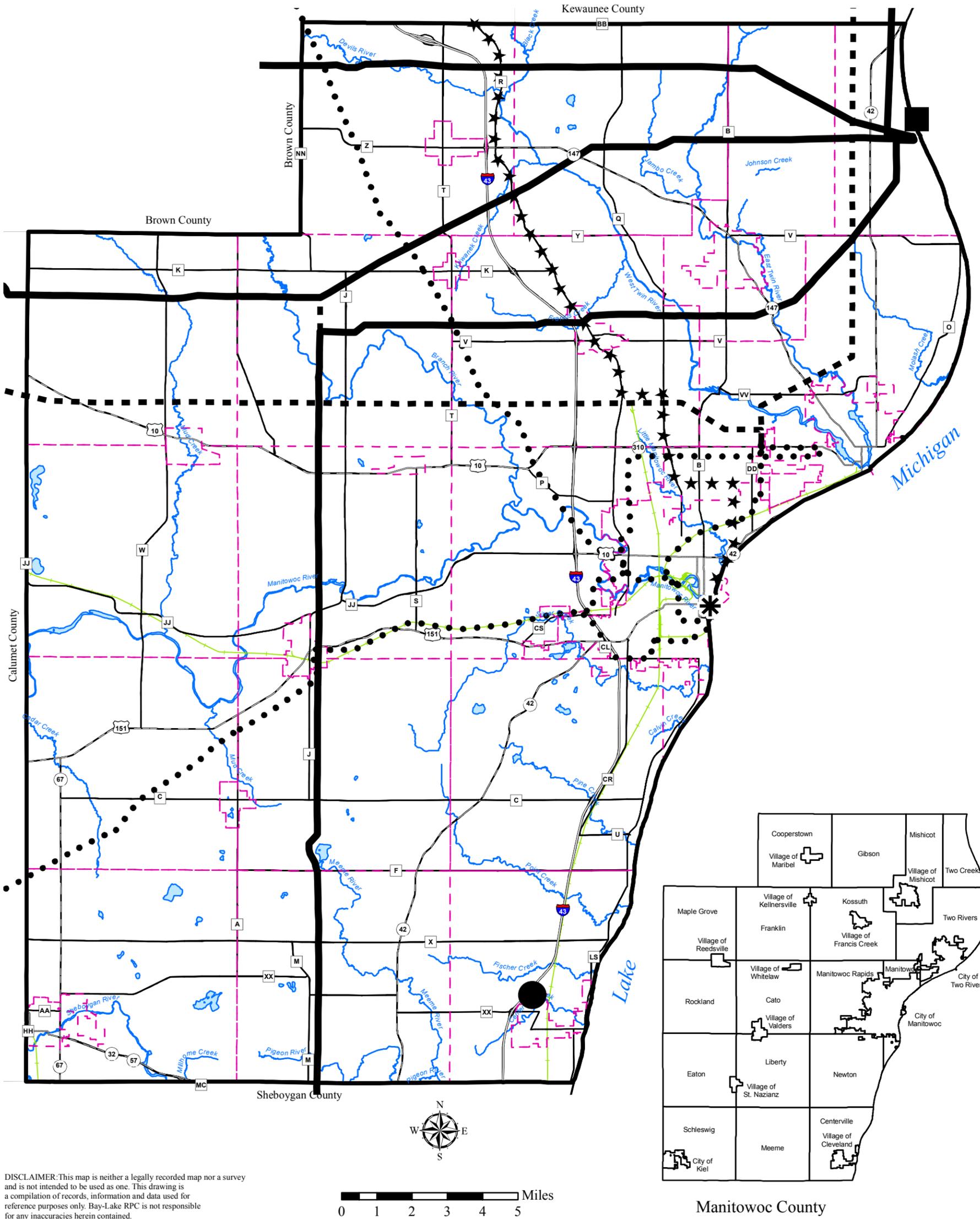
Snowmobile Trails

There is a total of 262 miles of snowmobile trails in Manitowoc County. Of the 262 miles, 245 miles are State funded. Currently, there are nine snowmobile clubs who are members of the Manitowoc County Snowmobile Alliance.

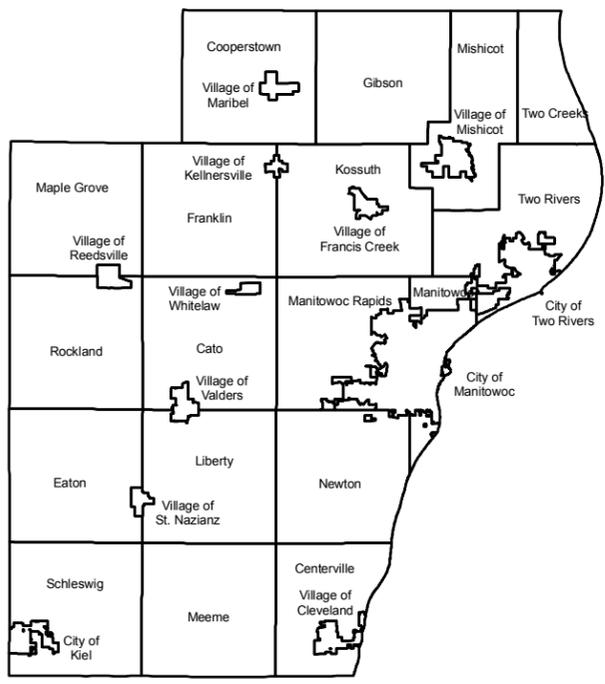
- Cleveland Snow Hawks, Cleveland
- Collins Paradise Sno-Riders, Collins
- Denmark Norsemen, Denmark
- Inland Snow-Blazers, Whitelaw
- Kettle Range Snow Riders, Mishicot
- Lakeshore Snowmobile Club, Manitowoc
- Louis Corners Sno-Birds, Kiel
- Newton Sno-Sports, Newton
- Viking Sno-Riders, Valders

Power Generation & Transmission Facilities

Manitowoc County, Wisconsin



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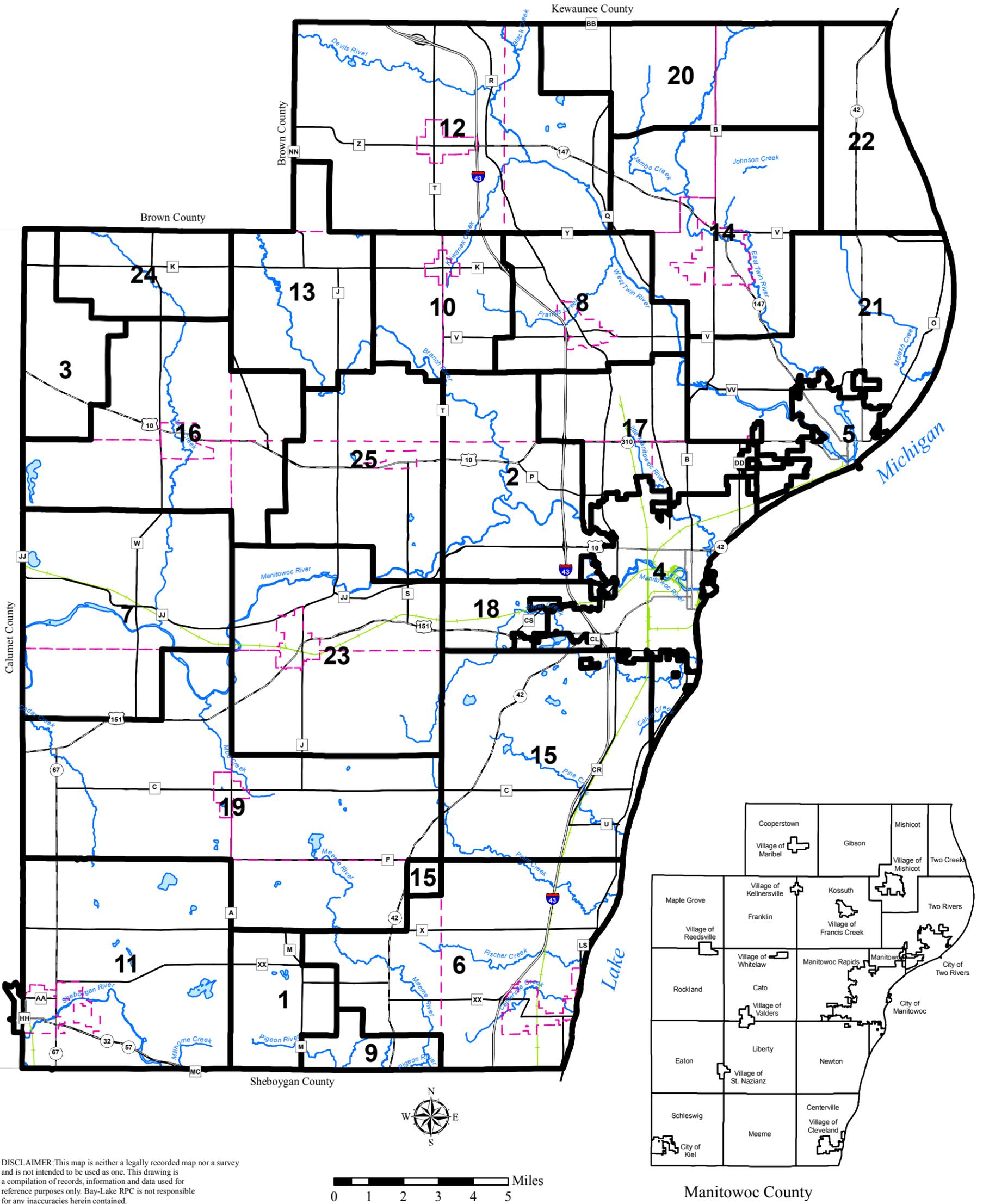
- | | | |
|--|---|---|
| <p>Generation Facility</p> <ul style="list-style-type: none"> ■ Point Beach Nuclear Plant ✱ Manitowoc Power Plant ● Lakeshore Technical College Wind Generation Site | <p>Power Transmission Lines</p> <ul style="list-style-type: none"> — 345 kV - - - 138 kV ••• 69 kV <p>Water Transmission Lines</p> <ul style="list-style-type: none"> ★★★ Central Brown County Water Authority Pipeline | <p>Base Map Features</p> <ul style="list-style-type: none"> ▭ County Boundary - - - Community Boundary Ⓜ Interstate Highway Ⓢ U.S. Highway Ⓟ State Highway Ⓛ County Highway — Railroad ■ Major Surface Water |
|--|---|---|



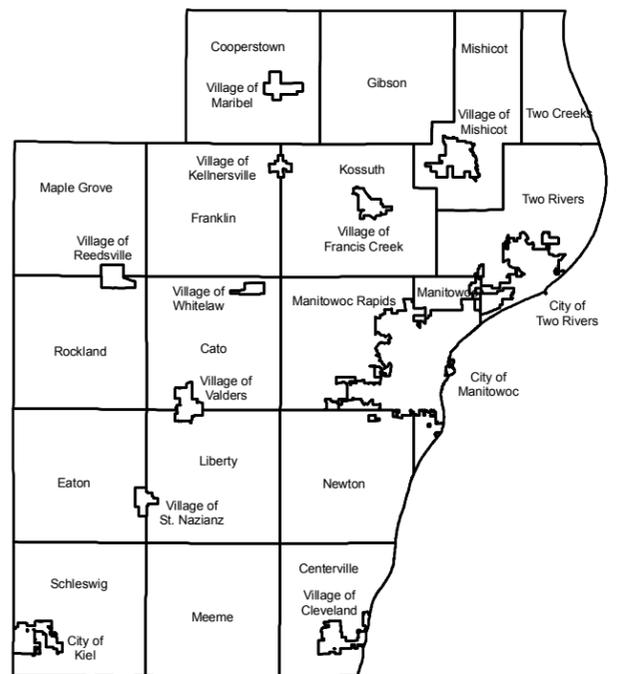
Source: DNR, 2005; WisDOT, 2007, 2008; Manitowoc County, 2008; ATC, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

Fire Department Service Areas

Manitowoc County, Wisconsin



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Service Boundary

- | | | | |
|-----------------------|-------------------|------------------|----------------|
| 1. Ada | 8. Francis Creek | 15. Newton | 22. Two Creeks |
| 2. Branch | 9. Howards Grove | 16. Reedsville | 23. Valders |
| 3. Brillion | 10. Kellnersville | 17. Rockwood | 24. Wayside |
| 4. City of Manitowoc | 11. Kiel | 18. Silver Creek | 25. Whitelaw |
| 5. City of Two Rivers | 12. Maribel | 19. St Nazianz | |
| 6. Cleveland | 13. Menchalville | 20. Tisch Mills | |
| 7. Collins | 14. Mishicot | 21. Two Rivers | |

Base Map Features

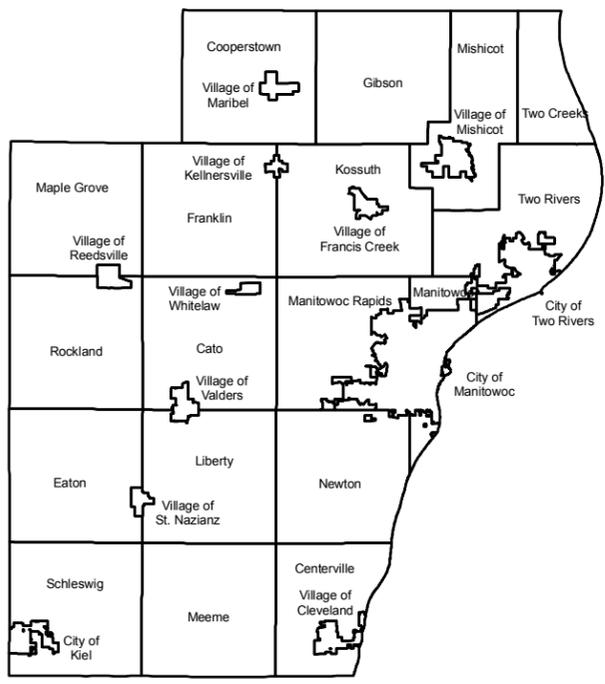
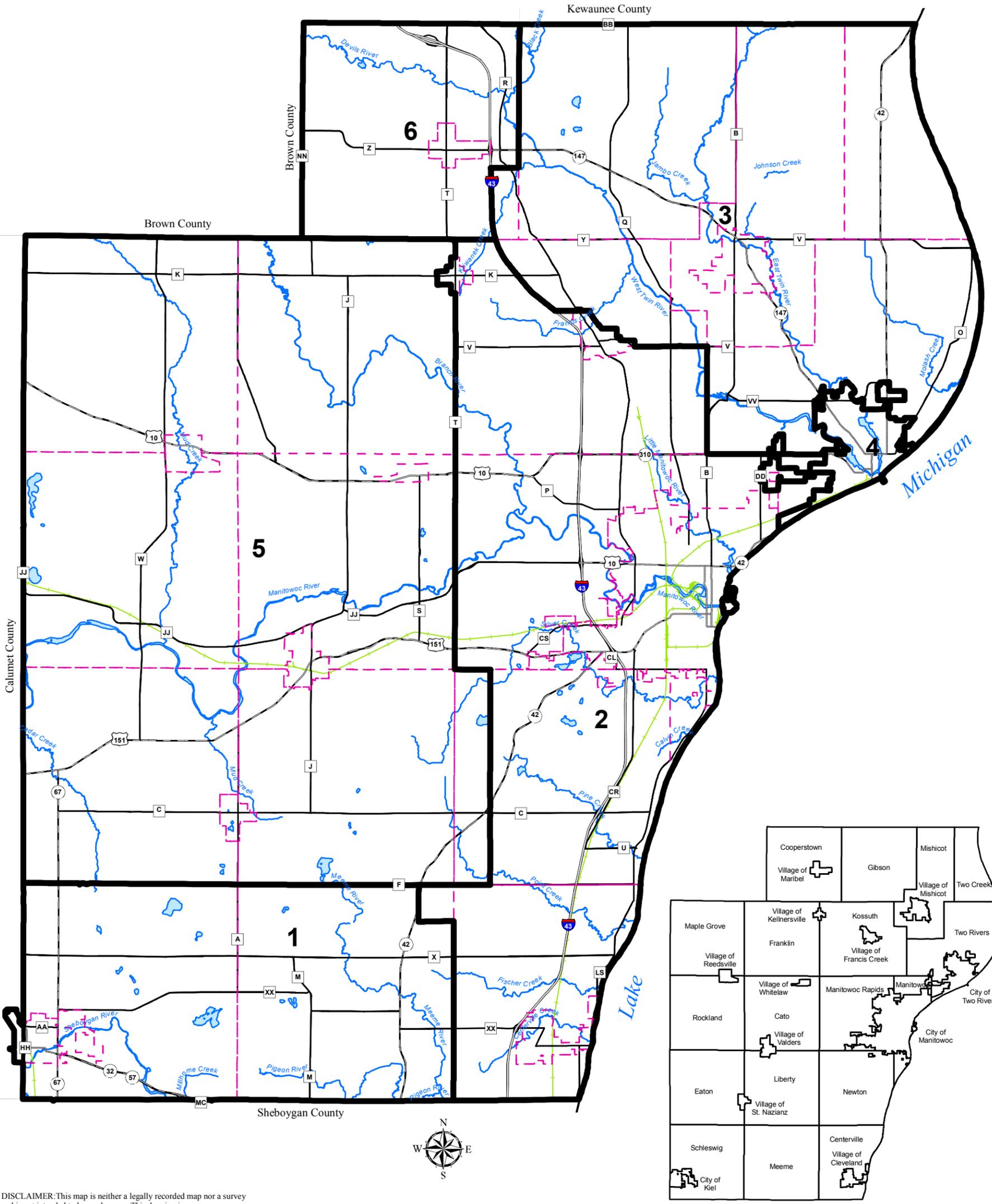
- County Boundary
- Community Boundary
- Interstate Highway
- U.S. Highway
- State Highway
- County Highway
- Railroad
- Major Surface Water



Source: DNR, 2005; WisDOT, 2007, 2008; Manitowoc County, 2007, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

EMS/ Ambulance Service Areas

Manitowoc County, Wisconsin



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Service Boundary

1. Kiel Ambulance
2. Manitowoc Rescue
3. Mishicot Ambulance
4. Two Rivers Rescue
5. Valders Ambulance
6. Viking Rescue

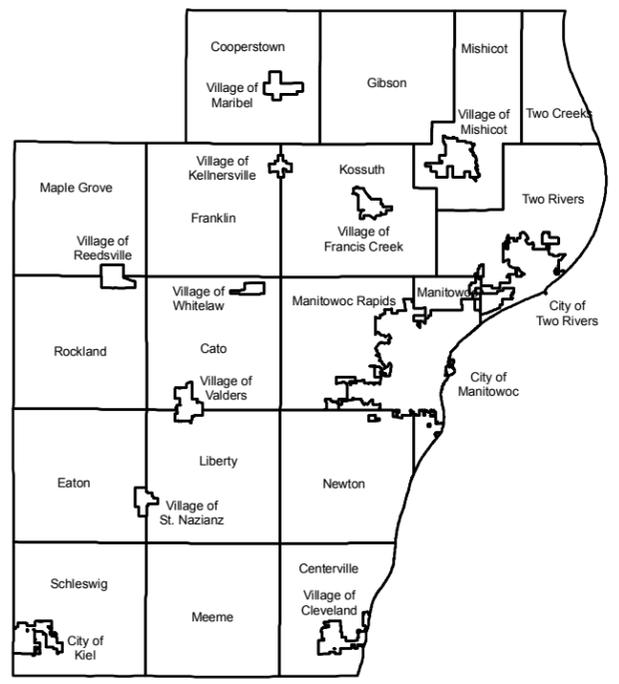
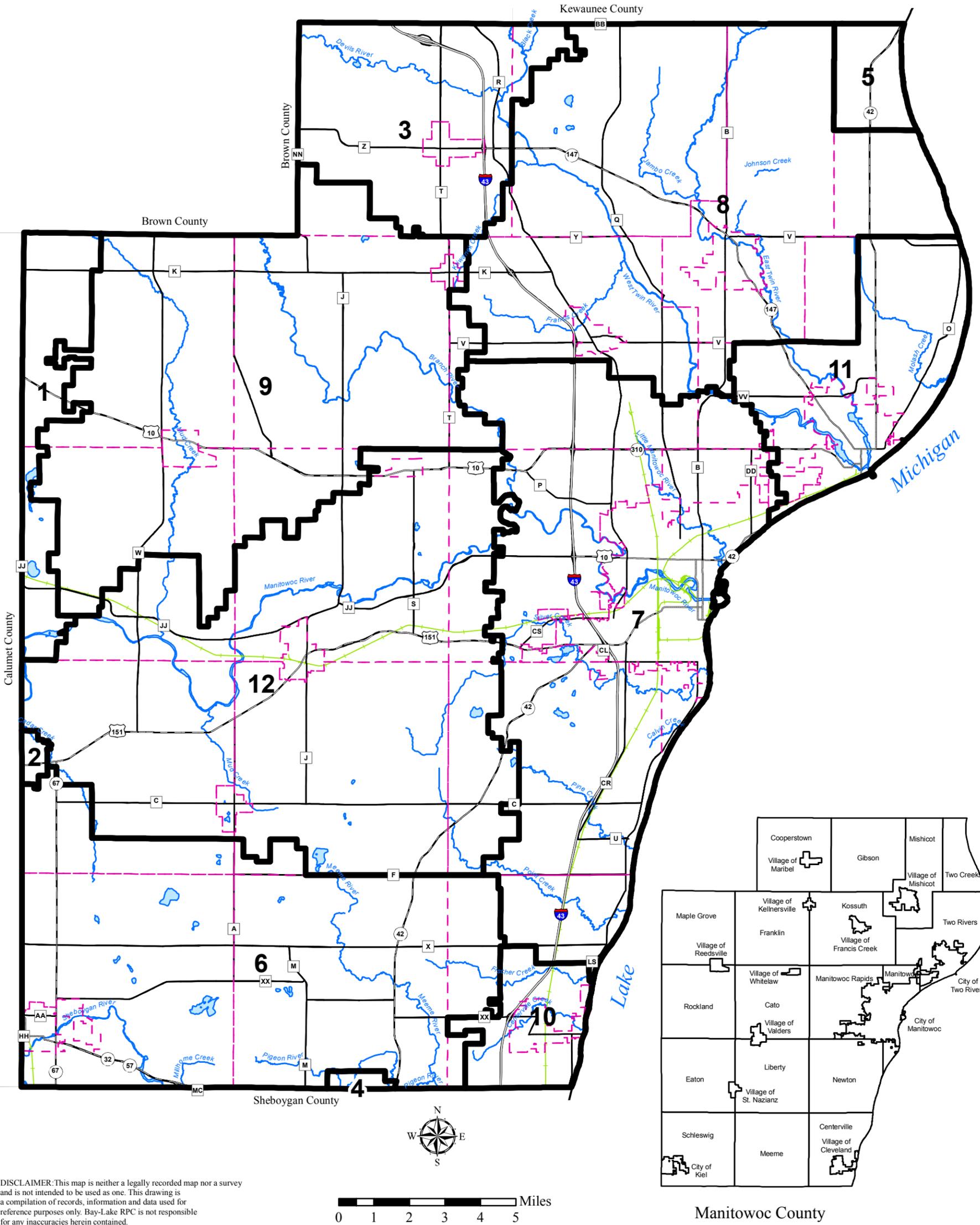
- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water



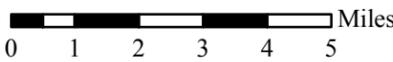
Source: DNR, 2005; WisDOT, 2007, 2008; Manitowoc County, 2007, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

School Districts

Manitowoc County, Wisconsin



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School District Boundary

- | | |
|------------------|----------------|
| 1. Brillion | 7. Manitowoc |
| 2. Chilton | 8. Mishicot |
| 3. Denmark | 9. Reedsville |
| 4. Howards Grove | 10. Sheboygan |
| 5. Kewaunee | 11. Two Rivers |
| 6. Kiel | 12. Valders |

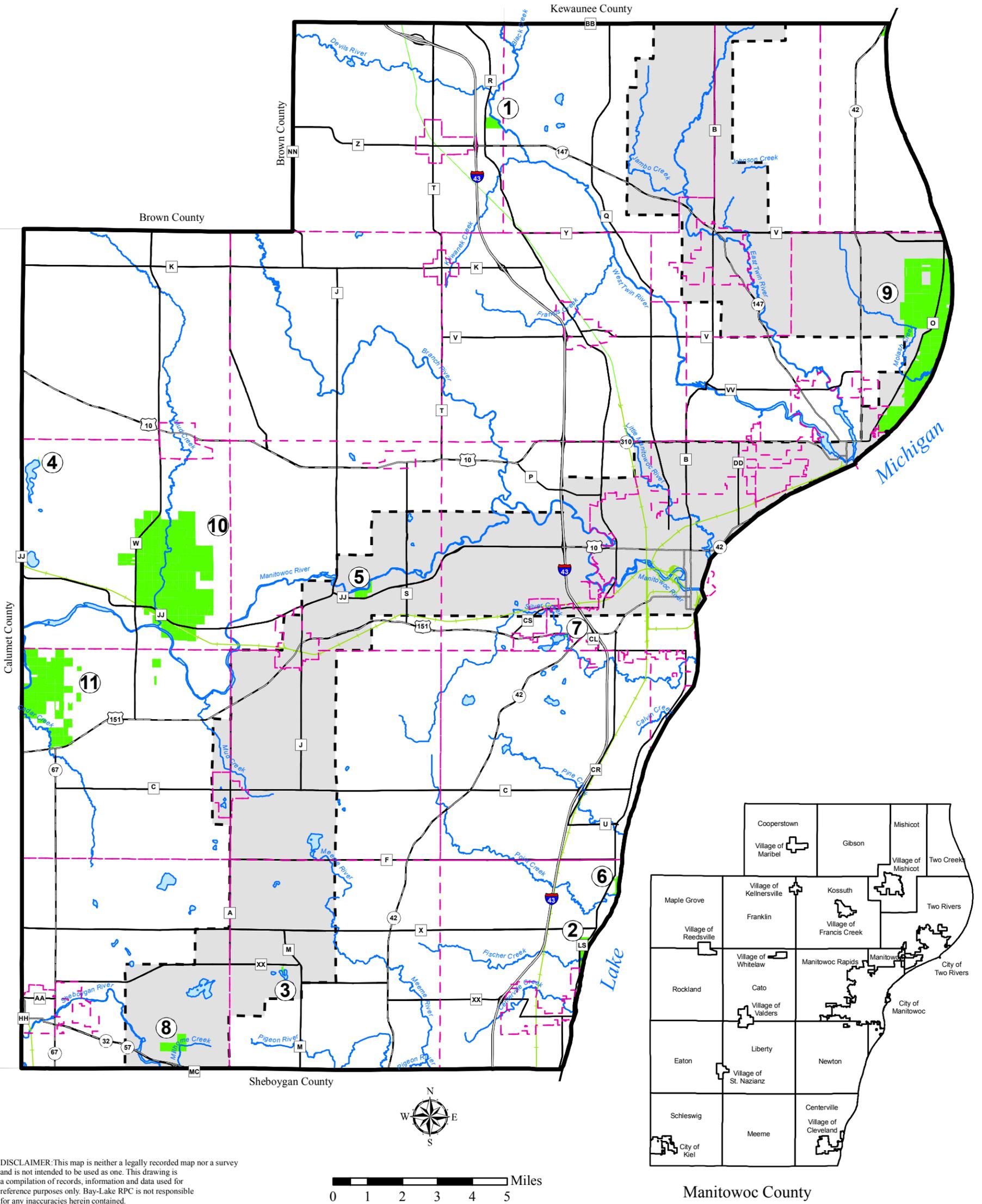
- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water



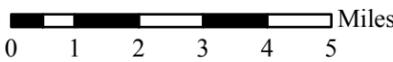
Source: DNR, 2005; WisDOT, 2007, 2008; Manitowoc County, 2006, 2007, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

State and County Park and Recreation Facilities

Manitowoc County, Wisconsin



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- County Park \ State Park
- Ice Age Trail Corridor of Opportunity

- | | |
|--------------------------|---------------------------------|
| 1. Cherney Maribel Caves | 7. Silver Lake |
| 2. Fischer Creek | 8. Walla Hil |
| 3. Horseshoe Lake | 9. Point Beach State Forest |
| 4. Long Lake | 10. Collins Marsh Wildlife Area |
| 5. Lower Cato Falls | 11. Killsnake Wildlife Area |
| 6. Point Creek | |

- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water



Source: DNR, 2005, 2006; WisDOT, 2007, 2008; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009. Q:\myfiles\manitowoc\County\Comp2007\

CHAPTER 10 : LAND USE CONTROLS AND INVENTORY

TABLE OF CONTENTS

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| EXISTING LAND USE CONTROLS | 10-1 |
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| CURRENT LAND USE INVENTORY | 10-4 |
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INTRODUCTION

This chapter of *Volume II: Manitowoc County Resources* provides descriptions of the county's land use controls (e.g., development plans, zoning ordinances, etc.) along with a countywide land use inventory conducted in 2008.

The land use inventory identified type, location, and acreage associated with the land uses found throughout Manitowoc County. The county's land use map (Map 10.2) illustrates current development patterns and allows Manitowoc County and local units of government to better determine where lands are most suitable for future growth.

EXISTING LAND USE CONTROLS

This section inventories and discusses controls and regulations that may affect or restrict the use of land within Manitowoc County. These controls should be reviewed periodically to ensure that they assist with the implementation of the future development plans of the county and the communities under county regulations, while also taking private property rights into consideration.

Planning Documents

Comprehensive Plans

This is the first comprehensive plan for Manitowoc County. Every community within the county maintains a comprehensive plan that identifies local growth/preservation strategies over a 20-year planning cycle. The local plans were referenced to collect ideas for the development of the Manitowoc County comprehensive plan, to ensure consistency between comprehensive plans, and to help avoid conflicts in future land use decisions.

Manitowoc County Agricultural Preservation Plan

In 1977, Wisconsin's Farmland Preservation Act became law. The purpose of the law is to help local governments preserve farmland through local planning and zoning and by providing tax relief to farmers who participate.

The *Manitowoc County Agricultural Preservation Plan* was updated in 2005 with attention given to land use changes resulting in urban growth and in farmland reduction, to alterations in facilities and services and to trends in the County's agricultural production. Several categories were established in the plan to accomplish the goal of preserving farmland and planned urban growth. These categories include:

Agricultural Preservation Area - The agricultural lands are areas which should be maintained in agricultural use. These areas include soils with high productivity potential, lands which have historically been in agricultural production and woodlands and wetlands which are an integral part of the farm operation.

While lands within the *Manitowoc County Agricultural Preservation Plan* are classified as "Agricultural Preservation Areas", it does not necessarily mean that these areas are considered prime agricultural land.

Conservancy Area - Includes public property, floodplains, wetlands and woodlands areas. Conservancy areas should be protected as development occurs by minimizing the loss of productive lands and natural vegetation to the extent possible.

Rural Non-Farm Development - Rural non-farm areas include unincorporated villages, existing concentrations of rural non-farm housing outside of unincorporated villages and areas proposed to be developed with rural non-farm uses.

Urban Service Area - Urban Service Areas are those areas adjacent to communities which are presently served with public water and/or sanitary sewer utilities.

Environmental Overlay Area - The Environmental Overlay Area are areas that should not be developed at urban densities due to shoreline conservation, flooding, wetland conservation, wildlife habitats, unique aesthetic feature, etc. However some lands within the “Environmental Overlay Area” may be suitable for low density development.

Refer to the Manitowoc County Agricultural Preservation Plan for a more detailed explanation of categories to determine which areas are eligible for tax credits. Map 10.1 illustrates the agricultural preservation categories within Manitowoc County.

Park and Outdoor Recreation Plan

Manitowoc County has an adopted Park and Recreation Plan which meets the eligibility requirements for participation in Federal Land and Water Conservation Fund (LAWCON) grant program. LAWCON provides grants to assist in the provision of outdoor recreation facilities.

It is important for the town to have identified their planning initiatives within this park plan in order for park and recreation projects to be eligible for federal funding assistance.

Manitowoc County All Hazards Mitigation Plan

The county All Hazards plan evaluates the county’s potential exposure to natural hazards and identifies appropriate and effective mitigation strategies. Consistent with the Code of Federal Regulations (44 CFR Part 201.6), the county focused on natural hazards, although man-made hazards are listed and briefly addressed in the hazards plan. The plan will assist Manitowoc County emergency personnel in identifying areas of risk, assessing the magnitude of the risk, and developing strategies for reducing this risk. Through this process, the county can address issues related to incompatible land uses; the identification and protection of critical facilities; and the reduction of community and taxpayer costs associated with natural disaster relief and rescue efforts. Completion of the All Hazards plan also makes Manitowoc County eligible to apply for future disaster relief and mitigation project funds to implement some of the recommended mitigation strategies.

Land Use Regulations

Manitowoc County General Zoning Ordinance

Manitowoc County maintains and administers a zoning ordinance under *Chapter 8: General Zoning* of the Manitowoc County Code. The zoning ordinance covers a majority of the unincorporated areas of the county. The towns of Centerville, Franklin, and Newton, along with the cities and villages within the county administer their own zoning ordinances.

Manitowoc County maintains and administers the general zoning ordinance for the purpose of promoting the public health, safety, and general welfare of the unincorporated areas of the county. The ordinance regulates and restricts the locations, construction and use of buildings, structures, and the use of land in the county through established zoning districts. The zoning districts help to avoid land use conflicts, protect environmental features, promote economic development, and also assist in the accomplishment of land use objectives identified by a comprehensive plan. Please refer to the Manitowoc County General Zoning Ordinance for more detailed information on zoning districts, regulations, restrictions, permitted uses, and zoning maps.

Land use related actions and regulations identified under s. 66.1001, Wis. Stats., are required to be consistent with an adopted comprehensive plan. As a result, the county zoning ordinances shall be reviewed and updated where necessary to ensure consistency with the adopted comprehensive plan(s) and any subsequent updates to the plan(s).

Manitowoc County Land Division/Subdivision Ordinance

Wis. Stat. s 236.45 enables counties with an established planning agency to adopt ordinances governing subdivisions or other division of land. The county administers a subdivision ordinance under *Chapter 12: Subdivision Regulations* of the Manitowoc County Code.

The ordinance regulates subdivisions within the unincorporated area of Manitowoc County. The county's ordinance defines subdivision as a division of a lot, parcel, or tract of land by the owner thereof or his agent for the purpose of sale or of building development, where:

- The act of division creates five (5) or more parcels or building sites of 1.5 acres each or less in area; or
- Five (5) or more parcels or building sites of 1.5 acres each or less in area are created by successive divisions within a period of five (5) years.

The county subdivision ordinance also regulates any division of land other than a subdivision and condominiums (if such condominiums result in a subdivision or lot split as defined within the subdivision ordinance).

Please refer to the Manitowoc County *Subdivision Regulations* for further information.

Manitowoc County Shoreland / Floodplain Ordinance

The intent of the Manitowoc County Shoreland/Floodplain Ordinance is to further the maintenance of safe and healthful conditions for human habitation; aid in the prevention and control of water pollution; protect spawning beds, fish, and aquatic life; minimize erosion sedimentation caused by filling, grading, lagooning, dredging, ditching, or excavation; control building sites, placement of structures, and land uses; preserve shore cover and natural beauty; protect stream channels from encroachment; provide for the movement and storage of flood waters; which, in effect, further the promotion of public health, safety, and general welfare.

The floodplain provisions of this ordinance have been established to reduce the hazard of floods to life and property.

The Manitowoc County Shoreland/Floodplain Zoning regulates development and establishes zoning standards for use of the following areas in the unincorporated areas of the county:

1. **Floodplains:** include all lands in the County designated as floodway and floodfringe on the Federal Insurance Administration (FIA) Flood Maps, as well as the general floodplain as designated on the Manitowoc County General Floodplain and Conservancy Zoning Map.
2. **Shorelands:** include all lands in the County which are within 1,000 feet of a navigable lake, pond, or flowage or within 300 feet of a navigable river or stream or to the landward side of the floodplain, whichever distance is greater. Navigable waters shall be as defined in Wis. Stats. 281.31 and shall include all lakes, ponds, and flowages shown in blue and all rivers and streams shown in solid blue on U.S.G.S. Quadrangle Maps.
3. **Shoreland-Wetlands:** includes all wetlands, designated on the Wisconsin Wetland Inventory Maps dated May 10, 1989, within the shorelands as identified in Chapter 9 of the Manitowoc County Code.
4. **Other conservancy areas:** include all lands in the county which are designated as conservancy on the Manitowoc County General Floodplain and Conservancy Zoning Map.

For more information about Shoreland/Floodplain zoning in Manitowoc County refer to *Chapter 9: Shoreland/Floodplain Zoning* of the Manitowoc County Code.

CURRENT LAND USE INVENTORY

Land Use Categories

The 2008 Manitowoc County land use inventory used a standard land use classification system that identifies the type and location of the county's various land uses. The land use inventory is not parcel-based. The three Wisconsin regional planning commissions that border Lake Michigan and Lake Superior (Bay-Lake RPC, Southeastern Wisconsin RPC, and Northwestern Wisconsin RPC) adopted the land use classification system in June 1975 for land use inventories conducted in conjunction with the Coastal Zone Management Development Program. A list of the detailed land use codes can be found in Appendix E of *Volume II: Manitowoc County Resources*.

The following list of land use categories is based on a methodology created by the Regional Planning Commissions for conducting land use inventories only. This list is *not* intended to create specific definitions for regulatory purposes.

Residential--Use of land for non-transient-occupant dwelling units, both transportable and permanent structures. The residential category is divided into the following subcategories: *Single Family, Two Family, Multi-Family, Mobile Home, and Group Quarters*.

Commercial--Use of land for retail sales or trade of goods and/or services, including enclosed participatory sports, lodging, and commercial headquarters.

Industrial--Use of land for fabrication of products, for wholesaling of products, for long-term storage of products, or transformation of materials.

Nonmetallic Mining--Use of land for the extraction, preparation, or onsite processing of mineral aggregates or nonmetallic minerals obtained from the site.

Transportation--Use of land for corridors for the movement of people or materials, including related terminals and parking facilities. This land use includes motor vehicle, air, marine, rail, and non-motorized-related transportation.

Communication/Utilities--Use of land for generation, processing, and/or transmission of electronic communication or of water, electricity, petroleum or other transmittable products, and for the disposal, waste processing and/or recycling of byproducts.

Institutional/Governmental Facilities--Use of land for public and private facilities for education, health, or assembly; for cemeteries and related facilities; and for all government facilities used for administration or safety except public utilities and areas of outdoor recreation.

Outdoor Recreation--Use of land for out-of-doors sport and general recreation facilities, for camping or picnicking facilities, for nature exhibits, and for the preservation or protection of historical and other cultural amenities.

Agriculture/Silviculture--Use of land for growth or husbandry of plants and animals and their products and for associated facilities such as sheds, silos and other farm structures. This category also includes the cropland and pasture areas primarily used for the cultivation of plants in addition to grasses for grazing.

Natural Areas--Use of land for water areas; land used primarily in a natural state for their natural functions including wetlands, grasslands and prairies, and woodlands; land undergoing change from natural areas to another land use; and conservancy areas.

Other Natural Areas--Use of land for wetlands, grassland/prairies, and woodlands not categorized elsewhere.

Water--Use of land for open water areas, including natural and impounded lakes and streams.

Planning Area

According to the 2008 land use inventory, Manitowoc County encompasses a total area of nearly 590 square miles, equating to approximately 380,000 acres. As summarized in Table 10.1 the majority of the county is classified as undeveloped, while existing development covers over 14 percent of the county. Together, residential development and the transportation network comprise nearly two-thirds of the developed land uses in the county. The county's land use is illustrated on Map 10.2. Manitowoc County's detailed land use calculations are shown in Appendix E of *Volume II: Manitowoc County Resources*.

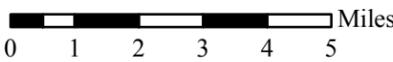
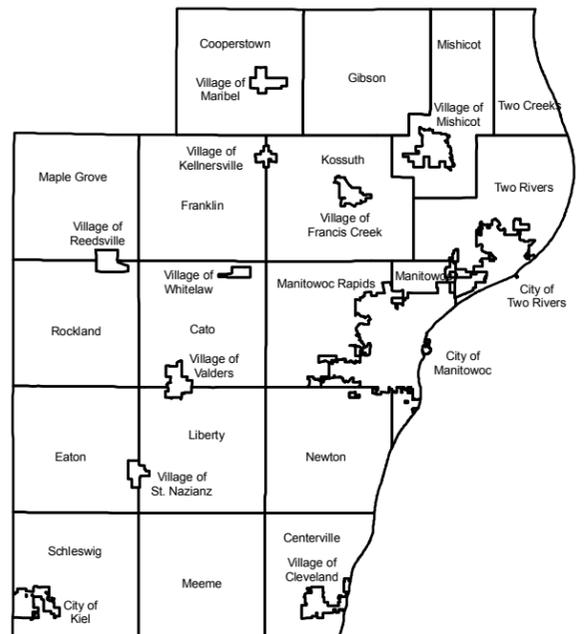
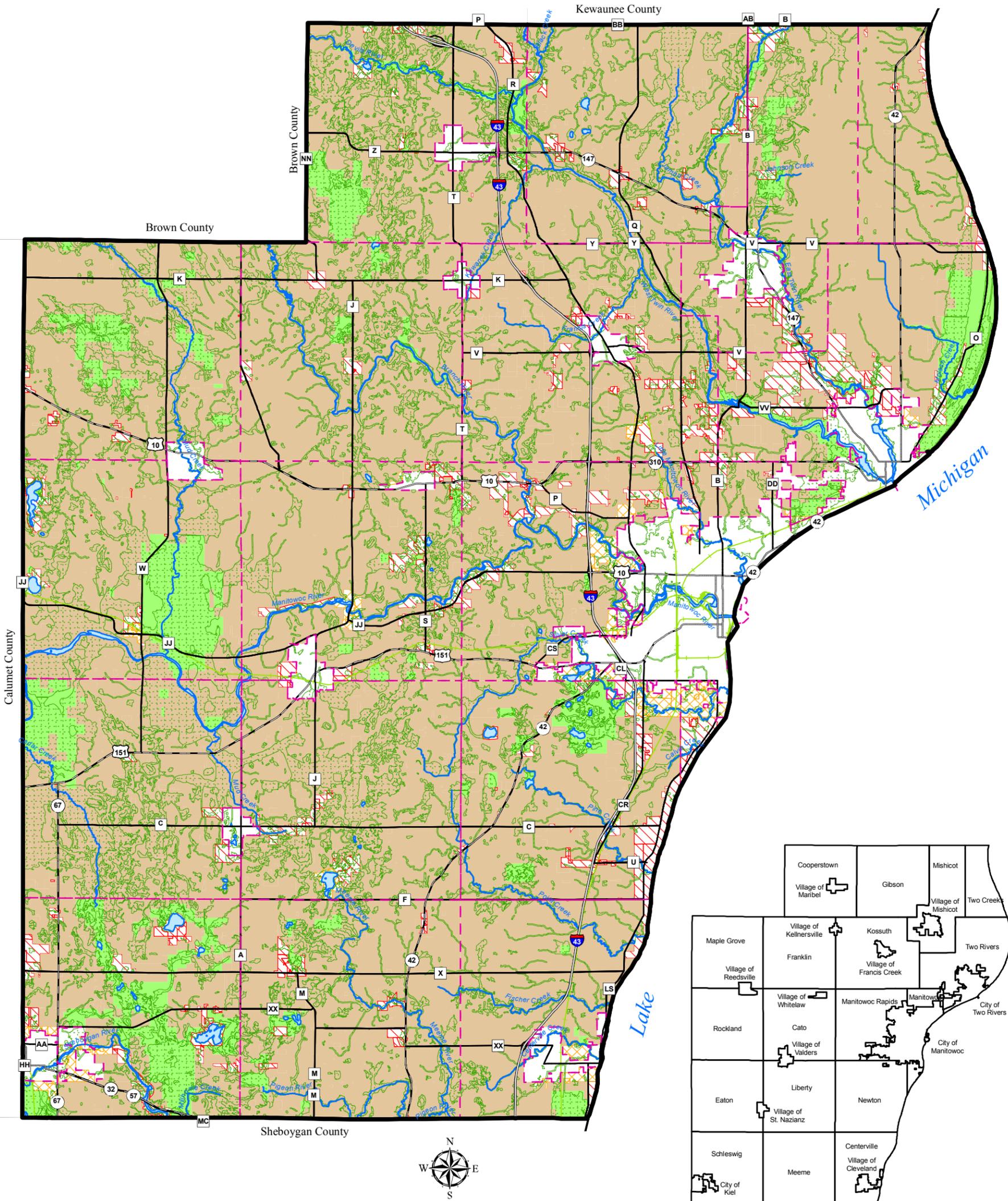
Table 10.1: 2008 Manitowoc County Land Use

| Land Use Type | Total (Acres) | Developed Land (Percent) | Total Land (Percent) |
|--------------------------------|------------------|-------------------------------|-------------------------|
| DEVELOPED | | | |
| Residential | 17,474.3 | 32.39 | 4.58 |
| Single Family | 16,485.0 | 30.56 | 4.32 |
| Two Family | 275.9 | 0.51 | 0.07 |
| Multi-Family | 317.8 | 0.59 | 0.08 |
| Mobile Homes | 324.3 | 0.60 | 0.09 |
| Vacant Residential | 71.3 | 0.13 | 0.02 |
| Commercial | 1,730.3 | 3.21 | 0.45 |
| Industrial | 3,493.4 | 6.48 | 0.92 |
| Transportation | 17,086.4 | 31.67 | 4.48 |
| Communications/Utilities | 632.3 | 1.17 | 0.17 |
| Institutional/Governmental | 1,611.0 | 2.99 | 0.42 |
| Recreational | 5,481.7 | 10.16 | 1.44 |
| Agricultural Structures | 6,436.6 | 11.93 | 1.69 |
| Total Developed Acres | 53,945.9 | 100.00 | 14.14 |
| Land Use Type | Total (Acres) | Undeveloped Land (Percent) | Total Land (Percent) |
| UNDEVELOPED | | | |
| Croplands/Pasture | 213,956.4 | 65.33 | 56.09 |
| Woodlands | 77,313.9 | 23.61 | 20.27 |
| Other Natural Areas | 31,464.8 | 9.61 | 8.25 |
| Water Features | 4,790.8 | 1.46 | 1.26 |
| Total Undeveloped Acres | 327,525.9 | 100.00 | 85.86 |
| TOTAL LAND AREA | 381,471.9 | | 100.00 |

Source: Bay-Lake Regional Planning Commission, 2009.

Agricultural Preservation Plan

Manitowoc County, Wisconsin



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- Agricultural Preservation Area
- Conservancy Area
- Rural Non-Farm Development
- Urban Service Area
- Environmental Corridors Overlay

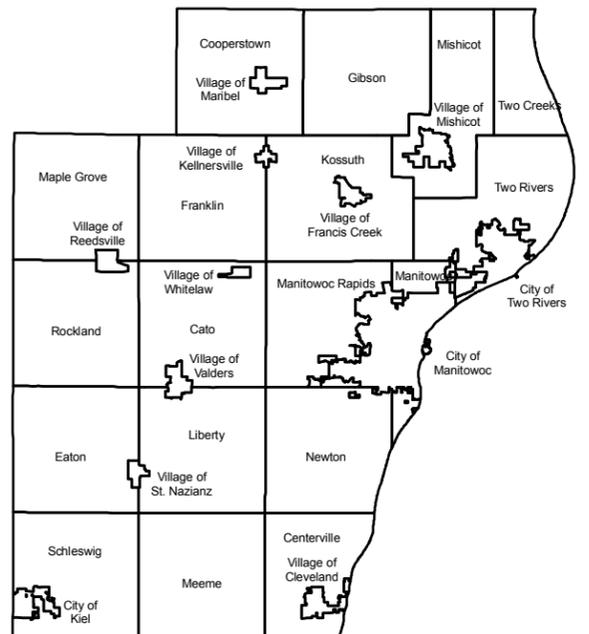
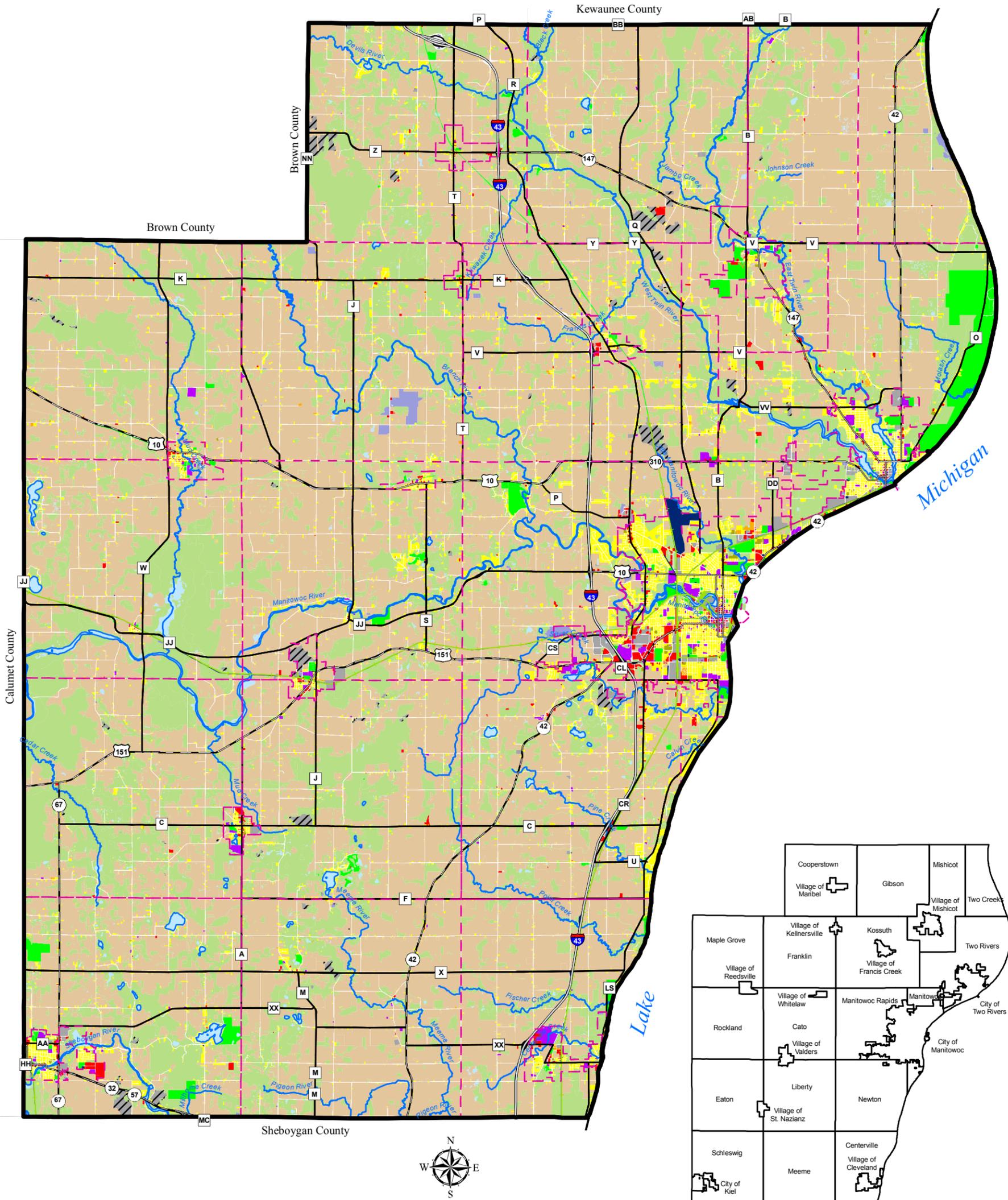
- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

Source: NOAA, 2001; DNR, 2005; WisDOT, 2007, 2008; Manitowoc County, 2009; Bay-Lake Regional Planning Commission, 2009.
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*Note: See Manitowoc County Agricultural Preservation Plan For More Details.

2008 Land Use Inventory

Manitowoc County, Wisconsin



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Source: NOAA, 2001; DNR, 2005; WisDOT, 2007, 2008; City of Manitowoc, 2009; Manitowoc County, 2008; Bay-Lake Regional Planning Commission, 2009.
Q:\myfiles\manitowoc\County\Comp2007\

- | | |
|--------------------|----------------------------|
| Residential | Transportation |
| Multi-Family | Communications/Utilities |
| Mobile Homes | Governmental/Institutional |
| Commercial | Parks and Recreation |
| Industrial | Agricultural |
| Nonmetallic Mining | Woodlands/Natural Areas |

Manitowoc County

- Base Map Features**
- County Boundary
 - Community Boundary
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - County Highway
 - Railroad
 - Major Surface Water

VOLUME II - APPENDIX A
NATURAL, AGRICULTURAL, AND CULTURAL RESOURCES

Manitowoc County Surface Water Features

The following is an inventory of surface water features in Manitowoc County conducted by the Wisconsin Department of Natural Resources in 2005.

| Manitowoc County Lakes and Ponds | | | |
|----------------------------------|-------|------------------------|-------|
| Name | Acres | Name | Acres |
| Bergene Lake | 2 | Mott Lake (Motts) | 7 |
| Boot Lake | 11 | Mud Lake (Hartmans) | 62 |
| Bullhead Lake | 67 | Neumeyer Lake | 3 |
| Carstens Lake | 21 | North Lutzke Lake | 2 |
| Cedar Lake | 142 | Oschwald Lake | 8 |
| Centerville Flowage | 8 | Peterson Lake | 4 |
| Clarks Mills Pond | 43 | Pigeon Lake | 86 |
| Eaton Twin Lake, North | 6 | Prueder Lake (Praeder) | 9 |
| Eaton Twin Lake, South | 7 | Quarry Lake | 1 |
| English Lake | 49 | Ranger Lake | 4 |
| Fenske Lake | 4 | Rockville Flowage | 110 |
| Gass Lake | 6 | Schisel Lake | 14 |
| Glomski Lake | 9 | Scout Lake | 7 |
| Graf Lake (Long, Munedowk) | 8 | Shoe Lake | 9 |
| Grosshuesch Lake | 3 | Shoto Lake | 55 |
| Harpt Lake (Herman) | 31 | Silver Lake | 69 |
| Hartlaub Lake (Hartab) | 34 | South Lutzke Lake | 3 |
| Hemptions Lake | 10 | Spring Lake (Getchaw) | 8 |
| Horseshoe Lake | 22 | Spring Pond | 1 |
| Inch Lake | 4 | Steinthal Lake | 2 |
| Karstaedt Lake | 4 | Sy Lake | 15 |
| Kasbaum Lake | 9 | Teek Lake (Mueller) | 5 |
| Kellners Lake | 15 | Tuma Lake (Ording) | 14 |
| Lindeman Lake | 2 | Vetting Lake | 5 |
| Little Pigeon Lake | 6 | Waack Lake | 1 |
| Little Sy Lake | 4 | West Lake | 5 |
| Long Lake (Big Long) | 120 | Weyers Lake | 6 |
| Millhome Flowage | 51 | Wilke Lake | 95 |

| Manitowoc County Rivers and Streams | |
|-------------------------------------|------------------------------|
| Branch River | Manitowoc River South Branch |
| Calvin Creek | Meeme River |
| Cedar Creek | Millhome Creek |
| Centerville Creek | Molash Creek |
| Devils River | Mud Creek |
| East Twin River | Pigeon River |
| Fischer Creek | Pine Creek |
| Francis Creek | Point Creek |
| Jambo Creek | Silver Creek |
| Johnson Creek | Sheboygan River |
| Kriwanek's Creek | Tisch Mills Creek |
| Little Manitowoc River | West Twin River |
| Manitowoc River | |

Source: Wisconsin Department of Natural Resources, Wisconsin Lake Book, 2005 Revision; "Surface Water Resources of Manitowoc County" Wisconsin Conservation Department, 1968; Bay-Lake Regional Planning Commission, 2009.

Wisconsin's Impaired Waters of Manitowoc County

Section 303(d) of the Federal Clean Water Act requires each state to periodically submit to the U.S. Environmental Protection Agency (EPA) a list of impaired waters (i.e., not meeting the state's water quality standards). Impaired waters are classified into three categories.

Category 5a: Impaired Waters without approved Total Maximum Daily Loads (TMDLs), excluding those with impairments caused by atmospheric deposition of mercury.

- Branch River in Manitowoc County
- East Twin river upstream to first dam
- Fischer park Beaches – Lake Michigan
- Hika Park Bay – Lake Michigan
- Manitowoc River (mouth to confluence with North Branch)
- Manitowoc River
- Memorial Drive Wayside Beach
- Point Beach State Park Beach – Lake Michigan
- Red Arrow Park Beach – Lake Michigan
- Two Rivers Harbor
- Unnamed tributary (Osman Trib) to Meeme River
- Warm Water Beach

Category 5b: Waters impaired by atmospheric Deposition of Mercury

- Bullhead lake

Category 5c: Waters with approved TMDLs

- Silver Lake

Manitowoc County Rare Species and Natural Communities List

The following list includes Manitowoc County's endangered resources (rare, threatened, or endangered species and high-quality natural communities) that have been recorded in the Wisconsin Natural Heritage Inventory (NHI), September 2005.

WATER (AQUATIC) OCCURRENCES

ANIMALS

- Elktoe
- Osprey
- Bloater
- Ellipse
- Monkeyface
- Redside Dace
- Piping Plover
- Redfin Shiner
- A Side-swimmer
- A Side-swimmer
- Lake Chubsucker
- Banded Killifish
- Great Blue Heron
- Greater Redhorse
- Northern Harrier
- Blanding's Turtle
- Wilson's Phalarope
- Red-shouldered Hawk
- Slippershell Mussel
- Four-toed Salamander
- Beach-dune Tiger Beetle
- Blanchard's Cricket Frog
- Black-crowned Night-heron
- Yellow-bellied Flycatcher

PLANTS

- Swamp-pink
- Shore Sedge
- Seaside Crowfoot
- Many-headed Sedge
- American Sea-rocket
- White Adder's-mouth
- Showy Lady's-slipper
- Variegated Horsetail
- Sticky False-asphodel
- Common Bog Arrow-grass
- Slender Bog Arrow-grass
- Slim-stem Small-reedgrass
- Northern Yellow Lady's-slipper

NATURAL COMMUNITIES

- Open Bog
- Emergent Marsh
- Hardwood Swamp
- Lake--Hard Bog
- Lake--Soft Bog
- Floodplain Forest
- Clay Seepage Bluff
- Interdunal Wetland
- Northern Wet Forest
- Northern Sedge Meadow
- Southern Sedge Meadow
- Lake--Deep, Hard, Seepage
- Northern Wet-mesic Forest
- Great Lakes Ridge and Swale

LAND (TERRESTRIAL) OCCURRENCES

ANIMALS

- Barn Owl
- Dickcissel
- Pigmy Shrew
- Black Striate
- A Noctuid Moth
- Hooded Warbler
- Tapered Vertigo
- Bat Hibernaculum
- Cerulean Warbler
- Cherrystone Drop
- Upland Sandpiper
- Henslow's Sparrow
- Acadian Flycatcher
- Western Meadowlark
- Grasshopper Sparrow
- Phyllira Tiger Moth
- Red-headed Woodpecker
- Northern Ringneck Snake
- Transparent Vitrine Snail
- Black-throated Blue Warbler
- Midwest Pleistocene Vertigo

PLANTS

- Twinleaf
- Glade Fern
- Thickspike
- Cuckooflower
- Dune Thistle
- Snow Trillium
- Sand Reedgrass
- Seaside Spurge
- Dragon Wormwood
- Long-spur Violet
- Pale Beardtongue
- Sand Dune Willow
- American Gromwell
- Climbing Fumitory
- Bird's-eye Primrose
- Clustered Broomrape
- Indian Cucumber-root

NATURAL COMMUNITIES

- Moist Cliff
- Great Lakes Dune
- Great Lakes Beach
- Northern Mesic Forest
- Southern Mesic Forest
- Northern Dry-mesic Forest
- Southern Dry-mesic Forest

Manitowoc County Park Facilities

The following is an inventory of the public park facilities found in Manitowoc County municipalities.

| | |
|---|---|
| Town of Cato | |
| <ul style="list-style-type: none"> • Lower Cato Falls Park | |
| Town of Centerville | |
| <ul style="list-style-type: none"> • Fischer Creek Conservation Area • Point Creek Conservation Area | |
| Town of Cooperstown | |
| <ul style="list-style-type: none"> • Cherney Maribel Caves | |
| Town of Manitowoc Rapids | |
| <ul style="list-style-type: none"> • Branch Firefighters Park • Silver Lake Park | |
| Town of Meeme | |
| <ul style="list-style-type: none"> • Horseshoe Lake | |
| Town of Newton | |
| <ul style="list-style-type: none"> • English Lake Park • Carstens Lake Park • Hartlaub Lake Park | <ul style="list-style-type: none"> • Gass Lake Park • Newton Fireman's Park |
| Town of Rockland | |
| <ul style="list-style-type: none"> • Collins Firemen's Park • Collins Lions Park • Collins Marsh Wildlife Area and Nature Center • Long Lake Park | |
| Town of Schleswig | |
| <ul style="list-style-type: none"> • Walla Hi Park | |
| Town of Two Rivers | |
| <ul style="list-style-type: none"> • Woodland Dunes Nature Center • Point Beach State Forest | |
| Village of Cleveland | |
| <ul style="list-style-type: none"> • Hika Park • Veteran's Park • Dairyland Park | |
| Village of Francis Creek | |
| <ul style="list-style-type: none"> • Pla-Mor Park | |
| Village of Kellnersville | |
| <ul style="list-style-type: none"> • Kellnersville Betterment Association (KBA) Park • Kellnersville Village Park | |

Village of Maribel

- Maribel Village Park

Village of Mishicot

- Mishicot Village Park

Village of Reedsville

- Bubolz Park
- Firefighter’s Park
- American Legion Gosz-Novak Post 199 Memorial Park

Village of St. Nazianz

- Oswald Park

Village of Valders

- Valders Memorial Park
- Melody Lane Mini Park

Village of Whitelaw

- Whitelaw Community Park

City of Kiel

- | | |
|------------------------|--------------------------|
| • Belitz Park | • Kiwanis Park |
| • Big Rock Park | • Lions Park |
| • Boy Scout Park | • Sission Park |
| • City Park | • Triangle Park |
| • Conley Park | • Veterans Memorial Park |
| • Hingiss Park | • Waack Park |
| • Karls Sports Terrace | |

City of Manitowoc

- | | |
|-----------------------|----------------------------|
| • Camp Vits | • Mariner's Landing |
| • Citizen Park | • Municipal Baseball Field |
| • Dale Street Park | • Pulaski Park |
| • Dewey Street Park | • Red Arrow Park |
| • Fleetwood Park | • Rheaume Park |
| • Halvorsen Park | • River Heights Park |
| • Henry Schuette Park | • Riverview Drive Park |
| • Indian Creek Park | • Riverview Northside Park |
| • Lakeview Park | • Silver Creek Park |
| • Lincoln Park | • Union Park |
| • Lincolnshire Park | • Westfield Park |
| • Manitou Park | • Washington Park |

City of Two Rivers

- | | |
|------------------|----------------------------------|
| • Central Park | • Taylor Park |
| • Lakeshore Park | • Vet's Park |
| • Neshotah Park | • Vietnam Veterans Memorial Park |
| • Paddlers Park | • Walsh Field |
| • Picnic Hill | • Washington Park |
| • Riverside Park | • Zander Park |

VOLUME II - APPENDIX B
POPULATION AND HOUSING RESOURCES

Manitowoc County Detailed Population and Housing

Table B.1: Historical Population Levels, Manitowoc County Municipalities, 1900-2000

| Geographic Location | U.S. Census | | | | | | | | | | |
|----------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1900 | 1910 | 1920 | 1930 | 1940 | 1950 | 1960 | 1970 | 1980 | 1990 | 2000 |
| Town of Cato | 1,743 | 1,909 | 1,967 | 1,825 | 1,783 | 1,789 | 1,513 | 1,581 | 1,653 | 1,503 | 1,616 |
| Town of Centerville | 1,443 | 1,440 | 1,407 | 1,320 | 1,313 | 1,473 | 817 | 784 | 796 | 685 | 713 |
| Town of Cooperstown | 1,500 | 1,423 | 1,400 | 1,282 | 1,239 | 1,304 | 1,308 | 1,094 | 1,249 | 1,320 | 1,389 |
| Town of Eaton | 1,317 | 1,300 | 1,209 | 1,095 | 1,112 | 1,345 | 716 | 741 | 764 | 761 | 761 |
| Town of Franklin | 1,781 | 1,623 | 1,551 | 1,515 | 1,520 | 1,429 | 1,384 | 1,488 | 1,372 | 1,325 | 1,293 |
| Town of Gibson | 1,498 | 1,311 | 1,250 | 1,193 | 1,156 | 1,177 | 1,154 | 1,323 | 1,416 | 1,445 | 1,352 |
| Town of Kossuth | 1,799 | 1,798 | 1,939 | 1,894 | 1,905 | 1,953 | 2,131 | 1,966 | 2,097 | 1,951 | 2,033 |
| Town of Liberty | 1,383 | 1,431 | 1,506 | 1,166 | 1,270 | 1,093 | 966 | 1,089 | 1,170 | 1,218 | 1,287 |
| Town of Manitowoc | 762 | 870 | 1,161 | 405 | 558 | 719 | 1,001 | 1,258 | 1,177 | 937 | 1,073 |
| Town of Manitowoc Rapids | 1,717 | 2,092 | 1,952 | 1,811 | 2,433 | 3,007 | 3,106 | 3,552 | 3,186 | 2,579 | 2,520 |
| Town of Maple Grove | 1,214 | 1,151 | 1,079 | 967 | 966 | 905 | 882 | 910 | 962 | 888 | 852 |
| Town of Meeme | 1,482 | 1,504 | 1,435 | 1,442 | 1,393 | 1,353 | 1,367 | 1,480 | 1,535 | 1,516 | 1,538 |
| Town of Mishicot | 1,578 | 1,534 | 1,489 | 1,349 | 1,473 | 1,746 | 1,296 | 1,743 | 1,334 | 1,344 | 1,409 |
| Town of Newton | 1,770 | 1,578 | 1,515 | 1,459 | 1,503 | 1,670 | 1,940 | 2,256 | 2,332 | 2,242 | 2,241 |
| Town of Rockland | 1,676 | 1,255 | 1,227 | 1,151 | 1,122 | 1,023 | 935 | 971 | 936 | 911 | 896 |
| Town of Schleswig | 1,385 | 1,388 | 1,129 | 1,179 | 1,170 | 1,231 | 1,220 | 1,542 | 1,633 | 1,641 | 1,900 |
| Town of Two Creeks | 632 | 575 | 535 | 489 | 525 | 488 | 458 | 580 | 489 | 466 | 551 |
| Town of Two Rivers | 1,087 | 1,125 | 1,034 | 1,350 | 1,452 | 2,494 | 2,110 | 2,806 | 2,663 | 2,147 | 1,912 |
| Village of Cleveland (1958) | --- | --- | --- | --- | --- | --- | 687 | 761 | 1,270 | 1,398 | 1,361 |
| Village of Francis Creek (1960) | --- | --- | --- | --- | --- | --- | --- | 492 | 589 | 562 | 681 |
| Village of Kellnersville (1971) | --- | --- | --- | --- | --- | --- | --- | --- | 369 | 350 | 374 |
| Village of Maribel (1963) | --- | --- | --- | --- | --- | --- | --- | 316 | 363 | 372 | 284 |
| Village of Mishicot (1950) | --- | --- | --- | --- | --- | --- | 762 | 938 | 1,503 | 1,296 | 1,422 |
| Village of Reedsville (1892) | --- | 550 | 571 | 617 | 729 | 691 | 830 | 994 | 1,134 | 1,182 | 1,187 |
| Village of St. Nazianz (1956) | --- | --- | --- | --- | --- | --- | 669 | 718 | 738 | 693 | 749 |
| Village of Valders (1919) | --- | --- | --- | 504 | 580 | 560 | 622 | 821 | 984 | 905 | 948 |
| Village of Whitelaw (1958) | --- | --- | --- | --- | --- | --- | 420 | 557 | 649 | 700 | 730 |
| City of Kiel [#] (1920) | 924 | 1,244 | 1,420 | 1,615 | 1,709 | 1,868 | 2,253 | 2,550 | 2,654 | 2,534 | 3,129 |
| City of Manitowoc (1870) | 11,786 | 13,027 | 17,563 | 22,963 | 24,404 | 27,598 | 32,275 | 33,430 | 32,547 | 32,520 | 34,053 |
| City of Two Rivers (1878) | 3,784 | 4,850 | 7,305 | 10,083 | 10,302 | 10,243 | 12,393 | 13,553 | 13,354 | 13,030 | 12,639 |
| Manitowoc County | 42,261 | 44,978 | 51,644 | 58,674 | 61,617 | 67,159 | 75,215 | 82,294 | 82,918 | 80,421 | 82,893 |
| Wisconsin | 2,069,042 | 2,333,860 | 2,632,067 | 2,939,006 | 3,137,587 | 3,434,575 | 3,951,777 | 4,417,731 | 4,705,642 | 4,891,769 | 5,363,675 |

(---) = Year incorporated

Includes city population of Manitowoc County and Calumet County

Source: U.S. Bureau of the Census, General Population Characteristics 1840-1970, Bay-Lake Regional Planning Commission, December 1975; Census 2000; and Bay-Lake Regional Planning Commission, 2009.

Table B.2: Population by Age Groups, Manitowoc County Municipalities, 2000

| Geographic Location | School Age | | | | | | Working and Voting Age | | | | | | Retirement Age | | Total Population | | |
|--------------------------|------------|---------|---------|---------|---------|---------|------------------------|---------|-----------|---------|-----------|---------|----------------|---------|------------------|---------|-----------|
| | 5-11 | | 12-14 | | 15-17 | | 16+ | | 16-64 | | 18+ | | 18-64 | | | 65+ | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | |
| Town of Cato | 173 | 11 | 93 | 6 | 92 | 6 | 1,220 | 75 | 1,055 | 65 | 1,162 | 72 | 997 | 62 | 165 | 10 | 1,616 |
| Town of Centerville | 74 | 10 | 49 | 7 | 45 | 6 | 534 | 75 | 447 | 63 | 503 | 71 | 416 | 58 | 87 | 12 | 713 |
| Town of Cooperstown | 161 | 11 | 86 | 6 | 85 | 6 | 1,043 | 74 | 936 | 67 | 986 | 70 | 879 | 63 | 107 | 8 | 1,403 |
| Town of Eaton | 77 | 10 | 41 | 5 | 44 | 6 | 587 | 77 | 511 | 67 | 554 | 73 | 478 | 63 | 76 | 10 | 761 |
| Town of Franklin | 137 | 11 | 69 | 5 | 77 | 6 | 983 | 76 | 860 | 67 | 933 | 72 | 810 | 63 | 123 | 10 | 1,293 |
| Town of Gibson | 158 | 12 | 83 | 6 | 65 | 5 | 1,005 | 74 | 890 | 66 | 966 | 71 | 851 | 63 | 115 | 9 | 1,352 |
| Town of Kossuth | 212 | 10 | 113 | 6 | 113 | 6 | 1,560 | 77 | 1,348 | 66 | 1,487 | 73 | 1,275 | 63 | 212 | 10 | 2,033 |
| Town of Liberty | 136 | 11 | 78 | 6 | 78 | 6 | 980 | 76 | 824 | 64 | 931 | 72 | 775 | 60 | 156 | 12 | 1,287 |
| Town of Manitowoc | 105 | 10 | 49 | 5 | 48 | 4 | 861 | 80 | 709 | 66 | 833 | 78 | 681 | 63 | 152 | 14 | 1,073 |
| Town of Manitowoc Rapids | 223 | 9 | 114 | 5 | 142 | 6 | 2,046 | 81 | 1,542 | 61 | 1,954 | 78 | 1,450 | 58 | 504 | 20 | 2,520 |
| Town of Maple Grove | 109 | 13 | 47 | 6 | 50 | 6 | 628 | 74 | 553 | 65 | 596 | 70 | 521 | 61 | 75 | 9 | 852 |
| Town of Meeme | 176 | 11 | 82 | 5 | 77 | 5 | 1,165 | 76 | 961 | 62 | 1,113 | 72 | 909 | 59 | 204 | 13 | 1,538 |
| Town of Mishicot | 159 | 11 | 101 | 7 | 90 | 6 | 1,028 | 73 | 898 | 64 | 971 | 69 | 841 | 60 | 130 | 9 | 1,409 |
| Town of Newton | 224 | 10 | 96 | 4 | 141 | 6 | 1,761 | 79 | 1,493 | 67 | 1,667 | 74 | 1,399 | 62 | 268 | 12 | 2,241 |
| Town of Rockland | 95 | 11 | 50 | 6 | 45 | 5 | 687 | 77 | 602 | 67 | 659 | 74 | 574 | 64 | 85 | 9 | 896 |
| Town of Schleswig | 193 | 10 | 119 | 6 | 107 | 6 | 1,445 | 76 | 1,224 | 64 | 1,378 | 73 | 1,157 | 61 | 221 | 12 | 1,900 |
| Town of Two Creeks | 75 | 14 | 38 | 7 | 31 | 6 | 396 | 72 | 327 | 59 | 371 | 67 | 302 | 55 | 69 | 13 | 551 |
| Town of Two Rivers | 157 | 8 | 93 | 5 | 92 | 5 | 1,554 | 81 | 1,306 | 68 | 1,498 | 78 | 1,250 | 65 | 248 | 13 | 1,912 |
| Village of Cleveland | 110 | 8 | 68 | 5 | 70 | 5 | 1,057 | 78 | 903 | 66 | 1,017 | 75 | 863 | 63 | 154 | 11 | 1,361 |
| Village of Francis Creek | 84 | 12 | 32 | 5 | 24 | 4 | 511 | 75 | 419 | 62 | 493 | 72 | 401 | 59 | 92 | 14 | 681 |
| Village of Kellnersville | 40 | 11 | 16 | 4 | 19 | 5 | 289 | 77 | 223 | 60 | 274 | 73 | 208 | 56 | 66 | 18 | 374 |
| Village of Maribel | 25 | 9 | 15 | 6 | 15 | 6 | 195 | 74 | 161 | 61 | 185 | 70 | 151 | 57 | 34 | 13 | 264 |
| Village of Mishicot | 150 | 11 | 79 | 6 | 56 | 4 | 1,108 | 78 | 859 | 60 | 1,068 | 75 | 819 | 58 | 249 | 18 | 1,422 |
| Village of Reedsville | 109 | 9 | 58 | 5 | 51 | 4 | 936 | 79 | 746 | 63 | 900 | 76 | 710 | 60 | 190 | 16 | 1,187 |
| Village of St. Nazianz | 87 | 12 | 36 | 5 | 22 | 3 | 554 | 74 | 442 | 59 | 538 | 72 | 426 | 57 | 112 | 15 | 749 |
| Village of Valders | 111 | 12 | 37 | 4 | 48 | 5 | 711 | 75 | 592 | 62 | 674 | 71 | 555 | 59 | 119 | 13 | 948 |
| Village of Whitelaw | 81 | 11 | 27 | 4 | 34 | 5 | 564 | 77 | 471 | 65 | 539 | 74 | 446 | 61 | 93 | 13 | 730 |
| City of Kiel | 336 | 11 | 154 | 5 | 137 | 4 | 2,381 | 76 | 1,876 | 60 | 2,289 | 73 | 1,784 | 57 | 505 | 16 | 3,129 |
| City of Manitowoc | 3,141 | 9 | 1,465 | 4 | 1,511 | 4 | 26,835 | 79 | 20,571 | 60 | 25,839 | 76 | 19,575 | 57 | 6,264 | 18 | 34,053 |
| City of Two Rivers | 1,330 | 11 | 589 | 5 | 621 | 5 | 9,829 | 78 | 7,701 | 61 | 9,408 | 74 | 7,280 | 58 | 2,128 | 17 | 12,639 |
| Manitowoc County | 8,248 | 10 | 3,977 | 5 | 4,030 | 5 | 64,453 | 78 | 51,450 | 62 | 61,786 | 75 | 48,783 | 59 | 13,003 | 16 | 82,887 |
| State of Wisconsin | 541,735 | 10 | 241,367 | 5 | 241,367 | 5 | 4,156,879 | 78 | 3,454,232 | 64 | 3,995,968 | 75 | 3,293,321 | 61 | 702,647 | 13 | 5,363,715 |

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing, STF 1a, General Profile and Table P012; and Bay-Lake Regional Planning Commission, 2009.

Table B.3: Median Age, Manitowoc County Municipalities, 1970-2000

| Geographic Location | 1970 | 1980 | 1990 | 2000 |
|--------------------------|------|------|------|------|
| Town of Cato | 19.9 | 23.8 | 30.8 | 35.7 |
| Town of Centerville | 25.6 | 28.9 | 32.9 | 38.4 |
| Town of Cooperstown | 23.0 | 25.9 | 31.5 | 37.2 |
| Town of Eaton | 23.1 | 28.0 | 32.6 | 36.6 |
| Town of Franklin | 23.1 | 24.6 | 30.4 | 37.8 |
| Town of Gibson | 23.0 | 25.4 | 30.7 | 37.3 |
| Town of Kossuth | 24.9 | 27.4 | 33.6 | 38.4 |
| Town of Liberty | 21.6 | 26.3 | 32.3 | 39.0 |
| Town of Manitowoc | 24.1 | 29.3 | 37.2 | 40.9 |
| Town of Manitowoc Rapids | 30.9 | 32.4 | 37.8 | 43.7 |
| Town of Maple Grove | 21.0 | 24.6 | 28.8 | 34.7 |
| Town of Meeme | 21.9 | 26.2 | 31.0 | 37.0 |
| Town of Mishicot | 21.5 | 26.3 | 31.3 | 35.5 |
| Town of Newton | 23.5 | 28.7 | 33.4 | 39.2 |
| Town of Rockland | 24.4 | 26.2 | 30.4 | 36.2 |
| Town of Schleswig | 24.5 | 28.2 | 33.9 | 38.8 |
| Town of Two Creeks | 24.3 | 29.6 | 31.5 | 36.5 |
| Town of Two Rivers | 22.7 | 27.0 | 30.0 | 42.6 |
| Village of Cleveland | 26.6 | 26.1 | 31.4 | 36.8 |
| Village of Francis Creek | 27.8 | 30.2 | 34.1 | 35.2 |
| Village of Kellnersville | --- | 26.8 | 34.2 | 35.3 |
| Village of Maribel | 29.8 | 26.6 | 31.3 | 35.5 |
| Village of Mishicot | 25.8 | 27.8 | 36.3 | 39.1 |
| Village of Reedsville | 28.3 | 28.9 | 32.6 | 37.0 |
| Village of St. Nazianz | 28.1 | 28.3 | 33.3 | 34.6 |
| Village of Valders | 25.1 | 28.1 | 32.2 | 32.7 |
| Village of Whitelaw | 25.3 | 28.3 | 31.9 | 36.0 |
| City of Kiel | 29.0 | 30.6 | 35.6 | 36.0 |
| City of Manitowoc | 30.9 | 33.0 | 36.2 | 38.6 |
| City of Two Rivers | 28.8 | 30.8 | 35.3 | 38.2 |
| Manitowoc County | 27.8 | 30.2 | 34.6 | 38.3 |
| Wisconsin | 27.2 | 29.4 | 32.9 | 36.0 |

Source: U.S. Bureau of the Census, Census of Population, General Population Characteristics, Wisconsin, 1970, Tables 33, 35; 1980 Table 14; 1990 STF 1A, General Profile; Census 2000 and Bay-Lake Regional Planning Commission, 2009.

Table B.4: WDOA Population Projections, Manitowoc County Municipalities, 2000-2030

| Geographic Location | US Census 2000 | WDOA Population Projections | | | | | | # Change 2000-2030 | % Change 2000-2030 |
|--------------------------|-------------------|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------------------|-----------------------|
| | | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | | |
| Town of Cato | 1,616 | 1,665 | 1,703 | 1,746 | 1,790 | 1,832 | 1,865 | 249 | 15.4 |
| Town of Centerville | 713 | 726 | 728 | 733 | 738 | 741 | 743 | 30 | 4.2 |
| Town of Cooperstown | 1,389 | 1,399 | 1,424 | 1,452 | 1,481 | 1,509 | 1,529 | 140 | 10.1 |
| Town of Eaton | 761 | 798 | 819 | 841 | 864 | 886 | 905 | 144 | 18.9 |
| Town of Franklin | 1,293 | 1,318 | 1,326 | 1,338 | 1,351 | 1,362 | 1,367 | 74 | 5.7 |
| Town of Gibson | 1,352 | 1,433 | 1,463 | 1,497 | 1,531 | 1,564 | 1,590 | 238 | 17.6 |
| Town of Kossuth | 2,033 | 2,104 | 2,149 | 2,200 | 2,254 | 2,304 | 2,344 | 311 | 15.3 |
| Town of Liberty | 1,287 | 1,351 | 1,402 | 1,457 | 1,514 | 1,568 | 1,615 | 328 | 25.5 |
| Town of Manitowoc | 1,073 | 1,138 | 1,183 | 1,224 | 1,266 | 1,306 | 1,340 | 267 | 24.9 |
| Town of Manitowoc Rapids | 2,520 | 2,531 | 2,484 | 2,415 | 2,346 | 2,272 | 2,189 | -331 | -13.1 |
| Town of Maple Grove | 852 | 866 | 864 | 864 | 863 | 862 | 857 | 5 | 0.6 |
| Town of Meeme | 1,538 | 1,545 | 1,554 | 1,567 | 1,583 | 1,594 | 1,599 | 61 | 4.0 |
| Town of Mishicot | 1,409 | 1,445 | 1,474 | 1,507 | 1,541 | 1,573 | 1,599 | 190 | 13.5 |
| Town of Newton | 2,241 | 2,320 | 2,354 | 2,397 | 2,440 | 2,479 | 2,508 | 267 | 11.9 |
| Town of Rockland | 896 | 938 | 957 | 978 | 1,001 | 1,022 | 1,039 | 143 | 16.0 |
| Town of Schleswig | 1,900 | 2,042 | 2,166 | 2,288 | 2,413 | 2,534 | 2,646 | 746 | 39.3 |
| Town of Two Creeks | 551 | 552 | 567 | 584 | 601 | 617 | 631 | 80 | 14.5 |
| Town of Two Rivers | 1,912 | 1,915 | 1,888 | 1,836 | 1,784 | 1,728 | 1,665 | -247 | -12.9 |
| Village of Cleveland | 1,361 | 1,416 | 1,452 | 1,492 | 1,534 | 1,573 | 1,605 | 244 | 17.9 |
| Village of Francis Creek | 681 | 695 | 723 | 753 | 784 | 813 | 840 | 159 | 23.3 |
| Village of Kellnersville | 374 | 362 | 360 | 358 | 357 | 354 | 351 | -23 | -6.1 |
| Village of Maribel | 284 | 282 | 274 | 266 | 258 | 251 | 241 | -43 | -15.1 |
| Village of Mishicot | 1,422 | 1,449 | 1,479 | 1,513 | 1,548 | 1,581 | 1,607 | 185 | 13.0 |
| Village of Reedsville | 1,187 | 1,186 | 1,192 | 1,201 | 1,211 | 1,218 | 1,222 | 35 | 2.9 |
| Village of St. Nazianz | 749 | 741 | 745 | 752 | 759 | 763 | 766 | 17 | 2.3 |
| Village of Valders | 948 | 994 | 1,022 | 1,053 | 1,086 | 1,116 | 1,142 | 194 | 20.5 |
| Village of Whitelaw | 730 | 741 | 756 | 775 | 793 | 810 | 825 | 95 | 13.0 |
| City of Kiel | 3,129 | 3,268 | 3,436 | 3,625 | 3,816 | 4,002 | 4,172 | 1,043 | 33.3 |
| City of Manitowoc | 34,053 | 34,722 | 35,409 | 36,240 | 37,101 | 37,895 | 38,538 | 4,485 | 13.2 |
| City of Two Rivers | 12,639 | 12,577 | 12,481 | 12,451 | 12,427 | 12,379 | 12,282 | -357 | -2.8 |
| Manitowoc County | 82,893 | 84,519 | 85,834 | 87,403 | 89,035 | 90,508 | 91,622 | 8,729 | 10.5 |
| Wisconsin | 5,363,675 | 5,589,920 | 5,772,370 | 5,988,420 | 6,202,810 | 6,390,900 | 6,541,180 | 1,177,505 | 22.0 |

Source: U.S. Bureau of the Census, Census of Population and Housing, 1980-2000; Wisconsin Department of Administration, for years cited; Wisconsin Department of Administration, Official Population Projections, 2008; and Bay-Lake Regional Planning Commission, 2009.

Table B.5: Total Housing Units, Manitowoc County Municipalities, 1970-2000

| Geographic Location | Year | | | | Percent Change | | | |
|--------------------------|-----------|-----------|-----------|-----------|----------------|---------|-----------|-----------|
| | 1970 | 1980 | 1990 | 2000 | 1970-80 | 1980-90 | 1990-2000 | 1970-2000 |
| Town of Cato | 364 | 461 | 505 | 571 | 26.6 | 9.5 | 13.1 | 56.9 |
| Town of Centerville | 212 | 265 | 243 | 285 | 25.0 | -8.3 | 17.3 | 34.4 |
| Town of Cooperstown | 280 | 352 | 418 | 486 | 25.7 | 18.8 | 16.3 | 73.6 |
| Town of Eaton | 184 | 242 | 272 | 306 | 31.5 | 12.4 | 12.5 | 66.3 |
| Town of Franklin | 383 | 399 | 443 | 491 | 4.2 | 11.0 | 10.8 | 28.2 |
| Town of Gibson | 359 | 443 | 478 | 495 | 23.4 | 7.9 | 3.6 | 37.9 |
| Town of Kossuth | 526 | 676 | 703 | 795 | 28.5 | 4.0 | 13.1 | 51.1 |
| Town of Liberty | 282 | 431 | 446 | 498 | 52.8 | 3.5 | 11.7 | 76.6 |
| Town of Manitowoc | 350 | 385 | 354 | 442 | 10.0 | -8.1 | 24.9 | 26.3 |
| Town of Manitowoc Rapids | 805 | 933 | 798 | 822 | 15.9 | -14.5 | 3.0 | 2.1 |
| Town of Maple Grove | 233 | 272 | 291 | 307 | 16.7 | 7.0 | 5.5 | 31.8 |
| Town of Meeme | 370 | 462 | 508 | 558 | 24.9 | 10.0 | 9.8 | 50.8 |
| Town of Mishicot | 441 | 408 | 449 | 489 | -7.5 | 10.0 | 8.9 | 10.9 |
| Town of Newton | 644 | 783 | 805 | 850 | 21.6 | 2.8 | 5.6 | 32.0 |
| Town of Rockland | 299 | 360 | 378 | 336 | 20.4 | 5.0 | -11.1 | 12.4 |
| Town of Schleswig | 584 | 709 | 779 | 871 | 21.4 | 9.9 | 11.8 | 49.1 |
| Town of Two Creeks | 161 | 164 | 166 | 202 | 1.9 | 1.2 | 21.7 | 25.5 |
| Town of Two Rivers | 757 | 838 | 770 | 766 | 10.7 | -8.1 | -0.5 | 1.2 |
| Village of Cleveland | 243 | 444 | 503 | 578 | 82.7 | 13.3 | 14.9 | 137.9 |
| Village of Francis Creek | 140 | 205 | 229 | 280 | 46.4 | 11.7 | 22.3 | 100.0 |
| Village of Kellnersville | N/A | 131 | 140 | 168 | N/A | 6.9 | 20.0 | 28.2* |
| Village of Maribel | 97 | 125 | 125 | 105 | 28.9 | 0.0 | -16.0 | 8.2 |
| Village of Mishicot | 282 | 500 | 503 | 614 | 77.3 | 0.6 | 22.1 | 117.7 |
| Village of Reedsville | 340 | 434 | 463 | 502 | 27.6 | 6.7 | 8.4 | 47.6 |
| Village of St. Nazianz | 188 | 262 | 275 | 302 | 39.4 | 5.0 | 9.8 | 60.6 |
| Village of Valders | 241 | 339 | 352 | 387 | 40.7 | 3.8 | 9.9 | 60.6 |
| Village of Whitelaw | 164 | 216 | 249 | 284 | 31.7 | 15.3 | 14.1 | 73.2 |
| City of Kiel | 830 | 1,003 | 1,051 | 1,349 | 20.8 | 4.8 | 28.4 | 62.5 |
| City of Manitowoc | 11,231 | 12,870 | 13,728 | 15,007 | 14.6 | 6.7 | 9.3 | 33.6 |
| City of Two Rivers | 4,421 | 5,000 | 5,414 | 5,547 | 13.1 | 8.3 | 2.5 | 25.5 |
| Manitowoc County | 25,411 | 30,140 | 31,843 | 34,651 | 18.6 | 5.7 | 8.8 | 36.4 |
| Wisconsin | 1,472,466 | 1,863,897 | 2,055,774 | 2,321,144 | 26.6 | 10.3 | 12.9 | 57.6 |

* Percent change for Village of Kellnersville is 1980 to 2000.

Source: U.S. Bureau of the Census, 1970, Series 100, Table 2; 1980 Census of Population and Housing, STF 1A, Table 4; 1990 Census of Population and Housing, STF 1A; 2000 Census; WDOA Revised Census Counts, 2000 and 2003; and Bay-Lake Regional Planning Commission, 2009.

Table B.6: Housing Occupancy and Tenure, Manitowoc County Municipalities, 2000

| Geographic Location | Occupied | | | Vacant | | | Total Units | Percent Occupied | Percent Vacant |
|--------------------------|-----------|---------|-----------|--|--------|---------|-------------|------------------|----------------|
| | Owner | Renter | Total | Seasonal, Recreational or Occasional Use | Other | Total | | | |
| Town of Cato | 490 | 58 | 548 | 10 | 13 | 23 | 571 | 96.0 | 4.0 |
| Town of Centerville | 214 | 25 | 239 | 18 | 5 | 23 | 262 | 91.2 | 8.8 |
| Town of Cooperstown | 435 | 39 | 474 | 3 | 12 | 15 | 489 | 96.9 | 3.1 |
| Town of Eaton | 248 | 22 | 270 | 8 | 10 | 18 | 288 | 93.8 | 6.3 |
| Town of Franklin | 434 | 35 | 469 | 6 | 16 | 22 | 491 | 95.5 | 4.5 |
| Town of Gibson | 423 | 48 | 471 | 12 | 12 | 24 | 495 | 95.2 | 4.8 |
| Town of Kossuth | 683 | 69 | 752 | 21 | 22 | 43 | 795 | 94.6 | 5.4 |
| Town of Liberty | 420 | 36 | 456 | 39 | 3 | 42 | 498 | 91.6 | 8.4 |
| Town of Manitowoc | 358 | 62 | 420 | 6 | 16 | 22 | 442 | 95.0 | 5.0 |
| Town of Manitowoc Rapids | 763 | 46 | 809 | 2 | 11 | 13 | 822 | 98.4 | 1.6 |
| Town of Maple Grove | 261 | 26 | 287 | 11 | 10 | 21 | 308 | 93.2 | 6.8 |
| Town of Meeme | 490 | 41 | 531 | 18 | 9 | 27 | 558 | 95.2 | 4.8 |
| Town of Mishicot | 434 | 40 | 474 | 4 | 11 | 15 | 489 | 96.9 | 3.1 |
| Town of Newton | 719 | 76 | 795 | 30 | 25 | 55 | 850 | 93.5 | 6.5 |
| Town of Rockland | 279 | 29 | 308 | 17 | 11 | 28 | 336 | 91.7 | 8.3 |
| Town of Schleswig | 628 | 69 | 697 | 156 | 18 | 174 | 871 | 80.0 | 20.0 |
| Town of Two Creeks | 157 | 27 | 184 | 10 | 8 | 18 | 202 | 91.1 | 8.9 |
| Town of Two Rivers | 683 | 51 | 734 | 14 | 18 | 32 | 766 | 95.8 | 4.2 |
| Village of Cleveland | 450 | 86 | 536 | 17 | 25 | 42 | 578 | 92.7 | 7.3 |
| Village of Francis Creek | 205 | 61 | 266 | 0 | 14 | 14 | 280 | 95.0 | 5.0 |
| Village of Kellnersville | 115 | 42 | 157 | 0 | 11 | 11 | 168 | 93.5 | 6.5 |
| Village of Maribel | 75 | 24 | 99 | 0 | 1 | 1 | 100 | 99.0 | 1.0 |
| Village of Mishicot | 437 | 145 | 582 | 6 | 26 | 32 | 614 | 94.8 | 5.2 |
| Village of Reedsville | 342 | 129 | 471 | 0 | 31 | 31 | 502 | 93.8 | 6.2 |
| Village of St. Nazianz | 233 | 63 | 296 | 2 | 4 | 6 | 302 | 98.0 | 2.0 |
| Village of Valders | 283 | 92 | 375 | 0 | 12 | 12 | 387 | 96.9 | 3.1 |
| Village of Whitelaw | 235 | 43 | 278 | 0 | 6 | 6 | 284 | 97.9 | 2.1 |
| City of Kiel | 926 | 361 | 1,287 | 6 | 56 | 62 | 1,349 | 95.4 | 4.6 |
| City of Manitowoc | 9,626 | 4,609 | 14,235 | 58 | 714 | 772 | 15,007 | 94.9 | 5.1 |
| City of Two Rivers | 3,810 | 1,411 | 5,221 | 44 | 282 | 326 | 5,547 | 94.1 | 5.9 |
| Manitowoc County | 24,856 | 7,865 | 32,721 | 518 | 1,412 | 1,930 | 34,651 | 94.4 | 5.6 |
| Wisconsin | 1,426,361 | 658,183 | 2,084,544 | 142,313 | 94,287 | 236,600 | 2,321,144 | 89.8 | 10.2 |

Source: U.S. Bureau of the Census, 2000 and Bay-Lake Regional Planning Commission, 2009.

Table B.7: WDOA Occupied Housing Unit Projections, Manitowoc County Municipalities, 2005-2030

| Geographic Location | 2000 US Census Total Occupied Housing Units | WDOA Projected Occupied Housing Units | | | | | |
|--------------------------|---|---------------------------------------|--------|--------|--------|--------|--------|
| | | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
| Town of Cato | 548 | 574 | 598 | 624 | 647 | 667 | 682 |
| Town of Centerville | 239 | 247 | 253 | 259 | 264 | 266 | 269 |
| Town of Cooperstown | 471 | 482 | 500 | 519 | 535 | 549 | 559 |
| Town of Eaton | 270 | 288 | 301 | 314 | 327 | 337 | 346 |
| Town of Franklin | 469 | 486 | 498 | 511 | 522 | 530 | 535 |
| Town of Gibson | 471 | 508 | 528 | 549 | 568 | 585 | 597 |
| Town of Kossuth | 752 | 791 | 824 | 857 | 888 | 914 | 935 |
| Town of Liberty | 456 | 487 | 515 | 544 | 571 | 596 | 617 |
| Town of Manitowoc | 420 | 453 | 480 | 505 | 528 | 548 | 566 |
| Town of Manitowoc Rapids | 809 | 833 | 834 | 824 | 810 | 790 | 765 |
| Town of Maple Grove | 287 | 297 | 302 | 307 | 310 | 312 | 311 |
| Town of Meeme | 531 | 542 | 556 | 570 | 582 | 590 | 595 |
| Town of Mishicot | 474 | 494 | 514 | 534 | 552 | 568 | 580 |
| Town of Newton | 795 | 837 | 866 | 896 | 922 | 944 | 960 |
| Town of Rockland | 308 | 328 | 341 | 354 | 367 | 377 | 385 |
| Town of Schleswig | 697 | 762 | 823 | 884 | 943 | 997 | 1,047 |
| Town of Two Creeks | 184 | 187 | 196 | 205 | 214 | 221 | 227 |
| Town of Two Rivers | 734 | 747 | 751 | 743 | 730 | 712 | 689 |
| Village of Cleveland | 536 | 567 | 593 | 619 | 644 | 665 | 682 |
| Village of Francis Creek | 266 | 276 | 293 | 310 | 326 | 341 | 354 |
| Village of Kellnersville | 157 | 154 | 157 | 158 | 160 | 159 | 159 |
| Village of Maribel | 104 | 105 | 104 | 103 | 101 | 99 | 95 |
| Village of Mishicot | 582 | 603 | 627 | 652 | 675 | 694 | 709 |
| Village of Reedsville | 471 | 478 | 490 | 502 | 512 | 519 | 523 |
| Village of St. Nazianz | 296 | 301 | 309 | 317 | 323 | 327 | 330 |
| Village of Valders | 375 | 400 | 419 | 439 | 458 | 474 | 487 |
| Village of Whitelaw | 278 | 287 | 298 | 311 | 322 | 331 | 339 |
| City of Kiel | 1,287 | 1,367 | 1,465 | 1,571 | 1,672 | 1,766 | 1,851 |
| City of Manitowoc | 14,235 | 14,838 | 15,422 | 16,042 | 16,606 | 17,079 | 17,462 |
| City of Two Rivers | 5,221 | 5,281 | 5,342 | 5,416 | 5,467 | 5,483 | 5,469 |
| Manitowoc County | 32,723 | 34,000 | 35,199 | 36,439 | 37,546 | 38,440 | 39,125 |

Source: Wisconsin Department of Administration, 2008 and Bay-Lake Regional Planning Commission, 2009.

Manitowoc County Housing Programs and Resources

There are a number of housing programs and tools available to assist Manitowoc County officials in obtaining and maintaining the desired housing environment they wish to provide their residents. An important first step in the successful utilization of those resources is ongoing education of citizens and local officials regarding the contents of the Housing Chapter of this comprehensive plan and on the importance of providing quality and affordable housing for all Manitowoc County residents. Elected and appointed county officials, as well as the citizens, need to understand the strong correlation between quality housing and the economic development, natural/cultural resources, land use, community facilities and transportation components of the county.

The following is a list of programs and resources available to implement the housing strategies found in Chapter 1 of the local and county comprehensive plans. Some local implementation tools that may compliment this list of programs and resources are Manitowoc County's zoning ordinances and enforcement regulations.

Local and Regional Programs

Manitowoc County Aging Resource Center focuses their services to enable older citizens in the county to find and make use of the resources in their communities, helping them experience aging with self-sufficiency, security, and dignity. Their list of available services include Alzheimer's support, housing counseling, nutrition program, transportation, information, assistance, and benefit specialist.

Manitowoc County Department of Human Services provides a variety of housing related assistance to residents of the county to include refugee assistance, information on independent living services, and energy assistance.

Lakeshore Community Action Program's mission is to promote economic self-sufficiency and well-being of low-income persons through advocacy, community education, and resource development in Door, Kewaunee, Manitowoc, and Sheboygan Counties. Primary housing services include:

- Provide emergency service to low income people to meet basic human needs of food and shelter; and
- Promote and develop affordable rental housing and home ownership opportunities for low-income persons through direct services, advocacy and community education regarding the housing needs of the low-income community. These services include Affordable Rental Housing; Rental Housing Development; Home Buyer Program; and Individual Development Accounts (IDA). www.lakeshorecap.org

Tax Increment Financing (TIF). TIF is a tool available to cities and villages in Wisconsin under section 66.1105 of the Wisconsin Statutes for redeveloping blighted areas. TIF can be used to cover costs of public works or improvements including costs for demolition, land assembly, public improvements, and new buildings. Under TIF, new private development creates higher property values, thus creating a greater tax base (the tax increment). This increment, or a portion of the increment, is set aside for reinvestment in the area. Tax increment financing could be used to assist in the building or rehabilitation of affordable housing for middle- and lower-income households.

State Programs

Wisconsin Department of Commerce Bureau of Housing (BOH) helps expand local affordable housing and supports services to people without housing. The fifteen federal and state programs managed by the Bureau aid elderly persons, people with disabilities, low and moderate income residents, and the homeless population. The Bureau works closely with local governments and non-profit housing organizations to deliver financial and technical housing assistance and to strengthen the capabilities of housing organizations. More than \$40 million is distributed annually to improve the supply of affordable housing for Wisconsin residents. The bureau:

- administers federal housing funds such as Home Investment Partnerships, (HOME) and CDBG;
- administers a variety of programs for persons with Special Needs (Homeless);
- provides state housing funds through local housing organizations;
- coordinates housing assistance programs with those of other state and local housing agencies; and
- develops state housing policy and provides housing information and technical assistance.
www.commerce.wi.gov/housing

The Wisconsin Housing and Economic Development Administration (WHEDA) also manages several federal housing programs. One program, the Low Income Housing Tax Credit Program, encourages housing development by providing private investors with income tax credits when they invest in low income housing development. Tax credits are allocated to housing projects on a competitive basis.

Information about WHEDA programs can be obtained by telephoning (800) 362-2761 or by visiting its web site at www.wheda.state.wi.us.

Wisconsin Historical Society's Division of Historic Preservation administers a 25-percent state income tax credit for repair or rehabilitation of historic homes. The tax credit is available to owner-occupants of non-income-producing historic residences. The property must be listed in, or eligible for, the State or National Register, or be determined to contribute to a State or National Register historic district. Eligible activities are limited to exterior work, rehabilitation or structural, electrical, mechanical, and plumbing systems.
www.wisconsinhistory.org/hp/architecture/tax_credit.asp

Wisconsin Department of Veterans Affairs makes available a variety of home acquisition and improvement programs for qualifying veterans and their dependents. These programs include the Home Purchase Program, Home Improvement Loan Program (HILP) may be used for additions, garage construction, repairs and remodeling (i.e., replace a roof, install new windows, a new furnace or a central air conditioning system) of a veteran's residence; and Primary Mortgage Loan (PML), that is different from the USDVA Home Loan Guaranty Program.
www.homeloans.va.gov

The Energy Assistance Bureau, within the Wisconsin Division of Energy, provides services to Wisconsin qualified residential households with energy assistance and weatherization needs. The Wisconsin Home Energy Assistance Program (WHEAP) administers the federally funded Low Income Home Energy Assistance Program (LIHEAP) and Public Benefits Energy Assistance Program. LIHEAP and its related services help over 100,000 Wisconsin households annually. In addition to regular heating and electric assistance, specialized services include

emergency fuel assistance, counseling for energy conservation and energy budgets, pro-active co payment plans, and emergency furnace repair and replacement. Services are provided locally through county social services offices, Tribal governments, private non-profit or other government agencies. www.heat.state.wi.us

Federal Programs

U.S. Department of Agriculture -Rural Development offers subsidized direct loans and non-subsidized guaranteed loan funds for the purchase and construction of homes by households in qualified rural areas of the state. The community must be of 20,000 or less, and there are special programs for Native Americans. Rural Development also provides low-interest mortgage loans for single family, owner-occupied residential home repair in rural areas. Some grants are available for very low-income elderly households. It provides funding through the 504 and the Housing Preservation Grant programs. www.rurdev.usda.gov/wi/programs/rhs/

U.S. Department of Housing and Urban Development provides vital public services through its nationally administered programs. It oversees the Federal Housing Administration (FHA), the largest mortgage insurer in the world, as well as regulates the housing industry business. The mission of the Office of Housing is to:

- Contribute to building and preserving healthy neighborhoods and communities;
- Maintain and expand homeownership, rental housing and healthcare opportunities;
- Stabilize credit markets in times of economic disruption;
- Operate with a high degree of public and fiscal accountability; and
- Recognize and value its customers, staff, constituents and partners.

Within the Office of Housing are three business areas:

1. HUD's Single Family programs include mortgage insurance on loans to purchase new or existing homes, condominiums, manufactured housing, houses needing rehabilitation, and for reverse equity mortgages to elderly homeowners.
2. HUD's Multifamily programs provide mortgage insurance to HUD-approved lenders to facilitate the construction, substantial rehabilitation, purchase and refinancing of multifamily housing projects, and healthcare facilities.
3. HUD's Regulatory programs are designed to assist homeowners and homebuyers to regulate real estate transactions. www.hud.gov

US Department of Veterans Affairs offers a number of programs and services for veterans and their dependents. In the area of housing, the department has several grants and loans available. Many of the programs are made available through the State Department of Veterans Affairs or local veteran's affairs offices. www.va.gov

National and Regional Not for Profit Organizations

Habitat for Humanity has local affiliates and is responsible for raising funds, recruiting volunteers, identifying project sites and constructing owner-occupied housing for the benefit of participating low-income families. Their goal is to eliminate inadequate and poverty housing throughout the world. www.habitat.org

Movin' Out, Inc. creates opportunities for people with disabilities and their families to purchase and maintain their own homes, in housing and neighborhoods that are safe, affordable, accessible, and integrated. Movin' Out, Inc. is a housing organization providing information and

assistance, housing counseling, and gap financing for purchase and rehabilitation to Wisconsin households with a member who has a permanent disability. www.Movin-out.org.

Tomorrow's Home Foundation was created in 2000 for several purposes:

- Assist disabled persons in the purchase of a manufactured or modular home via a downpayment assistance grant;
- Provide emergency assistance grants designed to provide critical repairs so that individuals and families can stay in their manufactured or mobile home;
- create a method and mode for disposing of old, uninhabitable mobile homes that were blighting the countryside; and
- educate the manufactured and modular housing industry.

As a public charity, the Foundation provides a way to give back to the community for industry members and a method to assist populations that are underserved by other programs. For example, many other charitable and public service agencies do not provide housing assistance to persons in mobile home parks. The Tomorrow's Home Foundation fills this void.

www.tomorrowshomefoundation.org

WiFrontDoorHousing is a web-based community service that is intended to better connect providers of housing and housing services to renters who are looking for these types of housing opportunities. Their goal is to provide access to up-to-date housing information with user-friendly tools. These tools are customized for each of our user groups: renters, landlords, property managers, and the housing agency staff that help people find and keep housing. www.wifrontdoor.org

Rural Housing, Inc. was created in 1970 by the Rural Electrical Cooperatives as a statewide non-profit. Over the years, they have had federal, state, and private funding. They have served hundreds of rural communities and non-profit organizations with technical assistance, grant applications and advice. They have assisted thousands of low-income families with information, funds to repair their septic and wells, assistances for rent, and funds to purchase homes or stay in their homes. Millions of dollars have been leveraged for the very low-income rural residents of Wisconsin to:

- Assist low-income families obtain adequate, safe and sanitary housing;
- Help low-income households acquire appropriate water and wastewater services;
- Enable small communities and local organizations to more effectively address the needs of those with substandard shelter;
- Demonstrate new services and new approaches to address rural housing problems; and
- Alert the public and private sectors about the housing, water, and community development needs of low-income rural residents. www.wisconsinruralhousing.org

The Wisconsin Partnership for Housing Development works with local governments as consultants to help them understand their housing needs and find solutions, and as technical advisors that work under contract to HUD to help local governments design new housing programs or create local housing partnerships. Putting together the right combination of people and resources is essential to finding effective approaches to local or regional housing problems. We have experience in working with neighborhoods, villages, cities, counties and metropolitan areas, as well as grassroots community leaders and those most directly affected by poor housing and declining neighborhoods. www.wphd.org

Catholic Charities agencies strengthen their communities by empowering the people within them. They help families and individuals overcome tragedy, poverty, and other life challenges. Every agency is unique. They share a common goal of providing the services and programs that their particular community needs the most. Over 220,000 compassionate volunteers, staff, and board members comprise the driving force behind the Catholic Charities network. Their commitment goes beyond meeting peoples' daily needs. They build hopeful futures by helping people take control of their lives. www.catholiccharitiesinfo.org

NeighborWorks[®] America is comprised of local organizations and Neighborhood Housing Services of America, which has successfully built healthy communities since 1978. Together, with national and local partners, NeighborWorks creates new opportunities for residents while improving communities. NeighborWorks America is national nonprofit organization created by Congress to provide financial support, technical assistance, and training for community-based revitalization efforts. www.nw.org

VOLUME II - APPENDIX C
ECONOMIC DEVELOPMENT RESOURCES

MANITOWOC COUNTY

DETAILED ECONOMIC DEVELOPMENT TABLES

Figure C.1: Median Household Income, Manitowoc County Municipalities, 1989 and 1999

| Geographic Location | 1989 | 1999 | Percent Change |
|--------------------------|----------|----------|----------------|
| Town of Cato | \$31,507 | \$53,462 | 69.7 |
| Town of Centerville | \$30,625 | \$58,750 | 91.8 |
| Town of Cooperstown | \$32,895 | \$58,177 | 76.9 |
| Town of Eaton | \$31,310 | \$52,054 | 66.3 |
| Town of Franklin | \$31,016 | \$50,000 | 61.2 |
| Town of Gibson | \$32,566 | \$48,438 | 48.7 |
| Town of Kossuth | \$32,135 | \$55,114 | 71.5 |
| Town of Liberty | \$33,864 | \$56,169 | 65.9 |
| Town of Manitowoc | \$34,444 | \$54,265 | 57.5 |
| Town of Manitowoc Rapids | \$33,320 | \$56,548 | 69.7 |
| Town of Maple Grove | \$32,566 | \$51,071 | 56.8 |
| Town of Meeme | \$34,783 | \$55,139 | 58.5 |
| Town of Mishicot | \$31,439 | \$51,083 | 62.5 |
| Town of Newton | \$34,340 | \$54,359 | 58.3 |
| Town of Rockland | \$34,219 | \$53,500 | 56.3 |
| Town of Schleswig | \$33,810 | \$52,841 | 56.3 |
| Town of Two Creeks | \$32,750 | \$45,625 | 39.3 |
| Town of Two Rivers | \$34,722 | \$55,759 | 60.6 |
| Village of Cleveland | \$34,600 | \$50,739 | 46.6 |
| Village of Francis Creek | \$30,179 | \$43,542 | 44.3 |
| Village of Kellnersville | \$25,000 | \$32,167 | 28.7 |
| Village of Maribel | \$25,313 | \$45,938 | 81.5 |
| Village of Mishicot | \$29,609 | \$43,083 | 45.5 |
| Village of Reedsville | \$26,207 | \$41,300 | 57.6 |
| Village of St. Nazianz | \$28,864 | \$40,139 | 39.1 |
| Village of Valders | \$32,188 | \$45,167 | 40.3 |
| Village of Whitelaw | \$25,804 | \$51,029 | 97.8 |
| City of Kiel | \$30,245 | \$45,595 | 50.8 |
| City of Manitowoc | \$24,202 | \$38,203 | 57.9 |
| City of Two Rivers | \$25,710 | \$39,701 | 54.4 |
| Manitowoc County | \$27,467 | \$43,286 | 57.6 |
| State of Wisconsin | \$29,442 | \$43,791 | 48.7 |

Source: U.S. Bureau of the Census, 1990 Census of Population and Housing, STF 3A Table P080A; U.S. Bureau of the Census, 2000, DP-3; and Bay-Lake Regional Planning Commission, 2009.

Figure C.2: Educational Attainment (Age 25 and Over), Manitowoc County Municipalities, 2000

| Geographic Location | Less than 9th Grade | | 9th to 12th grade, no diploma | | High school graduate (includes equivalency) | | Some college, no degree | | Associate degree | | Bachelor's degree | | Graduate or professional degree | |
|--------------------------|---------------------|---------|-------------------------------|---------|---|---------|-------------------------|---------|------------------|---------|-------------------|---------|---------------------------------|---------|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Town of Cato | 64 | 6.0 | 75 | 7.0 | 514 | 47.9 | 168 | 15.7 | 84 | 7.8 | 138 | 12.9 | 30 | 2.8 |
| Town of Centerville | 38 | 8.3 | 32 | 7.0 | 212 | 46.1 | 83 | 18.0 | 38 | 8.3 | 37 | 8.0 | 20 | 4.3 |
| Town of Cooperstown | 38 | 4.1 | 64 | 6.9 | 411 | 44.4 | 180 | 19.4 | 90 | 9.7 | 99 | 10.7 | 44 | 4.8 |
| Town of Eaton | 41 | 7.9 | 41 | 7.9 | 260 | 50.0 | 82 | 15.8 | 34 | 6.5 | 60 | 11.5 | 2 | 0.4 |
| Town of Franklin | 67 | 7.9 | 77 | 9.0 | 414 | 48.6 | 178 | 20.9 | 50 | 5.9 | 47 | 5.5 | 18 | 2.1 |
| Town of Gibson | 53 | 6.1 | 89 | 10.3 | 430 | 49.8 | 128 | 14.8 | 60 | 6.9 | 86 | 10.0 | 18 | 2.1 |
| Town of Kossuth | 69 | 5.0 | 107 | 7.8 | 652 | 47.3 | 235 | 17.0 | 121 | 8.8 | 159 | 11.5 | 36 | 2.6 |
| Town of Liberty | 36 | 4.1 | 59 | 6.7 | 383 | 43.8 | 199 | 22.7 | 81 | 9.3 | 96 | 11.0 | 2.1 | 2.4 |
| Town of Manitowoc | 44 | 5.5 | 51 | 6.4 | 343 | 42.8 | 165 | 20.6 | 59 | 7.4 | 80 | 10.0 | 59 | 7.4 |
| Town of Manitowoc Rapids | 139 | 7.8 | 83 | 4.7 | 644 | 36.1 | 262 | 14.7 | 136 | 7.6 | 301 | 16.9 | 219 | 12.3 |
| Town of Maple Grove | 21 | 4.1 | 60 | 11.7 | 267 | 52.3 | 81 | 15.9 | 30 | 5.9 | 45 | 8.8 | 7 | 1.4 |
| Town of Meeme | 104 | 10.5 | 88 | 8.9 | 405 | 40.9 | 195 | 19.7 | 93 | 9.4 | 85 | 8.6 | 21 | 2.1 |
| Town of Mishicot | 38 | 4.3 | 93 | 10.6 | 419 | 47.8 | 160 | 18.3 | 69 | 7.9 | 70 | 8.0 | 27 | 3.1 |
| Town of Newton | 102 | 6.8 | 112 | 7.5 | 666 | 44.5 | 266 | 17.8 | 140 | 9.3 | 149 | 9.9 | 63 | 4.2 |
| Town of Rockland | 35 | 6.0 | 64 | 11.0 | 316 | 54.3 | 77 | 13.2 | 33 | 5.7 | 49 | 8.4 | 8 | 1.4 |
| Town of Schlegwig | 86 | 6.7 | 105 | 8.1 | 618 | 47.9 | 237 | 18.4 | 73 | 5.7 | 124 | 9.6 | 47 | 3.6 |
| Town of Two Creeks | 17 | 4.9 | 39 | 11.3 | 183 | 52.9 | 61 | 17.6 | 17 | 4.9 | 22 | 6.4 | 7 | 2.0 |
| Town of Two Rivers | 76 | 5.5 | 124 | 9.0 | 646 | 46.6 | 245 | 17.7 | 103 | 7.4 | 116 | 8.4 | 75 | 5.4 |
| Village of Cleveland | 77 | 8.4 | 68 | 7.5 | 321 | 35.2 | 173 | 19.0 | 75 | 8.2 | 154 | 16.9 | 44 | 4.8 |
| Village of Francis Creek | 33 | 8.2 | 22 | 5.4 | 207 | 51.2 | 78 | 19.3 | 29 | 7.2 | 28 | 6.9 | 7 | 1.7 |
| Village of Kellnersville | 27 | 10.4 | 24 | 9.3 | 123 | 47.5 | 47 | 18.1 | 18 | 6.9 | 17 | 6.6 | 3 | 1.2 |
| Village of Maribel | 6 | 3.9 | 12 | 7.9 | 76 | 50.0 | 29 | 19.1 | 4 | 2.6 | 20 | 13.2 | 5 | 3.3 |
| Village of Mishicot | 90 | 9.0 | 63 | 6.3 | 461 | 46.3 | 193 | 19.4 | 78 | 7.8 | 69 | 6.9 | 41 | 4.1 |
| Village of Reedsville | 86 | 10.5 | 67 | 8.2 | 378 | 46.3 | 145 | 17.7 | 28 | 3.4 | 86 | 10.5 | 27 | 3.3 |
| Village of St. Nazianz | 15 | 3.5 | 55 | 12.9 | 201 | 47.2 | 82 | 19.2 | 28 | 6.6 | 32 | 7.5 | 13 | 3.1 |
| Village of Valders | 26 | 4.5 | 32 | 5.6 | 257 | 44.6 | 98 | 17.0 | 72 | 12.5 | 71 | 12.3 | 20 | 3.5 |
| Village of Whitelaw | 41 | 9.0 | 27 | 5.9 | 221 | 48.3 | 69 | 15.1 | 44 | 9.6 | 48 | 10.5 | 8 | 1.7 |
| City of Kiel | 208 | 9.1 | 183 | 8.0 | 969 | 42.4 | 384 | 16.8 | 212 | 9.3 | 236 | 10.3 | 92 | 4.0 |
| City of Manitowoc | 1,608 | 7.0 | 2,163 | 9.4 | 9,303 | 40.6 | 4,387 | 19.1 | 1,555 | 6.8 | 2,934 | 12.8 | 990 | 4.3 |
| City of Two Rivers | 453 | 5.4 | 814 | 9.6 | 3,688 | 43.6 | 1,702 | 20.1 | 645 | 7.6 | 821 | 9.7 | 334 | 3.9 |
| Manitowoc County | 3,697 | 6.7 | 4,865 | 8.8 | 23,853 | 43.0 | 10,359 | 18.7 | 4,099 | 7.4 | 6,273 | 11.3 | 2,306 | 4.2 |
| State of Wisconsin | 186,125 | 5.4 | 332,292 | 9.6 | 1,201,813 | 34.6 | 715,664 | 20.6 | 260,711 | 7.5 | 530,268 | 15.3 | 249,005 | 7.2 |

Source: U.S. Bureau of the Census, 2000, DP-2; Bay-Lake Regional Planning Commission, 2009.

Figure C.3: Employed Persons by Occupation, Manitowoc County Municipalities, 2000

| Geographic Location | Management, professional, and related | | Service | | Sales and office | | Farming, fishing, and forestry | | Construction, extraction, and maintenance | | Production, transportation, and material moving | |
|--------------------------|---------------------------------------|---------|---------|---------|------------------|---------|--------------------------------|---------|---|---------|---|---------|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Town of Cato | 245 | 25.2 | 104 | 10.7 | 172 | 17.7 | 45 | 4.6 | 143 | 14.7 | 263 | 27.1 |
| Town of Centerville | 102 | 25.6 | 52 | 13.1 | 57 | 14.3 | 34 | 8.5 | 41 | 10.3 | 112 | 28.1 |
| Town of Cooperstown | 231 | 28.4 | 102 | 12.5 | 170 | 20.9 | 32 | 3.9 | 91 | 11.2 | 187 | 23.0 |
| Town of Eaton | 112 | 23.9 | 52 | 11.1 | 73 | 15.6 | 27 | 5.8 | 52 | 11.1 | 152 | 32.5 |
| Town of Franklin | 170 | 23.9 | 75 | 10.5 | 113 | 15.9 | 25 | 3.5 | 117 | 16.4 | 212 | 29.8 |
| Town of Gibson | 171 | 24.5 | 59 | 8.4 | 139 | 19.9 | 33 | 4.7 | 94 | 13.4 | 203 | 29.0 |
| Town of Kossuth | 314 | 27.4 | 108 | 9.4 | 205 | 17.9 | 42 | 3.7 | 137 | 12.0 | 338 | 29.5 |
| Town of Liberty | 202 | 27.2 | 112 | 15.1 | 176 | 23.7 | 20 | 2.7 | 88 | 11.8 | 146 | 19.6 |
| Town of Manitowoc | 182 | 30.0 | 74 | 12.2 | 125 | 20.6 | 9 | 1.5 | 58 | 9.6 | 159 | 26.2 |
| Town of Manitowoc Rapids | 406 | 32.1 | 122 | 9.6 | 241 | 19.0 | 66 | 5.2 | 150 | 11.8 | 281 | 22.2 |
| Town of Maple Grove | 109 | 22.4 | 40 | 8.2 | 91 | 18.7 | 24 | 4.9 | 50 | 10.3 | 172 | 35.4 |
| Town of Meeme | 193 | 22.2 | 93 | 10.7 | 181 | 20.8 | 41 | 4.7 | 95 | 10.9 | 266 | 30.6 |
| Town of Mishicot | 164 | 21.6 | 105 | 13.8 | 137 | 18.1 | 26 | 3.4 | 89 | 11.7 | 238 | 31.4 |
| Town of Newton | 367 | 27.1 | 144 | 10.6 | 257 | 19.0 | 53 | 3.9 | 188 | 13.9 | 346 | 25.5 |
| Town of Rockland | 135 | 26.4 | 48 | 9.4 | 61 | 11.9 | 18 | 3.5 | 60 | 11.7 | 190 | 37.1 |
| Town of Schlewig | 241 | 22.7 | 99 | 9.3 | 216 | 20.4 | 19 | 1.8 | 111 | 10.5 | 374 | 35.3 |
| Town of Two Creeks | 69 | 25.8 | 23 | 8.6 | 41 | 15.4 | 14 | 5.2 | 29 | 10.9 | 91 | 34.1 |
| Town of Two Rivers | 307 | 27.8 | 131 | 11.9 | 196 | 17.8 | 36 | 3.3 | 116 | 10.5 | 318 | 28.8 |
| Village of Cleveland | 204 | 26.1 | 77 | 9.8 | 165 | 21.1 | 19 | 2.4 | 74 | 9.5 | 243 | 31.1 |
| Village of Francis Creek | 68 | 19.0 | 54 | 15.1 | 86 | 24.1 | 13 | 3.6 | 39 | 10.9 | 97 | 27.2 |
| Village of Kellnersville | 46 | 22.3 | 32 | 15.5 | 23 | 11.2 | 2 | 1.0 | 24 | 11.7 | 79 | 38.3 |
| Village of Maribel | 29 | 21.8 | 27 | 20.3 | 37 | 27.8 | 7 | 5.3 | 14 | 10.5 | 19 | 14.3 |
| Village of Mishicot | 182 | 24.5 | 133 | 17.9 | 146 | 19.7 | 10 | 1.3 | 80 | 10.8 | 191 | 25.7 |
| Village of Reedsville | 144 | 22.0 | 91 | 13.9 | 91 | 13.9 | 7 | 1.1 | 71 | 10.8 | 251 | 38.3 |
| Village of St. Nazianz | 52 | 17.1 | 43 | 14.1 | 69 | 22.7 | 15 | 4.9 | 36 | 11.8 | 89 | 29.3 |
| Village of Valdars | 129 | 25.9 | 68 | 13.6 | 92 | 18.4 | 6 | 1.2 | 39 | 7.8 | 165 | 33.1 |
| Village of Whitelaw | 71 | 17.6 | 46 | 11.4 | 70 | 17.4 | 10 | 2.5 | 72 | 17.9 | 134 | 33.3 |
| City of Kiel | 448 | 24.3 | 224 | 12.2 | 416 | 22.6 | 37 | 2.0 | 121 | 6.6 | 596 | 32.4 |
| City of Manitowoc | 4,011 | 24.0 | 2,639 | 15.8 | 3,866 | 23.1 | 96 | 0.6 | 1,450 | 8.7 | 4,640 | 27.8 |
| City of Two Rivers | 1,357 | 21.6 | 862 | 13.8 | 1,194 | 19.0 | 36 | 0.6 | 549 | 8.8 | 2,271 | 36.2 |
| Manitowoc County | 10,448 | 24.3 | 5,793 | 13.5 | 8,880 | 20.7 | 820 | 1.9 | 4,264 | 9.9 | 12,748 | 29.7 |
| State of Wisconsin | 857,205 | 31.3 | 383,619 | 14.0 | 690,360 | 25.2 | 25,725 | 0.9 | 237,086 | 8.7 | 540,930 | 19.8 |

Source: U.S. Bureau of the Census, 2000, DP-3; Bay-Lake Regional Planning Commission, 2009

Manitowoc County

Economic Development Programs and Resources

This section briefly explains some of the many programs and resources available to Manitowoc County and its local communities to help grow their local economies. This list provides resources to extend or upgrade existing infrastructure or to create additional jobs through business development, recruitment, and expansion efforts. For more information on the listed resources below, please contact the Economic Development Corporation of Manitowoc County at www.edcmc.org.

County and Local

County Economic Development Officials/Contacts

Manitowoc County established a non-profit countywide economic development corporation (EDC) to serve as the catalyst for economic development and tourism promotion in the county. The EDC focuses on job creation, job retention, and the overall economic well-being of the county. The organization also promotes existing businesses, offers a marketing outlet for the county, and promotes events that are unique to the county that will benefit the area economically. Manitowoc County is served by the Economic Development Corporation of Manitowoc County located in the City of Manitowoc. (Source: www.edcmc.org)

Regional

The Bay-Lake Regional Planning Commission (BLRPC)

The Bay-Lake Regional Planning Commission serves as an economic development district for the US Department of Commerce-Economic Development Administration. The BLRPC also provides technical assistance to local ED organizations and offers grant writing and administration services for various state and federal funding sources.

(Source: www.baylakerpc.org)

Northeast Wisconsin Regional Economic Partnership (NEWREP)

All eight counties of the BLRPC are part of Commerce's *Eastern Wisconsin Technology Zone*. The program provides income tax incentives for high-tech development in the region. The zone is designed to enhance the region's attractiveness to high-tech businesses and workers, build on the success of the biotechnology and manufacturing companies in the region, attract auxiliary companies, and help existing companies increase productivity. (Source: www.northeastwisconsin.org)

New North, Inc.

New North, Inc. is a public-private partnership comprised of the 18-county area of Northeast Wisconsin. This regional economic development organization's primary goal is to market this part of Wisconsin to expand economic opportunities.

(Source: www.thenewnorth.com)

Small Business Development Centers (SBDC)

SBDCs are located within the eleven 4-year universities. The SBDCs counselors offer advice, training, and resources to promote entrepreneurship and small business growth. Programs focus on minority entrepreneurship, startup business solutions, and established business solutions.

Specific programs include business plan reviews and one-to-one business counseling. (Source: www.wisconsinsbdc.org)

SCORE

SCORE is a more than 11,500 member volunteer association sponsored by the U.S. Small Business Administration. It matches volunteer business-management counselors with present and prospective small business owners in need of expert advice. SCORE has experts in virtually every area of business management. Local SCORE chapters offer workshops and no cost one-to-one counseling. (Source: www.sba.gov)

Community Action Agencies

The purpose of **Community Action Agencies (CAA)**, as stated in the Economic Opportunity Act (EOA of 1964), is to stimulate a better focusing of all available local, state, private and federal resources upon the goal of enabling low-income families, and low-income individuals of all ages in all geographic areas, to attain the skills, knowledge, and motivations, and secure the opportunities needed, for them to become fully self-sufficient. The local CAA serving Manitowoc County is **Lakeshore CAP, Inc.** located in the City of Manitowoc. It operate a variety of programs including their operation of Head Start, weatherization, housing, employment and training programs, family development, economic development, commodity distribution, senior and youth services, and many other valuable programs. In addition to providing direct services, CAAs often serve as program sponsors or grantees overseeing, although not necessarily directly operating programs. (Source: www.lakeshorecap.org)

Utilities

Area utilities offer economic development assistance to communities and businesses in a number of ways to include the development of business plans, making available grants and loans, providing loan guarantees, and facilitating educational forums. Area utilities include:

- **Wisconsin Public Service Corporation** (www.wisconsinpublicservice.com),
- **Alliant Energy** (www.alliantenergy.com),
- **Rural Energy Cooperatives** (www.meuw.org), and
- **SBC** (www.sbc.com).

State

Wisconsin Department of Commerce

The federally funded **Community Development Block Grant (CDBG)** program can be used for housing, economic development and public facility improvements. The program is designed to assist economically distressed smaller communities with improvements to such things as utilities and streets, fire stations, community centers, and housing rehabilitation, as well as many other improvements needed by a community. The **CDBG-Economic Development (ED)** program assists large businesses that will invest substantial private funds and create approximately 100 jobs as they expand or relocate in Wisconsin. Funds are awarded to a community, which then loans the funds to a business. The **Major Economic Development (MED) Program** is designed to assist businesses that will invest private funds and create jobs as they expand in or relocate to Wisconsin. The **Rural Economic Development (RED) Program** provides working capital or fixed asset financing for businesses with fewer that 50 employees.

Specifically, the **CDBG-Public Facilities for Economic Development (PFED)** program is designed to assist communities with expanding or upgrading their infrastructure to accommodate businesses that have made a firm commitment to create jobs and invest in the community. The **CDBG-Public Facilities (PF)** component helps eligible local governments upgrade community facilities, infrastructure, and utilities for the benefit of low- to moderate-income residents. The **Main Street Program** offers a variety of resources to include façade grants and technical and financial assistance to stimulate the revitalization of their respective areas. The **Brownfields Initiative** provides grants to persons, businesses, local development organizations, and municipalities for environmental remediation activities for brownfield sites where the owner is unknown, cannot be located or cannot meet the cleanup costs. The **Community-Based Economic Development Program (CBED)** is designed to promote local business development in economically-distressed areas. The program awards grants to community-based organizations for development and business assistance projects and to municipalities for economic development planning. The program helps community-based organizations plan, build, and create business and technology-based incubators, and can also capitalize an incubator tenant revolving-loan program. The **CDBG-Blight Elimination and Brownfield Redevelopment Program (BEBR)** can help small communities obtain money for environmental assessments and to remediate brownfields. The **CDBG-Emergency Grant Program** can help small communities repair or replace infrastructure that has suffered damages as a result of catastrophic events.

Community Development Zone (CDZ) designation is a tax credit program for businesses planning to expand, relocate or start in the designated area or community. *CDZs in the BLRPC district include the cities of Green Bay, Sturgeon Bay, Two Rivers, and Manitowoc; and the counties of Florence, Marinette, and Oconto.* These tax credits are to be applied against a company's Wisconsin income tax liability. These credits are based on the number of new jobs that a company creates, and the wage level and benefit package that are offered to the employees. The **Enterprise Development Zone (EDZ)** program provides tax incentives to new or expanding businesses whose projects will affect distressed areas. Based on the economic impact of a proposed business project, the Department of Commerce will be able to designate an enterprise development zone. A zone is "site specific" and applies to only one business.

To compliment the bricks and mortar component of Commerce, there is funding specifically earmarked for employee training. Eligible businesses looking to train a significant number of its current or incoming workforce can apply for and receive a direct grant from Commerce for **Customized Labor Training (CLT)**. Companies with a few employees seeking training are eligible for the **Business Employees Skills Training (BEST)** program. The focus of both programs is on the training or retraining of employees to incorporate new technologies or manufacturing processes.

Commerce provides financial resources to encourage the development of small businesses. Potential entrepreneurs can access an **Early Planning Grant (EPG)** of up to \$3,000 to obtain professional services necessary to evaluate the feasibility of a proposed start-up or expansion or develop a business plan. The **Entrepreneurial Training Grant Program (ETG)** is a comprehensive course designed to provide hands-on assistance in the writing of a business plan. The technical assistance can be provided by the *Small Business Development Center (SBDC) at UW-Green Bay* or the regional *Service Core of Retired Executives (SCORE)* office.

Other programs offered by Commerce include: the **Employee Ownership Assistance Loan Program (EOP)** can help a group of employees purchase a business by providing individual awards up to \$15,000 for feasibility studies or professional assistance. The business under consideration must have expressed its intent to downsize or close. **Industrial Revenue Bonds (IRB)** are municipal bonds whose proceeds are loaned to private persons or to businesses to finance capital investment projects. All Wisconsin municipalities, cities, villages, and town are authorized to issue IRBs. The **Technology Development Fund (TDF)** program helps Wisconsin businesses research and develop technological innovations that have the potential to provide significant economic benefit to the state. The **Technology Development Loan (TDL)** program helps Wisconsin businesses develop technological innovations that have the potential to provide significant economic benefit to the state. This program is designed to help businesses commercialize new technology.

The **Minority Business Development (MBD) Loan Program** provides low interest loans to assist minority-owned companies with land and equipment purchase, working capital, and construction. The **Wisconsin Trade Project Program** can help small export-ready firms participate in international trade shows. The **Milk Volume Production (MVP) Loan Program** enables farmers to increase milk production by offering loan interest loans to purchase additional dairy cattle. The **Dairy 20/20 Early Planning Grant Program** covers third party services to assist the applicant with start-up, modernization, or expansion of a dairy operation. (Source: www.commerce.state.wi.us)

Wisconsin Department of Transportation

The **Transportation Economic Assistance (TEA)** grants provide up to 50% of costs to governing bodies, private businesses, and consortiums for road, rail, harbor, and airport projects that help attract employers to Wisconsin, or encourage business and industry to remain and expand in the state. Grants up to \$1 million are available for transportation improvements that are essential for an economic development project. The amount of DOT provided funding is dependent on the number of jobs being created or retained. The 50% local match portion can come from a combination of local, federal, state, or in-kind services.

In 1979, the **Harbor Assistance Program (HAP)** was created to assist harbor communities along the Great Lakes and Mississippi River in maintaining and improving waterborne commerce. Port projects typically include dock reconstruction, mooring structure replacement, dredging, and construction of facilities to hold dredged materials. The **Freight Rail Infrastructure Improvement program (FRIP)** and **Freight Rail Preservation program (FRPP)** were created to maintain and improve rail services throughout Wisconsin.

The **State Infrastructure Bank (SIB) program**, similar to a private bank, offers a range of loans and credit options to help finance eligible surface transportation projects. The money can be used in conjunction with other programs. SIBs offer Wisconsin the ability to undertake transportation projects that would otherwise go unfunded or experience substantial delays. Communities can borrow the money to provide needed transportation infrastructure improvements to help preserve, promote, and encourage economic development and/or promote transportation efficiency, safety, or mobility. The Wisconsin SIB program is a revolving loan program providing capital for transportation projects from loan repayments and interest earned from money remaining in the bank. Eligible projects include constructing or widening a road linking an intermodal facility and providing better access to commercial and industrial sites.

WisDOT charges 2 percent interest on the loan principal, with projects amortized up to 25 years. Eligible applicants are local units of government, Amtrak Railroad, private non-profit organizations, and Transit Commissions. (Source: www.dot.wisconsin.gov)

Wisconsin Department of Tourism

Funding is available for local communities and regions to design their own marketing effort. The most popular and utilized program is the **Joint Marketing Grant (JEM)**. The grants are to assist in paying for the costs associated with developing a stronger advertising and public relations campaign to promote tourism. (Source: <http://agency.travelwisconsin.com/Programs/programs/shtm>)

Wisconsin Department of Agriculture, Trade, and Consumer Protection

Financial resources are provided to help grow and diversify the state's agriculture industry. The **Agricultural Development and Diversification (ADD)** grant is awarded to projects that may create new opportunities within agriculture through new value-added products, new market research, new production or marketing techniques, or alternative crops or enterprises. Maximum grants are \$50,000. Eligible applicants are individuals, associations, agri-businesses, and industry groups. (Source: <http://datcp.state.wi.us>)

Wisconsin Department of Administration

Wisconsin Coastal Management Program was established in 1978 under the Federal Coastal Zone Management Act. Coastal management is defined as achieving a balance between natural resource preservation and economic development along our Great Lakes coasts. All counties adjacent to Lakes Superior and Michigan are eligible to receive funds. Coastal Management Grants are available for coastal land acquisition, wetland protection and habitat restoration, non-point source pollution control, coastal resources and community planning, Great Lakes education, and public access and historic preservation. (Source: www.doa.state.wi.us)

Wisconsin Department of Natural Resources

Brownfields, Green Space, and Public Facilities grants help local governments clean-up brownfield sites intended for long-term public benefit, including green spaces, development of recreational areas or other uses by local governments. A city, village, town, county, redevelopment authority, community development authority, or housing authority is eligible to apply for funds. Eligible costs include remedial action plans and/or costs to develop a Remedial Action Plan. No grant may exceed \$200,000. The match requirement (20-50 percent) is determined by the amount of the grant. Site access and completed Phase I and II Environmental Site Assessments are required to receive a grant. Application deadline has been each year in January. (Source: www.dnr.wi.gov/org/caer/cfa/cfindex.html)

Wisconsin Housing and Economic Development Authority (WHEDA)

WHEDA is responsible for a number of housing and economic development functions. It works with local and state economic development professionals, businesses, and lending institutions to help an individual expand or modernize a farm or business. **Loan Guarantees, direct loans, New Market Tax Credits, and interest rate subsidies** are utilized within a financial package to help ensure the project has the best chance for long term success. (Source: www.wheda.com)

Other state resources include: *Impact Seven, Inc.*, is one of more recognizable statewide organizations that provide micro-loans for small business start-ups and expansions. (Source: www.impactseven.org) The *Wisconsin Women's Business Initiative Corporation (WWBIC)* also provides micro-loans to predominately women, people of color, and those of lower incomes.

(Source: www.wwbic.com) The *Wisconsin Business Development Finance Corporation* provides financial assistance and resources to business and lenders throughout the state. (Source: www.wbd.org) The **Wisconsin Innovation Network (WIN)** is one of the priority areas of the *Wisconsin Technology Council*. WIN is a community-based economic development organization dedicated to fostering innovation and entrepreneurship. (Source: www.wisconsintechcouncil.com)

Federal

US Department of Commerce, Economic Development Administration (EDA)

EDA was established to work with states and regional planning commissions (economic development districts) to generate new jobs, retain existing jobs, and stimulate industrial and commercial growth in economically distressed areas and regions of the United States. The purpose of its program investments is to provide economically distressed communities with a source of funding for planning, infrastructure development, and business financing that will induce private investment in the types of business activities that contribute to long-term economic stability and growth. EDA's investments are strategically targeted to increase local competitiveness and strengthen the local and regional economic base. There are a number of investment programs offered by EDA.

The Public Works Program to empower distressed communities to revitalize, expand, and upgrade their physical infrastructure to attract new industry, encourage business expansion, diversify local economies, and generate or retain long-term, private sector jobs and investment. **Economic Adjustment Assistance Program** assists state and local interests to design and implement strategies to adjust or bring about change to an economy. The program focuses on areas that have experienced or are under threat of serious structural damage to the underlying economic base. **The Research and Technical Assistance Program** supports research of leading edge, world class economic development practices as well as funds information dissemination efforts. **The Technical Assistance Program** helps fill the knowledge and information gaps that may prevent leaders in the public and nonprofit sectors in distressed areas from making optimal decisions on local economic development issues. **EDA's Partnership Planning Programs** help support local organizations (Economic Development Districts, Indian Tribes, and other eligible areas) with their long-term planning efforts and their outreach to the economic development community on EDA's programs and policies. (Source: www.eda.gov)

US Department of Housing and Urban Development

CDBG Entitlement Communities Grants are annual grants given on a formula basis to entitled cities, including the City of Green Bay, and counties to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons. Entitlement communities develop their own programs and funding priorities. Focus is on serving low- and moderate-income persons, and prevention and elimination of blight. Eligible activities include relocation and demolition; construction of public facilities; and assistance to profit-motivated businesses to carryout economic development and job creation/retention activities. To receive its annual CDBG entitlement grant, a grantee must develop and submit to HUD its Consolidated Plan.

Economic Development Initiative (EDI) provides grants to local governments to enhance both the security of loans guaranteed through Section 108 Loan Program and the feasibility of the economic development and revitalization projects they finance. EDI has been the catalyst in the

expanded use of loans through the Section 108 Program by decreasing the level of risk to their CDBG funds or by paying for some of the project costs. There are congressionally earmarked and competitive BDI grants. Competitive EDI grants can be only be used in projects also assisted by the Section 108 Loan Program. Eligible activities include property acquisition, rehabilitation of public owned property, and economic development activities.

Brownfields Economic Development Initiative (BEDI) is a key competitive grant program HUD administers to stimulate and promote economic and community development. BEDI is designed to assist cities with the redevelopment of abandoned, idled, and underused industrial and commercial facilities where expansion and redevelopment is burdened by real or potential environmental contamination. The purpose of the BEDI program is to spur the return of brownfields to productive economic use through financial assistance to public entities in the redevelopment of brownfields, and enhance the security or improve the viability of a project financed with Section 108- guaranteed loan authority. Therefore, BEDI grants must be used in conjunction with a new Section 108-guaranteed loan commitment.

Section 108 Loan Guarantee Program is a loan guarantee provision of the CDBG program. It provides communities with a source of financing for economic development, housing rehabilitation, public facilities, and large-scale physical development projects. Eligible applicants include entitlement communities. Activities eligible for Section 8 financing include economic development activities eligible under CDBG, acquisition of real property, rehabilitation of public property, installation of public facilities. As an entitlement community, Green Bay may apply for up to five times the latest approved CDBG entitlement amount minus any outstanding Section 108 commitments and/or principal balances of Section 108. The principal security for the loan guarantee is a pledge by the applicant public entity of its current and future CDBG funds. The maximum repayment period for a Section 8 loan is twenty years. (Source: www.hud.gov)

USDA Rural Development

The office offers a variety of funding options for many types of business ventures to include agriculture, manufacturing, processing, services, commercial, and retail. Rural Development is also instrumental in providing much needed financial resources to communities for infrastructure improvements and expansions primarily for waste water and water treatment facilities. They have direct and guaranteed loans for businesses and communities in addition to a number of grants.

The **Rural Business Opportunity Grant Program** provides technical assistance, training, and planning activities that improve economic conditions in rural areas of 50,000 people or less. A maximum of \$1.5 million per grant is authorized. **Rural Utilities Service (RUS) Grant Program** is designed to promote economic development and/or job creation projects including, but not limited to: project feasibility studies, start-up costs, incubator projects, and other reasonable expenses. Grants can be provided to rural communities through RUS borrowers to be used for revolving loan funds for community facilities and infrastructure, and for assistance in conjunction with rural economic development loans.

Rural Business Enterprise Grants Program (RBEG) to public bodies, private nonprofit corporations, and federally-recognized Indian Tribal groups to finance and facilitate development of small and emerging private business enterprises located in areas outside the boundary of a City, or unincorporated areas of 50,000 or more and its immediately adjacent urbanized or urbanizing area. The small, or emerging business to be assisted must have less than

50 new employees, less than \$1 million in gross annual revenues, have or will utilize technological innovations and commercialization of new products and/or processes to be eligible for assistance. Funds can be used for a variety of things including, but not limited to: construction of buildings and plants, equipment, access streets and roads, parking areas, utility and service extensions, and a variety of other costs.

The Intermediary Relending Program money is lent to private non-profit organizations, any state or local government, an Indian Tribe, or a cooperative that is relented to by the intermediary to the ultimate recipients. The ultimate recipient must not be able to receive financing at reasonable rates or terms. (Source: www.rurdev.usda.gov/wi/programs/index.htm)

US Department of Commerce National Oceanic and Atmospheric Administration (NOAA) Coastal Zone Management Program (CZMP) assists local and state governments in managing and revitalizing coastal areas for mixed-use development. The competing goals of commercial and industrial development, tourism, environmental protection, transportation and recreation are discussed in coastal management plans. The CZMP seeks to maintain the economic welfare of coastal communities and ecosystems through intergovernmental cooperation. The CZMP supports states through financial contributions, technical advice, participation in state and local forums, and through mediation. Wisconsin CZMP programs currently protect wetland ecosystems, reduce non-point pollution sources, reduce erosion and assist in meeting state and regional coastal goals. (Source: www.coastalmanagement.noaa.gov/programs)

US Environmental Protection Agency

Brownfields Assessment and Cleanup Cooperative Agreements objectives are to provide funding to inventory, characterize, assess, and conduct planning and community involvement related to brownfield sites; to capitalize a RLF fund; and to carry out cleanup activities at brownfield sites that are owned by the grant recipient. Eligibility for the assessment, RLF, and cleanup grants includes a general purpose unit of local government. This is a competitive grant program. There are separate guidelines for each of the three areas. Grant amounts are based on size and type of contamination, ranging from \$200,000 to \$350,000. (Source: www.epa.gov/brownfields/pilot/htm)

US Department of the Interior - National Park Service

Land and Water Conservation Fund (LWCF) is a visionary and bipartisan program, established by Congress in 1964 to create parks and open spaces, protect wilderness, wetlands, and refuges, preserve wildlife habitat, and enhance recreational opportunities. States receive individual allocations of LWCF grant funds based on a national formula. Then states initiate a statewide competition for the amount available to award via matching grants. (Source: www.nps.gov/nrcr/programs/lwcf)

Small Business Administration (SBA)

The **SBA** provides financial, business counseling and training, and business advocacy to foster the development and success of small businesses. Financial assistance comes in the form of loans and grant programs including the 7(a) Loan Guarantee, Prequalification Loan, 7(m) Micro Loan, CDC/504 Loan, CAPLines Program, and 8(a) Business Development Program. (Source: www.sba.gov/wi/WI_FINANCING.htm)

VOLUME II - APPENDIX D
TRANSPORTATION RESOURCES

Figure D.1: Functional Classification Criteria for Streets and Highways in Urban Areas

| URBAN PRINCIPAL ARTERIALS | | | | | | |
|---|--|---|--|---------------------|------------------------------------|--|
| System Continuity (Rural - Urban Interface) | | Basic Criteria Must meet Land Use Service or Spacing plus Traffic Volume or Parenthetical Current ADT Alone | | | Mileage Percent of System Range | |
| A rural minor arterial remains an urban minor arterial until it meets one of the following: | | Land Use Service | Spacing | Current ADT* | | |
| Current ADT Alone | Intersects with an Urban Arterial plus Current ADT | | | | | |
| ≥15,000 | ≥9,000 | A principal arterial should be within one mile of the following land uses: a. Main central business district of the urban area b. Type 1 and 2 airports c. Regional shopping centers d. Major colleges and universities e. Community and regional parks f. Industrial parks g. Large stadia, arenas, or civic centers | Maximum: 1 mile in central business district; 3 to 5 miles in other parts of urbanized area | ≥9,000 (≥30,000) | 5.0% to 10.0% | |

*The roadway or highway segment must be a minimum of a mile long.

| URBAN MINOR ARTERIALS | | | | | | |
|---|---|--|--|-----------------------------|---|---------------------------------|
| Basic Criteria | | | | | Supplemental Criteria | Mileage Percent of System Range |
| System Continuity (Rural - Urban Interface) | | Must meet Land Use Service or Spacing plus Traffic Volume or Parenthetical Current ADT Alone | | | Must meet two of the criteria below plus 90% of Current ADT | |
| A collector remains an urban collector until it meets one of the following: | | | | | | |
| Current ADT Alone | Intersects with an Urban Collector or Arterial plus Current ADT | Land Use Service | Spacing | Current ADT* | | |
| ≥9,000 | ≥4,500 | <p>A minor arterial should be within a half mile of the following land uses:</p> <ul style="list-style-type: none"> a. Central business districts of each satellite community b. Type 3, 4 and 5 airports c. Community shopping centers d. Junior or community colleges e. Large industrial plants f. High schools g. Large office buildings h. Community hospitals i. Clinics j. Sub-community parks k. Golf courses <p>All commercial retail strip development over one quarter mile in length not on a principal arterial.</p> <p>Interconnection of the main central business district with satellite community central business districts.</p> | <p>Maximum: One half mile in central business district; two miles in other parts of urbanized area</p> | <p>≥4,500 (≥15,000)</p> | <ul style="list-style-type: none"> 1. Bus Route 2. Truck Route 3. Signalization 4. Interchanges with a freeway 5. Major river crossing/ restrictive topography | 10.0% to 15.0% |

*The roadway or highway segment must be a minimum of one half mile long.

| URBAN COLLECTORS | | | | | | |
|--|--|--|----------------------------|--|--|---------------------------------|
| Basic Criteria | | | | Supplemental Criteria | | |
| Must meet one of the below criteria plus Current ADT or the Parenthetical Current ADT Alone | | | | Must meet two of the criteria below plus 90% of Current ADT | | Mileage Percent of System Range |
| System Continuity | Land Use Service | Spacing | Current ADT* | | | |
| <p>May penetrate each residential neighborhood and connect to nearby arterial.</p> <p>May include the logical street system for traffic circulation in the central business district (relative to land use service).</p> <p>A rural collector remains a collector when crossing into an urbanized area until it meets the urban minor arterial criteria.</p> | <p>A collector should be within a quarter mile of the following land uses:</p> <ul style="list-style-type: none"> a. Elementary, intermediate or middle schools b. Small industrial plants c. Large warehousing d. Neighborhood shopping centers e. Small office buildings f. Neighborhood parks g. Marinas | <p>Maximum: One quarter mile in central business district; one mile in other parts of urbanized area</p> | <p>≥2,250 (≥9,000)</p> | <ol style="list-style-type: none"> 1. Bus route 2. Truck route 3. Signalization 4. Interchanges with a freeway 5. Major river crossing/restrictive topography | | <p>5.0% to 10.0%</p> |
| *The roadway or highway segment must be a minimum of one quarter mile long. | | | | | | |

| URBAN LOCAL STREETS | | |
|--|--|---|
| All public streets not classified as arterials or collectors. | | <p>65.0% to 80.0%</p> <p>68.0% to 73.0% in most urbanized areas</p> |
| Source: Wisconsin Department of Transportation, <i>Functional Classification Criteria</i> , 2003; and Bay-Lake Regional Planning Commission, 2008. | | |

Figure D.2: Functional Classification Criteria for Streets and Highways in Rural Areas

| RURAL PRINCIPAL ARTERIALS | | | | | |
|---|--|---|--------------|---|---------------------------------|
| Basic Criteria | | | | Supplemental Criteria | Mileage Percent of System Range |
| Must meet any two of the criteria below | | | | | |
| Population Service* | Land Use Service | Spacing | Current ADT | None | 2.0% to 4.0% statewide |
| Connect places $\geq 50,000$ with other places $\geq 50,000$ Connect places 5,000 - 49,999 with places $\geq 50,000$ | Provide access to major recreation areas of the state. | Maximum: 30 miles between Principal Arterials | $\geq 6,000$ | | |
| *A place is considered served by a principal arterial if the principal arterial either penetrates its boundary or comes within 10 miles of the center of the place and penetrating service is provided by a minor arterial. | | | | | |
| RURAL MINOR ARTERIALS | | | | | |
| Basic Criteria | | | | Supplemental Criteria | Mileage Percent of System Range |
| Must meet any two of the criteria below | | | | | |
| Population Service* | Land Use Service | Spacing | Current ADT | Must meet both of the criteria below plus 90% of Current ADT | 4.0% to 8.0% statewide |
| Connect places 1,000 - 4,999 to places $\geq 50,000$ Connect places 5,000 - 49,999 to other places 5,000 - 49,999 Connect places 1,000 - 4,999 to places 5,000 - 49,999, or with principal arterials | Serve all traffic generating activities with an annual visitation of 300,000, if not served by a principal arterial. | Maximum: 30 miles between Arterials | $\geq 2,000$ | 1. Alternate population connection 2. Major river crossing/ restrictive topography | |
| *A place is considered served by a minor arterial if the minor arterial either penetrates its boundary or comes within two miles of the center of the place and a major collector provides penetrating service. | | | | | |

| RURAL MAJOR COLLECTORS* | | | | | |
|---|------------------------------------|--|-------------------------------|--|--|
| Basic Criteria | | | | Supplemental Criteria | Mileage Percent of System Range |
| Must meet any two of the criteria below or the Parenthetical Current ADT Alone | | | | Must meet two of the criteria below plus 90% of Current ADT | |
| Population Service** | Land Use Service | Spacing | Current ADT*** | | |
| Connect places 1,000 - 4,999 to other places 1,000 - 4,999 | Land Use Service Index ≥ 16 . | Maximum: 10 Miles between Major Collectors or Higher Function Routes | $\geq 1,000$ ($\geq 4,000$) | <ol style="list-style-type: none"> 1. Alternate population connection 2. Major river crossing 3. Restrictive topography 4. Interchange with a freeway 5. Parallel to a principal arterial | 5.0% to 18.0% countywide Most counties should be at 7.0% to 14.0% |
| Connect places 500 - 999 to places $\geq 50,000$ | | | | | |
| Connect places 500 - 999 to places 5,000 - 49,999 | | | | | |
| Connect places 500 - 999 to places 1,000 - 4,999 | | | | | |
| Connect places 500 - 999 to other places 500 - 999 | | | | | |
| Connect places 100 - 499 to places $\geq 50,000$ | | | | | |
| Connect places 100 - 499 to places 5,000 - 49,999 | | | | | |
| Connect places 100 - 499 to places 1,000 - 4,999 | | | | | |
| Connect places 100 - 499 to places 500 - 999, or with higher function routes | | | | | |
| *Loop routes and stub ended routes less than five miles long and meeting the basic criteria for a major collector should be limited to a minor collector classification. **A place is considered served by a major collector if the major collector comes within a half mile of the center of the place. ***The roadway or highway segment must be a minimum of a half mile long. | | | | | |

| RURAL MINOR COLLECTORS | | | | | |
|--|--|--|---------------|--|---------------------------------|
| Basic Criteria | | | | Supplemental Criteria | Mileage Percent of System Range |
| Must meet any two of the criteria below or the Parenthetical Current ADT Alone | | | | Must meet two of the criteria below plus 90% of Current ADT | |
| Population Service* | Land Use Service (served if within one half mile of place) | Spacing | Current ADT** | | |
| Connect places 100 - 999 to other places 100 - 999 | Land Use Service Index ≥8 | Maximum: 10 Miles between Minor Collectors or Higher Function Routes | ≥400 (≥1,600) | 1. Alternate population connection 2. Major river crossing 3. Restrictive topography 4. Interchange with a freeway 5. Parallel to a principal arterial | 5.0% to 10.0% countywide |
| Connect places 50 - 99 to places ≥50,000 | | | | | |
| Connect places 50 - 99 to places 5,000 - 49,999 | | | | | |
| Connect places 50 - 99 to places 1,000 - 4,999 | | | | | |
| Connect places 50 - 99 to places 500 - 999 | | | | | |
| Connect places 50 - 99 to places 100 - 499, or with higher function routes | | | | | |
| *A place is considered served by a minor collector if the minor collector comes within a half mile of the center of the place. | | | | | |
| **The roadway or highway segment must be a minimum of a half mile long. | | | | | |

| RURAL LOCAL ROADS | |
|--|--|
| All public roads not classified as arterials or collectors. | 65.0% to 75.0% countywide Most counties should be at 68.0% to 72.0% |
| Source: Wisconsin Department of Transportation, <i>Functional Classification Criteria</i> , 2003; and Bay-Lake Regional Planning Commission, 2008. | |

TRANSPORTATION FUNDING PROGRAMS

The following provides a brief description of transportation related funding programs that are administered by the Wisconsin Department of Transportation (WisDOT). The programs are divided into two categories: 1) formula driven programs for which funding is based on population and/or road mileage; and 2) competitive funding programs.

Wisconsin Department of Transportation

General Transportation Aid (GTA)

Town road improvements, construction and maintenance are funded, in part, through the state's disbursement of general transportation aids. The state provides a payment to each county and municipality in the state that pays a portion of local governments' costs for such activities as road and street reconstruction, filling potholes, snow removal, grading shoulders, marking pavement, and repair of curb and gutters. The statutory "rate per mile" is \$1,825 for 2004. Beginning in 2000, each municipality was required to establish and administer a separate segregated account from which moneys may be used only for purposes related to local highways and must deposit into that account all state or federal money for local highway purposes.

Local Mileage Certification

Each local government that increased or decreased the mileage of its roads is required to file a certified plat with DOT by December 15 of each year. Local governments that have no changes in total local road miles are required to file a certified plat or a certified statement that no mileage increases have occurred. Beginning in 2001, the requirement for local governments to file certified plats with county clerks is eliminated and the mileage certification process was changed from an every other year activity to an annual activity. State GTA payments are based on the certified mileage of each local unit of government.

Local Roads Improvement Program (LRIP)

This program provides funding to local units of government for the costs associated with improving seriously deteriorating county highways, town roads, and municipal streets in cities and villages under the authority of the local unit of government. Projects are required to have a minimal design life of 10 years. This is a biennial program and all funds are distributed the first year. Applications are submitted through the county highway commissioners by November 15 of the odd numbered years.

There are three entitlement components for funding road improvements: 1) County Highway Improvement component (CHIP); 2) Town Road Improvement component (TRIP); and 3) cities and villages under Municipal Street Improvement component (MSIP).

In addition LRIP funds three statewide discretionary programs; CHIP-D County Highway Discretionary Improvement Program; 2) Trip-D Town road Discretionary Improvement Program; and 3) MISP-D Municipal Street Discretionary Improvement Program for cities and villages.

All LRIP projects are locally let, with up to 50% of the costs reimbursed by WisDOT upon completion, and the remainder matched by the local unit of government. Eligible projects include, but are not limited to design and feasibility studies, bridge replacement or rehabilitation, reconstruction, and resurfacing. Ineligible projects include, but are not limited to new roads, seal coats, ditch repair, and/or curb and gutter construction.

Local Bridge Program

This program includes two separate programs 1) a statewide local bridge entitlement program and 2) a high cost local bridge program (high cost bridges are those that cost more than \$5 million and exceed 475 feet in length).

This program funds 80% of project costs to replace and rehabilitate structures on the Federal Bridge Register in excess of 20 feet. Bridges with sufficiency ratings less than 50 are eligible for replacement and those with sufficiency ratings less than 80 are eligible for rehabilitation.

Counties set priorities for funding within their area, with projects funded on a statewide basis.

Local bridge projects are solicited by local WisDOT transportation office (District 3) staff in winter of the odd numbered years, with program approval in summer of the odd numbered years. The program has a three-year cycle.

Flood Damage Aids

This program provides local governments with financial assistance for replacing or improving roads or roadway structures that have had major damages caused by flooding.

County Forest Aid Program

This program provides assistance to counties that have eligible roads located within county forests. It is intended to defray the costs for the improvement and maintenance of public roads within a county forest.

Rural and Small Urban Area Public Transportation Assistance Program - Section 5311

Allocations to the State are set at the federal level. Funds may be used for operating assistance, and capital assistance. Eligible public transportation services include public transportation service operating or designed to operate in non-urbanized areas (a non-urbanized area is one that has a population of 50,000 or less).

Specialized Transportation Assistance Program for Counties - Section 85.21

Allocations under this formula program are based upon the proportion of the state's elderly and disabled population located in each county, subject to two minimums: no county can receive less than a ½ percent of the total annual appropriation; and no county can receive an allocation smaller than they received in 1992. A local match of 20 percent is required.

Eligible expenditures include:

- directly provided transportation service for the elderly and disabled;
- purchase of transportation service from any public or private organization;
- a user-subsidy for the elderly or disabled passenger for their use of the transportation service;
- volunteer driver escort reimbursement;
- performing or purchasing planning or management studies on transportation;
- coordinating transportation services;
- performing or purchasing in-service training relating to transportation services; and/or
- purchasing capital equipment (buses, vans, etc.) for transportation services.

The following provides a brief description of competitive (transportation related) grant programs that are federally and state funded:

Local Transportation Enhancement Program (TE)

Administered by WisDOT the TE program provides funding to local governments and state agencies for projects that enhance a transportation project. There are 12 eligible project categories;

- providing facilities for bicycles and pedestrians;
- providing safety and educational activities for pedestrians and bicyclists;
- acquiring scenic easements and scenic or historic sites;
- sponsoring scenic or historic highway programs; including the provision of tourist and welcome centers;
- landscaping and other scenic beautification;
- preserving historic sites;
- rehabilitating and operating historic transportation buildings and structures;
- preserving abandoned railway corridors;
- controlling and removing outdoor advertising;
- conducting archaeological planning and research;
- mitigating water pollution due to highway runoff or reducing vehicle caused wildlife mortality; and
- establishing transportation museums.

Federal funds will cover up to 80 percent of the project, while the project sponsor is responsible for providing at least a 20 percent match.

Surface Transportation Program - Discretionary (STP-D)

This program encourages projects that foster alternatives to single occupancy vehicle trips. Such as rehabilitation and purchase of replacement vehicle for transit systems, facilities for pedestrians and bicycles, system-wide bicycle planning, and a wide range of transportation demand management (TDM) projects. Communities over 5,000 are eligible to apply for the funds through the competitive application process.

Transportation Demand Management Programs

Transportation Demand Management consists of policies and programs designed to reduce the number of single occupant vehicles (SOV) trips in a region, especially during peak travel periods.

There are two grant programs: TDM Grant Program; and Wisconsin Employment Transportation assistance Program (WETAP).

1. TDM Grant Program

The TDM Grant program provides funding to successful grant recipients to implement projects that encourage innovative solutions and alternatives to reducing SOV trips. WisDOT accepts applications annually. Eligible applicants may include local governments, chambers of commerce, and others as defined by the program. The required local match is 20 percent of the project costs.

2. Wisconsin Employment Transportation Assistance Program (WETAP)

As a joint program between the Wisconsin Department of Workforce Development (DWD) and WisDOT, it provides funding to help low-income people access, or retain or advance in

employment with the goal of meeting the entire population’s transportation needs. This program is funded with combined federal and state dollars, and requires a local match.

Application requirements include the development of regional job access plans that identify the need for transportation services and illustrate the alternatives proposed for the program. Plans should be developed between public transit providers, local units of government, transportation planners, human service agencies, low-income individuals and other interested parties

Transportation Economic Assistance (TEA Grant) Program

This program provides a 50% state grant to governing bodies, private businesses, and consortiums for road, rail, harbor and airport projects that are necessary to help attract employers to Wisconsin, or to encourage business and industry to remain and expand in Wisconsin.

VOLUME II - APPENDIX E
LAND USE INVENTORY DATA

LAND USE INVENTORY CODES

| Bay-Lake Regional Planning Commission | | | |
|---------------------------------------|------------------------------------|------|--|
| Land Use Inventory Summary Form | | | |
| | | | |
| 100 | RESIDENTIAL | 600 | INSTITUTIONAL/GOVERNMENTAL |
| 200 | COMMERCIAL | 700 | OUTDOOR RECREATION |
| 300 | INDUSTRIAL | 800 | AGRICULTURE/SILVICULTURE |
| 400 | TRANSPORTATION | 900 | NATURAL AREAS |
| 500 | COMMUNICATION/UTILITIES | | |
| | | | |
| CODE | LAND USE CLASSIFICATION | CODE | LAND USE CLASSIFICATION |
| 100 | RESIDENTIAL | 500 | COMMUNICATION/UTILITIES |
| 110 | Single Family Residential | 510 | Generation/Processing of Communication/Utilities |
| 111 | Single Family Residential Garage | 511 | Electric Power Plants |
| 130 | Two Family | 512 | Wind Turbine |
| 150 | Multi-Family | 514 | Telephone and Telegraph Terminals/Dispatch Centers |
| 170 | Group Quarters | 516 | Radio/Television Stations |
| 180 | Mobile Homes | 521 | Natural Gas Terminals/Plants |
| 190 | Land Under Residential Development | 525 | Other Liquid Fuel Terminal Plants |
| 195 | Residential Open Space/Vacant Lot | 535 | Water Supply Filter Treatment Plants |
| 199 | Vacant Residence | 537 | Water Supply Wells |
| | | 540 | Transmission of Communication/Utilities |
| 200 | COMMERCIAL | 541 | Major Electric Power Transmission Lines R/W |
| 210 | Retail Sales | 542 | Electric Power Substations |
| 230 | Shopping Centers | 546 | Radio/Television Transmission Towers/Antennae |
| 250 | Retail Services | 551 | Major Natural Gas Transmission Lines R/W |
| 270 | Office Parks | 552 | Natural Gas Substations |
| 299 | Vacant Commercial | 555 | Other Major Liquid Fuel Transmission Lines R/W |
| | | 556 | Other Liquid Fuel Substations |
| 300 | INDUSTRIAL | 572 | Water Supply Booster/Pumping Stations |
| 310 | Manufacturing | 577 | Water Supply Storage Tanks/Reservoirs |
| 340 | Wholesaling | 580 | Waste Processing/Disposal/Recycling |
| 360 | Extractive (Mining) | 581 | Trash/Garbage Landfills |
| 380 | Storage | 582 | Other Trash/Garbage Dumps |
| 381 | Open | 583 | Sewage Treatment Plants |
| 382 | Enclosed | 584 | Sewage Sludge or Water Supply Chemical Disposals |
| 399 | Vacant Industrial | 585 | Fly Ash and Other Fire Residue Disposal |
| | | 586 | Recycling/Disposals |
| 400 | TRANSPORTATION | 587 | Abandoned Landfill |
| 410 | Motor Vehicle Related | 588 | Yard Waste |
| 411 | Federal Highways | 591 | Solid Waste Separation/Recycling Plants |
| 412 | State Highways | 595 | Incinerators |
| 413 | County Highways | 599 | Vacant Communication/Utilities |
| 414 | Local Streets and Roads | | |
| 415 | County Forest Roads | | |
| 416 | Federal Forest Roads | | |
| 417 | Off-Street Parking | | |
| 418 | Bus Terminals | | |
| 419 | Truck Terminals | | |
| 420 | Other Motor Vehicle Related | | |
| 440 | Rail Related | | |
| 460 | Air Related | | |
| 480 | Marine Related | | |
| 484 | Piers/Docks | | |
| 490 | Nonmotorized Related | | |
| 499 | Vacant Transportation | | |
| | | | |

APPENDIX E - LAND USE INVENTORY DATA

| CODE | LAND USE CLASSIFICATION | CODE | LAND USE CLASSIFICATION |
|-------------|---|-------------|---|
| 600 | INSTITUTIONAL/GOVERNMENTAL FACILITIES | 700 | OUTDOOR RECREATION |
| 610 | Administrative Institutions/Governmental Facilities | 710 | Cultural/Natural Activities |
| 611 | Administrative Buildings | 712 | Zoos |
| 612 | Post Offices | 716 | Nature Study Areas |
| 613 | Military Installations | 721 | Designated Historic/Cultural/Archaeological Sites |
| 614 | Municipal Garages | 730 | Land Related Activities |
| 630 | Safety Institutions/Governmental Facilities | 731 | Campgrounds |
| 631 | Police/Fire Stations/Offices | 735 | Lawns/Yards |
| 637 | Ancillary Municipal Safety Facilities | 736 | Parks/Parkways/Forest-Related Picnic Areas |
| 638 | Prisons or Jails | 737 | Separate Picnic Areas |
| 640 | Educational Institutions/Governmental Facilities | 738 | Lookout Tower |
| 641 | Pre-School/Day Care | 741 | Playfields/Ball Diamonds/Volleyball Courts |
| 642 | Primary Schools | 745 | Swimming/Wading Pools |
| 643 | Middle Schools | 746 | Tennis Courts |
| 644 | Secondary Schools | 747 | Trails |
| 645 | Vocational Schools | 751 | Athletic Fields |
| 647 | Two-Year Colleges/Universities | 756 | Ice Skating Rinks |
| 648 | Four-Year and Graduate Colleges/Universities | 757 | Roller Skating Rinks |
| 651 | Libraries | 758 | Ski Areas |
| 652 | Community Center | 761 | Golf Courses |
| 655 | Museums | 762 | Golf Driving Ranges |
| 660 | Health Institutions/Governmental Facilities | 766 | Archery/Gun/Skeet Ranges |
| 661 | Hospitals | 768 | Hunting Preserves |
| 663 | Clinics | 769 | Race Tracks |
| 665 | Long-Term Health Care Facilities | 770 | Other |
| 680 | Assembly Institutions/Governmental Facilities | 780 | Water Related Activities |
| 681 | Fairgrounds | 781 | Boat Launching Sites/Areas |
| 682 | Gymnasiums | 782 | Other Water Access Sites/Areas |
| 683 | Sports Stadium/Arenas | 783 | Marinas |
| 684 | Fraternal Organizations/Clubhouses | 784 | Lighthouse |
| 690 | Religious and Related Facilities | 799 | Vacant Outdoor Recreation |
| 691 | Churches/Temples/Synagogues | | |
| 694 | Cemeteries | | |
| 699 | Vacant Institutional/Governmental | | |
| 800 | AGRICULTURE/SILVICULTURE | 900 | NATURAL AREAS |
| 805 | Fallow Fields | 910 | Water |
| 810 | Croplands/Pastures | 911 | Lakes |
| 830 | Long-Term Specialty Crops | 912 | Reservoirs and Ponds |
| 850 | Animal Husbandry | 913 | Rivers and Streams |
| 851 | Fish Hatchery/Aquaculture | 914 | Canals and Channels |
| 870 | Farm Buildings/Accessories | 930 | Vital Natural Functions |
| 880 | Commercial Forests | 936 | Wildlife Refuges |
| 899 | Vacant Agriculture/Silviculture | 937 | Designated Scientific Sites/Areas |
| | | 950 | Other Natural Areas, including Open Space |
| | | 951 | Woodlands |
| | | 952 | Wetlands |
| | | 953 | Grasslands |
| | | 954 | Beaches |
| | | 955 | Bluffs |
| | | 960 | Other Publicly-Owned Natural Areas |
| | | 990 | Land Under Development |
| | | | |
| | | 99999 | City or Village |
| | | | |
| | | | |
| | | | |
| | | | |

2008 MANITOWOC COUNTY LAND USE INVENTORY

| CODE | LAND USE CLASSIFICATION | ACRES |
|------------|---|-----------------|
| 100 | RESIDENTIAL | 17,474.3 |
| 110 | Single Family Residential | 16,485.0 |
| 130 | Two Family | 275.9 |
| 150 | Multi-Family | 284.0 |
| 170 | Group Quarters | 33.8 |
| 180 | Mobile Homes | 324.3 |
| 199 | Vacant Residence | 71.3 |
| 200 | COMMERCIAL | 1,730.3 |
| 210 | Retail Sales | 1,139.6 |
| 230 | Shopping Centers | 19.9 |
| 250 | Retail Services | 445.4 |
| 270 | Office Parks | 25.2 |
| 299 | Vacant Commercial | 100.3 |
| 300 | INDUSTRIAL | 3,493.4 |
| 310 | Manufacturing | 1,205.2 |
| 340 | Wholesaling | 49.0 |
| 360 | Extractive | 2,114.7 |
| 381 | Open Storage | 10.9 |
| 382 | Enclosed Storage | 41.8 |
| 399 | Vacant Industrial | 71.7 |
| 400 | TRANSPORTATION | 17,086.4 |
| 410 | Motor Vehicle Related | 632.1 |
| 411 | Federal Highways | 1,378.6 |
| 412 | State Highways | 972.2 |
| 413 | County Highways | 3,064.4 |
| 414 | Local Streets and Roads | 9,864.9 |
| 417 | Off-Street Parking | 84.0 |
| 418 | Bus Terminals | 0.8 |
| 420 | Other Motor Vehicle Related | 153.8 |
| 440 | Rail Related | 572.9 |
| 460 | Air Related | 359.8 |
| 480 | Marine Related | 2.9 |
| 500 | COMMUNICATION/UTILITIES | 632.3 |
| 510 | Generation/Processing of Communication/Utilities | 121.8 |
| 511 | Electric Power Plants | 126.0 |
| 512 | Wind Turbine | 0.6 |
| 514 | Telephone and Telegraph Terminals/Dispatch Centers | 5.2 |
| 516 | Radio/Television Stations | 2.0 |
| 521 | Natural Gas Terminals/Plants | 0.2 |
| 535 | Water Supply Filter Treatment Plants | 39.6 |
| 537 | Water Supply Wells | 2.0 |
| 540 | Transmission of Communication/Utilities | 7.8 |
| 542 | Electric Power Substations | 44.8 |
| 546 | Radio/Television Transmission Towers/Antennae | 40.1 |
| 551 | Major Natural Gas Transmission Lines R/W | 0.4 |
| 552 | Natural Gas Substations | 6.0 |
| 556 | Other Liquid Fuel Substations | 0.2 |
| 572 | Water Supply Booster/Pumping Stations | 1.4 |
| 577 | Water Supply Storage Tanks/Reservoirs | 14.9 |
| 580 | Waste Processing/Disposal/Recycling | 32.2 |
| 581 | Trash/Garbage Landfills | 70.4 |
| 582 | Other Trash/Garbage Dumps | 3.1 |
| 583 | Sewage Treatment Plants | 27.6 |
| 584 | Sewage Sludge or Water Supply Chemical Disposals | 22.6 |
| 586 | Recycling/Disposals | 44.7 |
| 588 | Yard Waste | 11.0 |
| 591 | Solid Waste Separation/Recycling Plants | 7.5 |
| 599 | Vacant Communication/Utilities | 0.2 |
| 600 | INSTITUTIONAL/GOVERNMENTAL FACILITIES | 1,611.0 |
| 610 | Administrative Institutions/Governmental Facilities | 32.9 |
| 611 | Administrative Buildings | 24.7 |
| 612 | Post Offices | 7.1 |
| 613 | Military Installations | 8.0 |
| 614 | Municipal Garages | 55.2 |
| 630 | Safety Institutions/Governmental Facilities | 3.7 |
| 631 | Police/Fire Stations/Offices | 30.1 |
| 638 | Prisons or Jails | 1.6 |
| 640 | Educational Institutions/Governmental Facilities | 8.5 |
| 641 | Pre-School/Day Care | 10.6 |
| 642 | Primary Schools | 147.7 |
| 643 | Middle Schools | 50.0 |
| 644 | Secondary Schools | 104.9 |
| 645 | Vocational Schools | 1.6 |
| 647 | Two-Year Colleges/Universities | 161.4 |
| 651 | Libraries | 5.2 |
| 652 | Community Center | 8.5 |
| 655 | Museums | 5.8 |
| 660 | Health Institutions/Governmental Facilities | 31.2 |
| 661 | Hospitals | 26.9 |
| 663 | Clinics | 57.0 |
| 665 | Long-Term Health Care Facilities | 24.6 |
| 680 | Assembly Institutions/Governmental Facilities | 3.2 |
| 681 | Fairgrounds | 76.4 |
| 682 | Gymnasiums | 13.1 |
| 683 | Sports Stadium/Arenas | 23.8 |
| 684 | Fraternal Organizations/Clubhouses | 22.3 |
| 690 | Religious and Related Facilities | 118.2 |
| 691 | Churches/Temples/Synagogues | 152.8 |
| 694 | Cemeteries | 350.3 |
| 699 | Vacant Institutional/Governmental | 43.6 |

| CODE | LAND USE CLASSIFICATION | ACRES |
|--------------|---|------------------|
| 700 | OUTDOOR RECREATION | 5,481.7 |
| 710 | Cultural/Natural Activities | 14.4 |
| 712 | Zoos | 63.7 |
| 716 | Nature Study Areas | 5.8 |
| 721 | Designated Historic/Cultural/Archaeological Sites | 14.1 |
| 731 | Campgrounds | 273.3 |
| 735 | Lawns/Yards | 0.2 |
| 736 | Parks/Parkways/Forest-Related Picnic Areas | 3,546.7 |
| 737 | Separate Picnic Areas | 0.9 |
| 741 | Playfields/Ball Diamonds/Volleyball Courts | 241.8 |
| 745 | Swimming/Wading Pools | 3.3 |
| 746 | Tennis Courts | 17.3 |
| 747 | Trails | 212.6 |
| 751 | Athletic Fields | 84.5 |
| 758 | Ski Areas | 10.6 |
| 761 | Golf Courses | 814.5 |
| 762 | Golf Driving Ranges | 17.1 |
| 766 | Archery/Gun/Skeet Ranges | 50.8 |
| 768 | Hunting Preserves | 4.4 |
| 769 | Race Tracks | 47.0 |
| 770 | Other | 0.9 |
| 780 | Water Related Activities | 2.4 |
| 781 | Boat Launching Sites/Areas | 10.5 |
| 782 | Other Water Access Sites/Areas | 2.1 |
| 783 | Marinas | 41.8 |
| 784 | Lighthouse | 0.2 |
| 799 | Vacant Outdoor Recreation | 1.1 |
| 800 | AGRICULTURE/SILVICULTURE | 221,614.7 |
| 805 | Fallow Fields | 1,221.6 |
| 810 | Croplands/Pastures | 213,139.5 |
| 830 | Long-Term Specialty Crops | 817.0 |
| 850 | Animal Husbandry | 78.9 |
| 851 | Fish Hatchery/Aquaculture | 9.0 |
| 870 | Farm Buildings/Accessories | 6,185.7 |
| 899 | Vacant Agriculture/Silviculture | 163.0 |
| 900 | NATURAL AREAS | 112,347.9 |
| 911 | Lakes | 914.1 |
| 912 | Reservoirs and Ponds | 1,814.2 |
| 913 | Rivers and Streams | 2,061.8 |
| 914 | Canals and Channels | 0.7 |
| 936 | Wildlife Refuges | 178.3 |
| 950 | Other Natural Areas, including Open Space | 29,679.4 |
| 951 | Woodlands | 77,313.9 |
| 954 | Beaches | 385.5 |
| TOTAL | | 381,471.9 |

Source: Bay-Lake Regional Planning Commission, 2009

VOLUME II - APPENDIX F
GLOSSARY OF TERMS

Planning and Zoning Definitions

- Alley:** a permanently reserved public or private secondary means of access to an abutting property.
- Accessory Structure:** a detached subordinate structure located on the same lot as and incidental to the principal structure.
- Accessory Use:** a use incidental to and on the same lot as a principal use. *See also* “accessory structure” and “principal building”.
- Acre:** a unit of area used in land measurement and equal to 43,560 square feet. This is approximately equivalent to 4,840 square yards, 160 square rods, 0.405 hectares, and 4,047 square meters.
- Adaptive Reuse:** the conversion of obsolescent or historic buildings from their original or most recent use to a new use.
- Adequate Public Facilities Ordinance (APFO):** an ordinance that ties development approvals to the availability and adequacy of public facilities. Adequate public facilities are those facilities relating to roads, sewer systems, schools, and water supply and distribution systems.
- Administrative Appeal (Appeal):** a quasi- judicial* process before the local zoning board to review a contested ordinance interpretation or an order of an administrative zoning official.
- Adverse Impact:** a negative consequence to the physical, social, or economic environment.
- Aesthetic Zoning:** the regulation of building or site design to achieve a desirable appearance.
- Affordable Housing:** housing that has its mortgage, amortization, taxes, insurance, and condominium and association fees constituting no more than 30% of the gross household income per housing unit. If the unit is rental, then the rent and utilities constitute no more than 30% of the gross household income per rental unit. *See s. COMM 202.01, Wis. Admin. Code.*
- Agriculture:** the use of land for farming, dairying, pasturage, apiculture (bees), aquaculture (fish, mussels), horticulture, floriculture, viticulture (grapes), or animal and poultry husbandry; this includes the necessary accessory uses for packing, treating, or storing the produce from these activities. *See also* ss. 30.40(1) and 91.01(1), *Wis. Stats.*
- Agricultural Conservation Easement:** conservation easements that restrict specifically farmland from development or specified farming practices and give farmers income, property, and estate tax reductions.
- Agricultural Protection Zoning:** a method for protecting agricultural land use by stipulating minimum lot sizes or limitations on non- farm use.
- Air Rights:** the ownership or control of all land, property, and that area of space at and above it at a height that is reasonably necessary or legally required for the full use over the ground surface of land used for railroad or expressway purposes.
- Amendment:** a local legislative act changing a zoning ordinance to make alterations, to correct errors, or to clarify the zoning ordinance. A class 2 notice must be published and a public hearing must be held before a county board may adopt a proposed amendment. *See s. 59.69, Wis. Stats.*
- Amenities:** features that add to the attractive appearance of a development, such as underground utilities, buffer zones, or landscaping.
- Americans with Disabilities Act (ADA):** a congressional law passed in 1990, which provides a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities as well as clear, strong, consistent, enforceable standards addressing discrimination against individuals with disabilities.
- Amortization:** a method of eliminating nonconforming uses (usually minor structures) by requiring the termination of the nonconforming use after a specified period of time, which is generally based on the rate of economic depreciation of the use or structure.
- Annexation:** the process of incorporating an area of land in a township into a municipality. *See ch. 66, subch. II, Wis. Stats.*
- Appellate Body:** a body authorized to review the judgments made by administrative officers. For example, a board of adjustment hears appeals of the decisions of a county zoning administrator.
- Aquatic and Terrestrial Resources Inventory (ATRI):** a public and private partnership to gather, link, and make available data used for decisions affecting Wisconsin’s landscape; a systematic and comprehensive information management system developed by the Wisconsin DNR to improve environmental and resource management decisions.
- Aquifer:** a geologic formation, usually comprised of saturated sands, gravel, and cavernous and vesicular rock, that carries water in sufficient quantity for drinking and other uses.
- Aquifer Recharge Area:** the surface area through which precipitation passes to replenish subsurface water bearing strata of permeable rock, gravel, or sand.
- Architectural Control/ Review:** regulations and procedures requiring the exterior design of structures to be suitable, harmonious, and in keeping with the historic character or general style of surrounding areas.
- Area Variance (Variance):** the relaxation of a dimensional standard in a zoning ordinance decided by a local zoning board. *See ss.59.69, 60.61, 60.62 and 62.23, Wis. Stats.*
- Arterial:** a major street, which is normally controlled by traffic signs and signals, carrying a large volume of through traffic.

- Bargain Sale:** the sale of land (to a conservation organization, for example) at less than market value.
- Base Flood:** a flood that has a one percent chance of being equaled or exceeded in any give year, commonly called a 100- year flood. *See also "floodplain".*
- Benchmark:** a performance- monitoring standard that allows a local government to periodically measure the progress of a local comprehensive plan's goals and policies; also, a fixed and recorded elevation point from which another, relative elevation can be surveyed.
- Berm:** A low earthen ridge constructed as a landscaping feature or to direct runoff or deflect noise.
- Best Management Practices (BMPs):** the conservation measures and management practices intended to lessen or avoid a development's impact on surrounding land and water.
- Billboard:** a sign that identifies or communicates a message related to an activity conducted, a service rendered, or a commodity sold at a location other than where the sign is located.
- Block:** a unit of land or contiguous lots or parcels bounded by a roadway or other barrier.
- Board of Appeals/ Board of Adjustment (BOA):** a board of appointed individuals that hears appeals on variances and exceptions. Board of Appeals applies to cities, villages, and towns, whereas Board of Adjustment applies to counties.
- Brownfields:** lands contaminated by spills or leaks and that are perceived to be unsuitable for future development due to its hazardous nature or owner liability concerns.
- Buffer Area:** an area separating two incompatible types of development or a development and sensitive natural resources.
- Build Out:** the maximum, theoretical development of land as permitted under zoning regulations.
- Build Out Analysis:** a projection, based on the maximum, theoretical development of all lands, of the impact of a community's cumulative growth.
- Building Coverage:** *See "lot coverage".*
- Building Line:** the line parallel to the street line that passes through the point of the principal building nearest the front lot line.
- Building Scale:** the relationship between the volume of a building and its surroundings, including the width of street, amount of open space, and volume of surrounding buildings. Volume is determined by the three- dimensional bulk (height, width, and depth) of a structure.
- Bulk Regulations:** standards that establish the maximum size of structures on a lot and the location where a building can be, including coverage, setbacks, height, impervious surface ratio, floor area ratio, and yard requirements.
- Bundle of Rights Concept of Property:** *See "rights".*
- Business Improvement Districts (BID):** an area within a municipality consisting of contiguous parcels subject to general real-estate taxes other than railroad rights- of-way and that may include railroad rights- of- way, rivers, or highways continuously bounded by the parcels on at least one side. *See s. 66.1109(1)(b), Wis. Stats.*
- Business Incubator:** retail or industrial space, which may offer shared or subsidized management support such as information and advice on regulations, advertising, promotion, marketing, inventory, labor relations, and finances and facility support such as clerical staff, security, electronic equipment, and building maintenance that is affordable to new, low profit- margin businesses.
- By Right:** a use that complies with all zoning regulations and other applicable ordinances and that is permitted without the consent of a review board.
- Capital Improvement:** a physical asset that is large in scale or high in cost.
- Capital Improvements Plan/ Capital Improvements Program (CIP):** a city's or county's proposal of all future development projects and their respective cost estimates listed according to priority.
- Capital Improvement Programming/ Capital Improvement Planning:** the scheduling of budgetary expenditures for infrastructure to guide and pace development.
- Carrying Capacity Analysis:** an assessment of a natural resource's or system's ability to accommodate development or use without significant degradation.
- Census:** The census of population and housing, taken by the U.S. Census Bureau in years ending in 0 (zero). Article I of the Constitution requires that a census be taken every ten years for the purpose of reapportioning the U.S. House of Representatives.
- Census Tract:** a relatively permanent county subdivision delineated to present census data.
- Central Business District (CBD):** the primary, downtown commercial center of a city.
- Certificate of Appropriateness:** a permit issued by a historic preservation review board* approving the demolition, relocation, or new construction in a historic district.
- Certificate of Compliance:** an official document declaring that a structure or use complies with permit specifications, building codes, or zoning ordinances.

Cesspool: a buried chamber such as a metal tank, perforated concrete vault, or covered excavation that receives wastewater or sanitary sewage to be collected or discharged to the surrounding soil.

City: an incorporated municipality. Cities are divided into the four following classes for administration and the exercise of corporate powers: *Also see ch. 62, Wis. Stats.*

- a) Cities of 150,000 population and over- 1st class cities
- b) Cities of 39,000 and less than 150,000 population- 2nd class cities.
- c) Cities of 10,000 and less than 39,000 population- 3rd class cities.
- d) Cities of less than 10,000 population- 4th class cities.

Clear Zone: an area within a roadway right- of- way that is free of any obstructions, thus providing emergency vehicle access.

Closed (Executive) Session: a governmental meeting or portion closed to everyone but its members and members of its parent body for purposes specified in state law. Governmental meetings are subject to Wisconsin’s ‘Open Meetings Law.’ *See s.19.81- 19.98, Wis. Stats .*

Cluster Development Zoning (Clustering): concentrating the total allowable dwelling units on a tract of land into higher densities on a smaller portion of the tract, leaving the remaining land as open space. For example, in a five- acre minimum lot zoned area, 10 units would be constructed on 50 acres; however, 10 units could also be ‘clustered’ on 20 acres (allowing minimum two- acre lots), leaving the remaining 30 acres as common open space.

Collector: a street designed to carry a moderate volume of traffic from local streets to arterial* streets or from arterial streets to arterial streets.

Combination Zones: a zone that is placed over another, now underlying zone and that adds or replaces existing requirements of the underlying zone.

Commercial District: a zoning area designated for community services, general business, interchange of services, and commercial recreation.

Common Open Space: squares, greens, parks, or green belts intended for the common use of residents.

Community Development Block Grant (CDBG): a grant program administered by the U.S. Department of Housing and Urban Development (HUD), the state departments of Administration and Commerce, and the Wisconsin Housing and Economic Development Authority (WHEDA) that provides money for community rehabilitation and development. *See s.16.358 and 560.045, Wis. Stats.*

Community Development Zone: Zones meeting certain requirements and designated by the state Department of Commerce for the purpose of administering tax benefits designed to encourage private investment and to improve both the quality and quantity of employment opportunities. The Community Development Zone Program has more than \$38 million in tax benefits available to assist businesses that meet certain requirements and are located or willing to locate in one of Wisconsin’s 21 community development zones. *See s.560.70, Wis. Stats. See also “enterprise development zone”.*

Community of Place: *See “sense of place”.*

Comprehensive Plan: a county development plan or city, village, town, or regional planning commission master plan prepared under and meeting the content requirements outlined in s.66.1001, *Wis. Stats.* Comprehensive plans provide a vision and general idea of how land should be used to assure public health, safety, and welfare.

Concurrency Management System: the process used to determine that needed public services are concurrent with a development’s impacts.

Concurrency Test: an analysis of public facilities’ ability to accommodate a development; in other words, adequate capacity of facilities must precede or be concurrent with a development’s demand.

Conditional Use: a land use, construction activity, or structural development, which must be tailored to the site conditions and adjacent property uses through a public and technical review process, that is listed as a conditional use in a zoning district.

Conditional Use Permit: a permit issued by a zoning administrator, if the applicant meets certain additional requirements, allowing a use other than a principally permitted use.

Conditional Zoning: special conditions an owner must meet in order to qualify for a change in a zoning district designation.

Condominium: real estate and improvements where portions are designated for separate ownership and the remainder for common ownership. *See s.703.02, Wis. Stat .*

Congestion Mitigation and Air Quality Program (CMAQ): a program under the U.S. Department of Transportation intended to fund transportation projects and programs in non- attainment and maintenance areas that reduce transportation- related emissions.

Conservation Areas: environmentally sensitive and valuable lands protected from any activity that would significantly alter their ecological integrity, balance, or character except in cases of overriding public interest.

Conservation Development Zoning: a type of cluster development zoning that emphasizes a planned unit development for preserving open space, wetlands, natural landscaping, floodplains, or other prioritized resources as well as for preventing stormwater runoff.

- Conservation Easement:** a recorded legal agreement between a landowner and a qualified conservation agency that transfers development rights from the owner to the agency to protect natural or historic features. *See s. 700.40, Wis. Stats.*
- Conservation Reserve Program:** a federal Department of Agriculture program that pays farmers to convert ‘erodible’ cropland into vegetative cover.
- Consolidated Metropolitan Statistical Area (CMSA):** a statistical area defined by the U.S. Census; a large metropolitan statistical area with a population of one million or more that includes one or more primary metropolitan statistical areas (PMSA). *See also “metropolitan statistical area” and “primary metropolitan statistical area” in this category.*
- Contested Case:** a hearing similar to a court proceeding where parties have a right to review and object to evidence and cross-examine witnesses who testify.
- Contiguous Properties:** properties sharing a property line.
- Cooperative Agreement:** an agreement between two or more organizations to share in the financing or managing of a property, providing of services, or some other joint venture. *Also see ss. 66.0307, 150.84, and 299.80, Wis. Stats. for specific examples of authorized agreements .*
- County:** a political subdivision of the state. Counties are delineated in ch. 2, *Wis. Stats.* Wisconsin has 72 counties. *See ch. 59, Wis. Stats.*
- cul de sac :** a circular end to a local street [*French* , “bottom of the bag”]
- Dedication:** the transfer of property from private to public ownership.
- Deed Restriction:** a limitation, which is recorded with the county register of deeds and to which subsequent owners are bound, on development, maintenance, or use of a property.
- Design Guideline:** an activity standard that preserves the historic or architectural character of a site or building.
- Design Review/ Control:** an aesthetic evaluation, considering landscape design, architecture, materials, colors, lighting, and signs, of a development’s impact on a community
- Design Standards:** criteria requiring specific dimensional standards or construction techniques. *See also “performance standards”.*
- Detachment:** the transposition of land from a municipality back into a township. *See s. 66.0227, Wis. Stats.*
- Developer:** a person or company that coordinates the ownership, financing, designing, and other activities necessary for the construction of infrastructure or improvements.
- Development:** an artificial change to real estate, including construction, placement of structures, excavation, grading, and paving.
- Development Values:** the economic worth of land based upon the fair market price after residential, commercial, or industrial structures have been added.
- District:** a part, zone, or geographic area within the municipality where certain zoning or development regulations apply.
- Down Zoning:** a change in zoning classification that permits development that is less dense, intense, or restrictive. *See also “up zoning”.*
- Dwelling Unit:** the space in a building that comprises the living facilities for one family. *See also “multifamily,” “single- family attached,” and “single- family detached dwelling”.*
- Easement:** written and recorded authorization by a property owner for the use of a designated part of the property by others for a specified purpose. *See also “conservation easement”.*
- Ecological Impact:** a change in the natural environment that could disrupt wildlife habitat or vegetation, or that could cause air, water, noise, or soil pollution.
- Economic Unit:** units of land that, although they may be separated from one another physically, are considered one economically.
- Eminent Domain:** the right of a government unit to take private property for public use with appropriate compensation to the owner. *See ch. 32, Wis. Stats .*
- Enabling Act:** legislation authorizing a government agency to do something that was previously forbidden. *See also “takings”.*
- Enterprise Development Zone:** zones meeting certain statutorily defined criteria and designated by the state Department of Commerce for providing tax incentives to new or expanding businesses whose projects will affect distressed areas. An enterprise development zone is “site specific,” applying to only one business, and is eligible for a maximum of \$3.0 million in tax credits. The department can designate up to 79 zones, which can each exist for up to seven years. The department is allowed to vary zone benefits to encourage projects in areas of high distress. *See s.560.70, Wis. Stats. See also “community development zone”.*
- Environmental Corridors:** linear areas of natural resources that are critical to maintaining water quality and quantity and to providing habitat linkages that maintain biological diversity. Environmental corridors are often associated with rivers and streams.

- Environmental Impact Ordinance:** a local legislative act requiring an assessment of the potential harmful environmental effects of a pending development so that steps to prevent damage can be taken.
- Environmental Impact Report (EIR):** a report that assesses an area’s environmental characteristics and then determines the impact that a proposed development will have.
- Environmental Impact Statement (EIS):** a statement prepared under the National Environmental Policy Act (NEPA) or Wisconsin Environmental Policy Act (WEPA) predicting the impacts a proposed government action is likely to have on the environment and describing the affected environment and the alternative actions considered. *See* s.1.11, *Wis. Stats.*, P.L.91-190, 42 USC 4331, NR 150, *Wis. Admin. Code.*
- Environmental Nodes:** discrete, inherently non- linear areas of natural resources that are sometimes isolated from areas with similar resource features. Planning objectives often include linking environmental nodes.
- Environmentally Sensitive Areas:** areas such as wetlands, steep slopes, waterways, underground water recharge areas, shores, and natural plant and animal habitats that are easily disturbed by development.
- Esplanade:** waterfront area intended for public use.
- Estate Management Strategies:** strategies enacted during a landowner’s lifetime or upon her death to help preserve family lands and farms.
- Ex parte Contact:** communication, which is normally prohibited, with a decision maker in a quasi- judicial proceeding, which is not part of a public hearing or the official record in a matter.
- Exactions:** compensation, which may take the form of facilities, land, or an actual dollar amount, that a community requires from a developer as condition of the approval of a proposed development project. Exactions may be incorporated into the community’s zoning code or negotiated on a project- by- project basis; but, they must reflect the type and extent of the expected adverse impacts of the development.
- Executive Session:** *See “closed session”.*
- Extraterritorial Zoning:** a local government’s authority to zone areas outside its boundaries. Under Wisconsin law, the extraterritorial zone for 1st, 2nd, and 3rd class cities extends 3 miles beyond the corporate limits. The limit extends 1½ miles beyond the municipal boundary for 4th class cities and villages. *See* s.62.23(7a), *Wis. Stats.* .
- Exurban Area:** the area beyond a city’s suburbs.
- Fee Simple Acquisition:** the purchase of property via cash payment.
- Fee Simple Interest in Property:** absolute ownership of and with unrestricted rights of disposition to land. This describes the possession of all rights to property except those reserved to the state. *See “rights”.*
- Fiscal Impact Analysis:** the projection of the costs and benefits of additional or new facilities, rentals, or remodeling of existing facilities, including data relative to increased instructional, administrative, maintenance, and energy costs and costs for new or replacement equipment.
- Fiscal Impact Report:** a report projecting the costs and revenues that will result from a proposed development.
- Floating Zone:** an unmapped zoning district that is described in ordinance and on the zoning map only when an application for development is approved.
- Floodplains:** land that has been or may be covered by flood water during a ‘regional flood’ as is defined in NR 116, *Wis. Adm. Code.* The floodplain includes the floodway and floodfringe, and is commonly referred to as the 100- year floodplain.
- *Floodfringe:* that portion outside of the floodway covered by water during a regional flood.
This term is generally associated with standing water, but may under local floodplain zoning ordinances, be developed for specified purposes if development is protected from flooding.
 - *Floodway:* the channel of a river or stream and those portions of the floodplain adjoining the channel required to discharge a regional flood.
This term is generally associated with flowing water and is required by local floodplain zoning ordinances to remain undeveloped and free of obstructions. *See also “base flood”.*
- Forest Crop Law:** a program enacted in 1927 that exempts DNR approved privately owned forest land from general property taxes but instead requires the owner to make an acreage share payment or a state contribution. Under the program, land is taxed at a constant annual rate while its timber is taxed after harvest. Entries into the FCL closed as of 1 January 1986 with enactment of the Managed Forest Law. Today about 25,000 landowners, owning more than 2.5 million acres, are enrolled in the three existing forest tax laws: Forest Crop Law, Woodland Tax Law, and Managed Forest Law. *See* ch. 70, *Wis. Stats.* .
- Front Lot Line:** the lot line separating an interior lot from the street, or the shortest lot line of a corner lot to a street.
- Gentrification:** the resettlement of low and moderate- income urban neighborhoods by middle and high- income professionals.
- Geographic Information System (GIS):** computer technology, tools, databases, and applications that provide spatial (geographic) data management, analysis, and mapping capabilities to support policy evaluation, decision- making, and program operations.

- Geologic Review:** an analysis of geologic features on a site, including hazards such as seismic hazards, surface ruptures, liquefaction, landslides, mud slides, erosion, and sedimentation.
- Gift Credit:** a dollar or in-kind matching amount (labor, supplies, land donation, etc.) required to secure funds for a development.
- Global Positioning System (GPS):** a computerized tool for determining longitudinal and latitudinal coordinates through the use of multiple orbiting satellites.
- Green Spaces:** See “open spaces”.
- Group Quarters:** The group quarters population includes all people not living in households. Two general categories of people in group quarters are recognized: (1) the institutionalized population and (2) the noninstitutionalized population.
- Growth Management:** the pacing of the rate or controlling of the location of development via law enactment to manage a community’s growth.
- Growth Trend Series:** In a growth series, the starting value is multiplied by the step value to get the next value in the series. The resulting product and each subsequent product is then multiplied by the step value.
- Hamlet:** a predominantly rural, residential settlement that compactly accommodates development.
- Hamlet Lot:** a small residential lot in a contiguous group with adjacent and fronting lots oriented toward each other in some ordered geometric way and forming a boundary with the surrounding countryside.
- Hazardous Substance:** any substance or combination of substances, including solid, semisolid, liquid or gaseous wastes, which may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or which may pose a substantial present or potential hazard to human health or the environment because of its quantity, concentration, or physical, chemical, or infectious characteristics. This term includes irritants, strong sensitizers, explosives, and substances that are toxic, corrosive, or flammable. See s.292.01(5), *Wis. Stats.*
- Heavy Industry:** the basic processing and manufacturing of products from raw materials; or, a use engaged in the storage or manufacturing processes using flammable or explosive materials or those that potentially involve offensive conditions. See also “light industry”.
- Highly Erodible Soils:** soils highly susceptible to erosion as determined by an equation that considers soil type, slope, and amount of rainfall but does not consider current land management or vegetative cover. These soils are often identified in county soil survey books.
- Historic Area:** an area designated by an authority, having buildings or places that are important because of their historical architecture or relationship to a related park or square or because those areas were developed according to a fixed plan based on cultural, historical, or architectural purposes.
- Historic Preservation:** the research, protection, restoration, and rehabilitation of historic properties.
- Historic Property:** a building, structure, object, district, area, or site, whether on or beneath the surface of land or water, that is significant in the history, prehistory, architecture, archaeology, or culture of Wisconsin, its rural and urban communities, or the nation. See s.44.31(3), *Wis. Stats.* See s.13.48(1m)(a), *Wis. Stats.*
- Homeowner’s Association:** a nonprofit organization made up of property owners or residents who are then responsible for costs and upkeep of semiprivate community facilities.
- Home Rule:** constitutional provisions in some states that give local units of government substantial autonomy. Wisconsin is a “strong” home rule state.
- Housing Occupancy:** refers to whether a housing unit is occupied or vacant.
- Housing Tenure:** refers to whether the housing occupant is an owner or renter.
- Housing Unit:** a single-family house, townhouse, mobile home or trailer, apartment, group of rooms, or single room that is occupied as a separate living quarters or, if vacant, is intended for occupancy as a separate living quarters.
- Incorporation:** orderly and uniform development of territory from town to incorporated status. See ch. 66, subch. II, *Wis. Stats.*
- Impact Fees:** cash contributions, contributions of land or interests in land, or any other items of value that are imposed on a developer by a political subdivision to offset the community’s costs resulting from a development. See s. 66.0617, *Wis. Stats.*
- Impervious Surface:** a ground cover such as cement, asphalt, or packed clay or rock through which water cannot penetrate; this leads to increases in the amount and velocity of runoff and corresponds to increases in soil erosion and nutrient transport.
- Improvements:** the actions taken to prepare land, including clearing, building infrastructure such as roads and waterlines, constructing homes or buildings, and adding amenities.
- Incentive Zoning:** the granting of additional development possibilities to a developer because of the developer’s provision of a public benefit.
- Industrial District:** a district designated as manufacturing, research and development, or industrial park.

- Infill:** the development of the last remaining lots in an existing developed area, the new development within an area already served by existing infrastructure and services, or the reuse of already developed, but vacant properties. *See also "redevelopment"*.
- Infrastructure:** public utilities, facilities, and delivery systems such as sewers, streets, curbing, sidewalks, and other public services.
- Installment Sale:** a real estate transaction in which the landowner and the recipient negotiate terms for the property to be transferred over an extended period of time rather than all at once.
- Institutionalized Population:** The institutionalized population includes people under formally authorized, supervised care or custody in institutions at the time of enumeration; such as correctional institutions, nursing homes, and juvenile institutions.
- Intermodal Surface Transportation Efficiency Act, 1991 (ISTEA):** a federal transportation act that authorized the first 23 "high priority corridors" of the total 42 authorized by the ISTEA, the National Highway System Designation Act (1995), and the Transportation Equity Act for the 21st Century.
- Intelligent Transportation System (ITS):** a system of technologies, including traveler information systems to inform motorists of weather and road conditions, incident management systems to help emergency crews respond more efficiently to road incidents, and commercial vehicle operations to increase freight transportation efficiency, intended to relieve state highway congestion.
- Interim Zone of Influence:** a procedure for the exchange of information or resolution of conflicts on certain proposed land- uses between a city or town and the county.
- Interim Zone/ Development Controls:** *See "moratorium"*.
- Judicial Appeal:** the review of a local zoning decision by the state judicial system.
- Land:** soil, the ground surface itself, a subdivision, a tract or parcel, a lot, an open space, or the physical elements below ground.
- Land Banking:** the obtaining, holding, and subsequent release of lands by a local government for controlled development or conservation.
- Land Exchange:** a transaction where a public agency or nonprofit organization exchanges a land parcel for another land parcel with high conservation value.
- Land use Intensity System (LUI):** a comprehensive system created in the mid- 1960s by the U.S. Federal Housing Administration for determining or controlling the intensity of land development.
- Land use Inventory:** a study, cataloging the types, extent, distribution, and intensity of current and future uses of land in a given area.
- Land use Plan:** the element of a comprehensive plan that designates and justifies the future use or reuse of land. *See s.66.1001, Wis. Stats.*
- Landfill:** a disposal facility for solid wastes. *See ch.289, Wis. Stats.*
- Land Trust:** a private, nonprofit organization that protects natural and cultural resources through conservation easements, land acquisition, and education.
- Large- Lot Zoning:** a requirement that each new house be constructed on a minimum number of acres (generally, five or more acres). Developments that feature large- lot zoning may include the dispersal of some impacts, less efficient infrastructure, and greater areas of land use.
- Leapfrog Development:** new development separated from existing development by substantial vacant land.
- Leaseback:** *See "purchase/ leaseback"*.
- Level of Service (LOS):** a measurement of the quantity and quality of public facilities.
- Light Industry:** the manufacture and distribution of finished products, including processing, fabrication, assembly, treatment, packaging, incidental storage, and sales. *See also "heavy industry"*.
- Limited Development:** the development of one portion of a property to finance the protection of another portion.
- Linear Trend Series:** In a linear series, the step value, or the difference between the first and next value in the series, is added to the starting value and then added to each subsequent value.
- Lot:** a parcel of land that is occupied or intended for occupancy, including one main building and any accessory buildings, open spaces, or parking spaces. *See also "through lot"*.
- Lot Area:** the area of a horizontal plane bounded by the vertical planes through front, side, and rear lot lines.
- Lot Averaging:** the design of individual adjoining lots within a residential subdivision where the average lot is the minimum prescribed area for the zoning district.
- Lot- by- Lot Development:** a conventional development approach where each lot is treated as a separate development unit conforming to all land- use, density, and bulk requirements.
- Lot Coverage:** the total when an area of a lot covered by the total projected surface of all buildings, impervious surfaces, or vegetative coverage is divided by the gross area of that lot.

- Lot Depth:** the average horizontal distance between the front and rear lot lines.
- Lot Line:** the property lines at the perimeter of a lot.
- Lot Width:** the distance between side lot lines. This is generally measured at the front setback, but the specific protocol varies between jurisdictions.
- LULU:** a locally unwanted land use. *See also* “NIMBY,” “NIABY,” and “NIMTOO”.
- Main Street Program:** a comprehensive revitalization program established in 1987 to promote and support the historic and economic redevelopment of traditional business districts in Wisconsin. The Main Street Program is administered by the state Department of Commerce.
- Managed Forest Law:** a law enacted in 1985, replacing the Forest Crop Law and Woodland Tax Law, that exempts DNR approved privately owned forest land from general property taxes but instead requires the owner to pay an annual acreage payment, a state contribution, a yield tax, or a withdrawal penalty. Landowners have the option to choose a 25 or 50 year contract period. Enrollment is open to all private landowners owning ten or more acres of woodlands. Today about 25,000 landowners, owning more than 2.5 million acres, are enrolled in the three existing forest tax laws: Forest Crop Law (FCL), Woodland Tax Law (WTL), and Managed Forest Law (MFL). *See ch. 70, Wis. Stats.*
- Manufactured Housing:** a structure, containing within it plumbing, heating, air- conditioning, and electrical systems, that is transportable in one or more sections of certain sizes and is built on a permanent chassis, and when connected to the required utilities, is designed to be used as a dwelling with or without a permanent foundation. Such housing must comply with the standards established under the National Manufactured Housing Construction and Safety Standards Act. *See* 42 USC 5401 to 5425 and ch.409, *Wis. Stats.*
- Map:** a drawing or other representation that portrays the spatial distribution of the geographic, topographic, or other physical features of an area.
- Median age:** The midpoint age that separates the younger half of a population from the older half.
- Metropolitan Statistical Area (MSA):** a statistical area defined by the U.S. Census; a freestanding metropolitan area (i.e. an area with a minimum population of 50,000 and adjacent communities with a high degree of economic and social integration) or a Census Bureau defined urbanized area with a population of 100,000 or greater (75,000 in New England), not closely associated with other metropolitan areas. Nonmetropolitan counties surround these areas typically. *See also* “consolidated metropolitan statistical area” and “primary metropolitan statistical area”.
- Mini- Lot Development:** a development containing lots that do not meet the minimum size or other requirements.
- Mitigation:** the process of compensating for the damages or adverse impacts of a development.
- Mitigation Plan:** imposed development conditions intended to compensate for the adverse impacts of the development.
- Mixed- Use Development:** a development that allows multiple compatible uses to be in close proximity to one another in order to minimize transportation infrastructure impacts and to create a compact, efficient neighborhood; for example, single family, multifamily, commercial, and industrial uses are located within a reasonable proximity to each other.
- Modernization:** the upgrading of existing facilities to increase the input or output, update technology, or lower the unit cost of the operation.
- Moratorium:** a temporary development freeze or restriction pending the adoption or revision of related public policies or provisions of public infrastructures or services.
- Multifamily Dwelling:** a building or portion occupied by three or more families living independently of each other.
- Multimodal Transportation:** an integrated network of various transportation modes, including pedestrian, bicycle, automobile, mass transit, railroads, harbors, and airports.
- Municipality:** a city, village, town, or other unit of local government. The application of this term varies and it often has specific legal meanings.
- National Environmental Policy Act (NEPA):** a congressional act passed in 1969, establishing a national environmental policy. NEPA requires federal agencies to consider the environmental effects of decisions early in their decision- making processes and to inform the public of likely impacts. Environmental impact statements (EISs) are prepared consistent with this law. The act also established the Council on Environmental Quality. *See* P.L. 91- 190, 42 U.S.C. 4321- 4347. *See also* “environmental impact statement” and “Wisconsin Environmental Policy Act (WEPA)”.
- National Register of Historic Places in Wisconsin:** places in Wisconsin that are listed on the national register of historic places maintained by the U.S. Department of the Interior, National Park Service.
- Neighborhood Plan:** a plan that provides specific design or property- use regulations in a particular neighborhood or district.
- Neighborhood Unit:** the model for American suburban development after World War II based around the elementary school with other community facilities located at its center and arterial streets at its perimeter.
- Neotraditional Development:** a land- use approach that promotes neighborhoods with a variety of housing and architectural types, a central gathering point, and interconnecting streets, alleys, and boulevards edged with greenbelts.* *See also* “New Urbanism” and “smart growth”.

- Net Acre:** an acre of land excluding street rights-of-way* and other publicly dedicated improvements such as parks, open space, and stormwater detention and retention facilities.
- New Urbanism:** an approach to development that includes the reintegration of components such as housing, employment, retail, and public facilities into compact, pedestrian-friendly neighborhoods linked by mass transit. *See also “Neotraditional development” and “smart growth”.*
- NIABY:** Not in anyone’s backyard. *See also “LULU,” “NIMBY,” and “NIMTOO”.*
- NIMBY:** Not in my backyard. *See also “LULU,” “NIABY,” and “NIMTOO”.*
- NIMTOO:** Not in my term of office. *See also “LULU,” “NIMBY,” and “NIABY”.*
- Nonconforming Activity:** an activity that is not permitted under the zoning regulations or does not conform to off-street parking, loading requirements, or performance standards.
- Nonconforming Building:** any building that does not meet the limitations on building size or location on a lot for its use and district.
- Nonconforming by Dimension:** a building, structure, or parcel of land that is not compliant with the dimensional regulations of the zoning code.
- Nonconforming Lot:** a use or activity which lawfully existed prior to the adoption, revision, or amendment of an ordinance but that fails to conform to the current ordinance.
- Nonconforming Use:** a use (or structure) that lawfully existed prior to the adoption or amendment of an ordinance but that fails to conform to the standards of the current zoning ordinance.
- Noncontributing Building:** a building or structure that does not add to the historic architecture or association or cultural values of the area.
- Noninstitutionalized Population:** The noninstitutionalized population includes all people who live in group quarters other than institutions, such as college dormitories, military quarters, and group homes. Also, included are staff residing at institutional group quarters.
- North American Industry Classification System (NAICS):** a classification system developed by the United States, Canada, and Mexico to provide comparable industrial production statistics collected and published in the three countries. The NAICS replaces the Standard Industrial Classification (SIC) system and provides for increased comparability with the International Standard Industrial Classification (ISIC) system developed and maintained by the United Nations. *See also “Standard Industrial Classification (SIC)”.*
- Office Park:** a large tract that has been planned and developed as an integrated facility for a number of separate office buildings and that considers circulation, parking, utilities, and compatibility.
- One-Unit, Attached:** This is a 1-unit structure that has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (sometimes called townhouses), double houses, or houses attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof.
- One-Unit, Detached:** This is a 1-unit structure detached from any other house; that is, with open space on all four sides. Such structures are considered detached even if they have an adjoining shed or garage. A one-family house that contains a business is considered detached as long as the building has open space on all four sides. Mobile homes or trailers to which one or more permanent rooms have been added or built also are included.
- Open Session:** a meeting that is in accordance with Wisconsin’s ‘Open Meetings Law.’ *See s.19.85- 19.98, Wis. Stats .*
- Open (Green) Spaces:** a substantially undeveloped area, usually including environmental features such as water areas or recreational facilities. *See also “common open spaces”.*
- Ordinance:** a local law; a legislative enactment of a local governing body.
- Orthophoto Quad:** an aerial photograph that has been adjusted, via the correcting of distortions and inaccuracies due to plane tilt, elevation differences, or the curvature of the earth’s surface, to reflect as accurately as possible the actual topography of the earth’s surface.
- Outright Donation:** the donation of land to a unit of government or a qualified charitable land conservation management organization.
- Outright purchase:** the acquisition of land for the benefit of the public.
- Overlay Zone:** an additional land use or zoning requirement that modifies the basic requirements of the underlying designation.
- Parcel:** *See “lot”.*
- Pedestrian Friendly:** a development that is primarily accessible to pedestrians rather than automobiles and with an emphasis on street sidewalks rather than parking.
- Performance Standards:** general criteria established to limit the impact of land uses or development. *See also “design standards”.*
- Pervious Surface:** a ground cover through which water can penetrate at a rate comparable to that of water through undisturbed soils.

- Planned Unit Development:** land under unified control to be developed in a single development or a programmed series of phases. A planned development includes the provisions, operations, maintenance, facilities, and improvements that will be for the common use of the development districts, but which will not be maintained at general public expense.
- Plan Commission:** an appointed local government commission authorized to make and adopt a master plan, consistent with s.66.1001, *Wis. Stats.*, for the physical development of the city. *See* s.62.23, *Wis. Stats.*
- Plat:** a map of a lot, parcel, subdivision, or development area where the lines of each land division are shown by accurate distances and bearings.
- Point System:** numerical values assigned to a development’s impacts on a community’s resources.
- Political Subdivision:** a city, village, town, county, sanitary district, school district, inland lake protection and rehabilitation district, or other special purpose unit of government.
- Pre-acquisition:** a technique where one organization (usually a private land trust) purchases a property and holds it until another organization (usually a government agency) can allocate the funds to purchase it.
- Preservation:** leaving a resource undisturbed and free from harm or damage. While ‘preservation’ is often used interchangeably with ‘conservation,’ the latter entails a connotation of prudent resource use.
- Primary Metropolitan Statistical Area (PMSA):** a statistical area defined by the U.S. Census; an area within a consolidated metropolitan statistical area consisting of a large urbanized county or cluster of counties that demonstrates very strong internal economic and social links, in addition to close ties to other portions of the larger area. *See also* “metropolitan statistical area” and “consolidated metropolitan statistical area”.
- Prime Agricultural Land:** land determined by local governments to be important for sustaining agricultural operations and that are often protected from conversion to other uses. *See* ch.91, *Wis. Stats.*
- Prime Farmland:** farmland classified by the Natural Resources Conservation Service as best for the crop production of row, forage, or fiber because of level topography, drainage, moisture supply, soil texture and depth, and susceptibility to erosion and runoff. Ideally, prime farmland allows least cost to both the farmer and the natural resources. *See* ch.91, *Wis. Stats.*
- Principal Building:** the building, including all parts connected, where the primary use of the lot is conducted.
- Private Road:** a way open to traffic, excluding driveways, established as a separate tract for the benefit of adjacent properties.
- Privately Owned Waste- Treatment Systems (POWTS):** sewage treatment and disposal systems, which are also called on- site sanitary systems, that are not connected to sewer lines or wastewater treatment plants.
- Public Dedication:** reserving land in a subdivision for public use such as a school or park.
- Public Road:** public property dedicated and reserved for street traffic.
- Purchase of Development Rights (PDR):** a public or private government initiative that acquires the development rights of property to limit development and protect natural features or open space. *See also* “rights” and “transfer of development rights”.
- Purchase/ Leaseback:** an arrangement where a community purchases a natural area and then either leases it back with special lease restrictions or sells it back with deed restrictions designed to protect the natural features of the property.
- Quarter, Quarter Zoning:** a development standard that limits non-farm development to one house per 40 acres (¼ of ¼ of the original 640- acre section).
- Quasi- Judicial Decisions:** “resembling a court;” quasi- judicial decision making must follow rules of due process and is midway between legislative and administrative functions. Examples of quasi- judicial decisions include variances, appeals, and conditional- use permits.
- Quasi- Public Use/ Facility:** a use conducted or a facility owned or operated by a nonprofit or religious institution that provides public services.
- Rear- lot Line:** a lot line, opposite the front lot line, that generally does not abut a public roadway.
- Redevelopment:** any proposed replacement of existing development. *See also* “infill”.
- Redevelopment Authority:** an authority, known as the “redevelopment authority of the city of [city name],” created in every city with a blighted area. This authority, together with all the necessary or incidental powers, is created to carry out blight elimination, slum clearance, and urban renewal programs and projects as set forth in Wisconsin Statutes. *See* s.66.1333 (3)(a) 1, *Wis. Stats.*
- Reforestation:** the planting or replanting of forest plants.
- Regional Plan:** a plan that covers multiple jurisdictions, often within the administrative area of a regional planning commission, and that can be prepared jointly by cooperating municipalities, regional planning commissions, state agencies, or other entities.
- Requests for Proposals (RFP):** a document describing a project or services and soliciting bids for a consultant’s or contractor’s performance.
- Requests for Qualifications (RFQ):** a document describing the general projects, services, and related qualifications of bidding consultants or contractors.

Reservation of Site: See “public dedication”.

Reserved Life Estate: an arrangement where a landowner sells or donates property to another party (for example, a conservation organization) while retaining the right to lifetime use.

Revolving Fund: a conservation fund, replenished through donations or selling of the land to another conservation organization or a government agency, used to purchase land or easements.

Rezoning: an amendment to a zoning map or zoning ordinance that changes the zoning- district designation and use or development standards.

Right of First Refusal: an agreement between a landowner and another party (for example, a land trust) that gives the other party a chance to match any third- party offer to purchase lands.

Right of Way (ROW): a strip of land occupied by or intended to be occupied by a street, crosswalk, walkway, utility line, or other access.

Rights (The Bundle of Rights Concept of Property): government and private owners each hold portions of the bundle of rights in real property.

Owner property rights include:

- *Right to Use:* the right to improve, harvest, cultivate, cross over, or not to use.
- *Right to Lease:* the right to lease for cash or the right to hold a cash, including a share lease or third or fourth lease, a crop share lease, a one year lease, or a perpetual lease.
- *Right of Disposition:* the right to sell, to bequeath, to mortgage, or to establish trusts on all or part of a property.

Government property rights include:

- *Eminent domain:* the right to purchase land for public use
- *Escheat:* the right for the succession in title where there is no known heir
- *Regulation*
- *Taxation*

Riparian Areas: the shore area adjacent to a body of water.

Roadway Setback: the required or existing minimum distance between a public roadway (measured from the centerline or edge of right- of- way) and the nearest point on a structure.

Scenic Corridor: a linear landscape feature that is visually attractive (for example, stream corridors or blufflines).

Scenic Easement: an easement* intended to limit development in order to preserve a view or scenic* area.

Seasonal Dwelling: a dwelling not used for permanent residence or not occupied for more than a certain number of days per year. The standard varies between jurisdictions.

Secondary Dwelling Unit: an additional dwelling unit in a freestanding building or above a residential garage and located within or on the same lot as the principal dwelling unit.

Sense of Place: the constructed and natural landmarks and social and economic surroundings that cause someone to identify with a particular place or community.

Set Back: the minimum distance a building, structure, or activity can be separated from a designated feature such as a waterway or bluffline.

Shoreland: a state mandated water resource protection district that Wisconsin counties must adopt.

Shorelands include lands adjacent to navigable waters within 1,000 feet of the ordinary high- water mark of a lake, pond, or flowage and within 300 feet of the ordinary high- water mark or floodplain of a river or stream.

Shoreland- Wetland: shorelands that are designated as wetlands on Wisconsin Wetlands Inventory maps. See *Wis. Stats.*

Shoreline Stabilization: the placement of structural revetments or landscaping practices to prevent or control shoreline erosion.

Side Lot Line: a lot line that is neither a front lot line nor a rear lot line.

Single- family Attached Dwelling: one of two or more residential buildings having a common wall separating dwelling units.

Single- family Detached Dwelling: a residential building containing not more than one dwelling unit surrounded by open space.

Sign: any device that is sufficiently visible to persons not located on the lot that communicates information to them.

Site Plan: a scaled plan, which accurately and completely shows the site boundaries, dimensions and locations of all buildings and structures, uses, and principal site development features, proposed for a specific lot.

Sliding Scale Zoning: a ratio of dwelling units to land acreage that concentrates development on smaller lots by increasing the minimum lot size for houses built on larger parcels.

Smart Growth: an approach to land- use planning and growth management that recognizes connections between development and quality of life. The features that distinguish smart growth approaches vary. In general, smart growth invests time, attention, and resources in restoring community and vitality to center cities and older suburbs. In developing areas, the

approach is more town- centered, is transit and pedestrian oriented, and has a greater mix of housing, commercial, and retail uses. Smart- growth approaches preserve open space and other environmental amenities. The term is also used to refer to Wisconsin’s comprehensive planning law. *See* s.66.1001, *Wis. Stats.* *See also* “*New Urbanism*” and “*Neotraditional development*”.

Special Designation: the protection of scenic river corridors and other valuable resources through state or federal means such as recognition, acquisition, or technical assistance.

Special District/ Special Purpose Unit of Government: a government entity that is responsible for performing specific tasks and oversight essential to a community’s or region’s well being. Special districts include sanitary districts, metropolitan sewerage districts, drainage districts, inland lake protection and rehabilitation districts, business improvement districts, tax incremental financing districts, architectural conservancy districts, and port authorities.

Special Exception: *See* “*conditional use*”.

Spot Zoning: a change in the zoning code or area maps that is applicable to no more than a few parcels and generally regarded as undesirable or illegal because it violates equal treatment and sound planning principles.

Stand: a number of plants growing in a continuous area. Examples include ‘a stand of hardwood’ or ‘a stand of timber.’

Standard Industrial Classification/ Standard Industrial Code (SIC): an industry classification system to facilitate the collection, tabulation, presentation, and analysis of data relating to establishments and to ensure that data about the U.S. economy published by U.S. statistical agencies are uniform and comparable. *See also* “*North American Industry Classification System (NAICS)*”.

Statewide Comprehensive Outdoor Recreation Plan (SCORP): a plan that aims to offer a research base and overall guidance for all providers of Wisconsin’s outdoor recreation, including federal, state, county, city, village, and town governments, resorts and other businesses, and a variety of other public and private organizations. Ideally, SCORP is used in conjunction with other planning documents such as property master plans, community park and open space plans, the State Trails Strategic Plan, six- year development plans, and county and regional planning commission plans.

Stewardship Program: a state bonding program established by the Wisconsin Legislature in 1989 and re- authorized in 1999 that provides funds to protect environmentally sensitive areas and to maintain and to increase recreational opportunities across the state.

Stormwater Detention/ Stormwater Retention: the storage of stormwater runoff.

Stormwater Management: the reduction of the quantity of runoff, which affects flooding, or of pollutants generated at a development site and carried in stormwater.

Story: a space in a building between the surface of any floor and the surface of the next above floor or roof.

Subdivision: the description (usually by survey) and recording of separate land parcels or lots.

Summary Abatement: a legal action taken to suppress the continuation of an offensive land use. *See also* “*tax abatement*”.

Sustainability: long- term management of ecosystems intended to meet the needs of present human populations without compromising resource availability for future generations.

Sustainable Development: development that meets the needs of the present generation without compromising the needs of future generations.

Takings: government actions that violate the Fifth Amendment to the U.S. Constitution, which reads in part, “nor shall private property be taken for public use, without just compensation.” Such actions include regulations that have the effect of “taking” property. The Supreme Court has established four clear rules that identify situations that amount to a taking and one clear rule that defines situations that do not.

The court has found “takings” in the following circumstances:

- *where a landowner has been denied “all economically viable use” of the land;*
- *where a regulation forced a landowner to allow someone else to enter onto the property;*
- *where the regulation imposes burdens or costs on a landowner that do not bear a “reasonable relationship” to the impacts of the project on the community; and*
- *where government can equally accomplish a valid public purpose through regulation or through a requirement of dedicating property, government should use the less intrusive regulation, for example, prohibiting development in a floodplain property.*

The Supreme Court has also said that where a regulation is intended merely to prevent a nuisance, it should *not* be considered a taking.

Tax Abatement: a release of a certain tax liability for a specific period of time and under certain circumstances. *See also* “*summary abatement*”.

- Tax Increment:** additional tax revenue resulting from a property- value increase; the amount obtained by multiplying the total of all property taxes levied on all taxable property within a tax- incremental district in a year by a fraction having as a numerator the value increment for that year in the district and as a denominator that year's equalized value of all taxable property in the district. In any year, a tax increment is "positive" if the value increment is positive and "negative" if the value increment is negative. *See* s.66.1105, *Wis. Stats.*
- Tax Increment Financing (TIF):** a local governmental financing of private- sector redevelopment, anticipating the additional revenues of the tax increment.* *See* s.66.1105, *Wis. Stats.*
- Town:** the political unit of government; a body corporate and politic, with those powers granted by law. *See* ch. 60, *Wis. Stats.*
- Township:** all land areas in a county not incorporated into municipalities (cities and villages).
- Tract:** an indefinite stretch or bounded piece of land; in subdivisions, a tract is often divided into individual lots.
- Traditional Neighborhood:** a compact, mixed- use neighborhood where residential, commercial, and civic buildings are within a close proximity. *See also* "Neotraditional development" and "New Urbanism".
- Traffic Calming:** the process of increasing pedestrian safety via decreasing automobile speed and volume.
- Traffic Impact Analysis:** an analysis of the impacts of traffic generated by a development.
- Traffic Impact Mitigation Measure:** an improvement by a developer intended to reduce the traffic impact created by a development.
- Transfer of Development Rights:** a technique, involving the designation of development (receiving) zones and protected (sending) zones, for guiding growth away from sensitive resources and toward controlled development centers by transferring development rights from one area to another via local law authorization such as a deed or easement. *See also* "rights" and "purchase of development rights".
- Transit- Oriented Development (TOD):** moderate or high- density housing concentrated in mixed- use developments* that encourages the use of public transportation.
- Transitional Use:** a permitted use or structure that inherently acts as a transition or buffer between two or more incompatible uses.
- TRANSLINKS 21:** a statewide transportation system plan prepared by the Wisconsin Department of Transportation in response to federal and state laws.
- Transportation Demand Management (TDM):** a strategy that alleviates roadway stress by reducing vehicle density via the increasing of passengers per vehicle.
- Transportation enhancements (ISTEA & TEA- 21):** funds contributed by the federal highway transportation program to enhance cultural, aesthetic, and environmental aspects of local transportation and transit systems.
- Underlying Zoning District:** a term referring to a zoning district when it is affected by an overly district.
- Undevelopable:** an area that cannot be developed due to topographic or geologic soil conditions.
- Unified Development Code:** the combining of development regulations into a single zoning code.
- Universal Transverse Mercator Grid (UTM):** a civilian grid system, which uses only numbers and can be handled by digital mapping software and Geographic Information Systems.
- Unnecessary Hardship:** a unique and extreme inability to conform to zoning ordinance provisions due to physical factors; and, one of three tests a property must meet in order to qualify for a zoning variance.
- Up Zoning:** changing the zoning designation of an area to allow higher densities or less restrictive use. *See also* "down zoning".
- Urban Area:** the area within a municipal boundary that is serviced by infrastructure; an intensively developed area with a relatively large or dense population.
- Urban Forest:** all trees and associated vegetation in and around a city, village, or concentrated development.
- Urban Growth Area:** an area designated for urban development and usually designed to protect open space or resources beyond its boundaries.
- Urban Growth Boundary:** the perimeter of an urban growth area.
- Urban Sprawl:** low- density, automobile- dependent, and land- consumptive outward growth of a city; the spread of urban congestion and development into suburban and rural areas adjoining urban areas.
- Utility Facilities:** any above ground structures or facilities used for production, generation, transmission, delivery, collection, or storage of water, sewage, electricity, gas, oil, or electronic signals.
- Variance:** a relaxation of dimensional standards by a local zoning board in compliance with statutory criteria. *See* s.59.99(7), *Wis. Stats.*
- Vehicle Miles Traveled (VMT):** a measure of automobile and roadway use.
- Village:** an incorporated area with a population under 5,000. *See* ch. 61, *Wis. Stats.*
- Watershed:** the area where precipitation drains to a single body of water such as a river, wetland, or lake.

- Wellhead Protection:** a plan to determine the water collecting area for a public well, identify the pollution sources within that area, and detect, prevent, and remedy potential contamination to the collecting area.
- Wetlands Inventory Map:** a map of wetlands classified according to their vegetation, hydrology, and types of human influence, developed by the Wisconsin Department of Natural Resources, used to identify wetlands for protection.
- Wetlands Reserve Program:** a federal program with state partnering to restore the functions and values of wetlands and to preserve riparian areas through conservation easements and wetland reconstruction.
- Wildlife Habitat Incentives Program:** a program that awards landowners federal cost- sharing funds after the installation of improvements to wildlife or fishery habitat.
- Wisconsin Administrative Code (Wis. Admin. Code):** a component of state law that is a compilation of the rules made by state agencies having rule- making authority. These rules provide the detailed provisions necessary to implement the general policies of specific state statutes
- Wisconsin Environmental Policy Act (WEPA):** a state law establishing a state environmental policy. WEPA requires state agencies to consider the environmental effects of decisions early in their decision-making processes and to inform the public of likely impacts and alternatives that were considered. Environmental impact statements (EISs) are prepared consistent with this law. *See also “environmental impact statement” and “National Environmental Policy Act (NEPA)”.* *See* NR 150, Wis. Admin. Code, and s.1.11, *Wis. Stats.*
- Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data (WISCLAND):** a partnership between government agencies, private companies, and nonprofit groups to collect, analyze, and distribute landscape information.
- Wisconsin Register of Historic Places:** a listing of districts, sites, buildings, structures, and objects that are significant in national, state, or local history, architecture, archaeology, engineering and culture. The Wisconsin register of Historic Places is maintained by the Wisconsin State Historical Society. *See* s. 44.36, *Wis. Stats.*
- Woodland Tax Law:** a law enacted in 1954 that extended land eligibility of the Forest Crop Law to owners of small forest parcels. Entries into the WTL closed as of 1 January 1986 with enactment of the Managed Forest Law. Today about 25,000 landowners, owning more than 2.5 million acres, are enrolled in the three existing forest tax laws: Forest Crop Law, Woodland Tax Law, and Managed Forest Law. *See* ch. 70, *Wis. Stats.*
- Zero Lot Line:** the location of a building in such a manner that one or more of its sides rests directly on its lot line.
- Zone:** an area designated by an ordinance where specified uses are permitted and development standards are required.
- Zoning Inspector:** an appointed position to administer and enforce zoning regulations and related ordinances.
- Zoning Permit:** a permit issued by the land- use or zoning administrator authorizing the recipient to use property in accordance with zoning- code requirements.

Source: *Land-Use Lingo: A Glossary of Land-Use Terms*, WDNR, 2001.

Note: All references are to 1999-2000 Wisconsin Statutes.

Bay-Lake Regional Planning Commission

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