

Manitowoc County

Farmland Preservation Plan

2015



Prepared by:

Manitowoc County Planning & Zoning Department

Bay Lake Regional Planning Commission

Certified December 23, 2014



MANITOWOC COUNTY FARMLAND PRESERVATION PLAN

***CERTIFIED:
DECEMBER 23, 2014***

Prepared by:



Manitowoc County Planning & Zoning Department



Bay-Lake Regional Planning Commission
441 South Jackson Street
Green Bay, WI 54301
(920) 448-2820

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CHAPTER 1: INTRODUCTION AND PURPOSE

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INTRODUCTION

Purpose

This plan illustrates Manitowoc County’s continuing effort to participate in the State’s Farmland Preservation Program and establishes a policy for continued support of farmland preservation, agricultural development, and the encouragement of a healthy agricultural economy into the future. As a result, this update of the county’s 2005 Farmland Preservation Plan will become an element of the Manitowoc County Comprehensive Plan (per s. 91.10 (2), Wis. Stats.) together detailing goals, objectives, policies, and programs that can help maintain a strong agricultural tradition in the county.

This Farmland Preservation Plan update, in conjunction with the Manitowoc County Comprehensive Plan, will also help guide land use patterns and development decisions providing for well planned growth that can minimize conflicts between farm and non-farm land uses.

This farmland preservation update illustrates agricultural areas and valuable natural resources to be preserved along with promoting agriculture-related development that will maintain the county’s strong agriculture economy.

Working Lands Initiative

The Manitowoc County Farmland Preservation Plan update meets the farmland preservation requirements of the Wisconsin “Working Lands Initiative,” adopted in the State’s 2009-2011 biennial budget. Pursuant to s. 91.10, Wis. Stats, adoption and State certification of a Farmland Preservation Plan, as defined in s. 91.01(17) Wis. Stats, will enable farmers within the certified farmland preservation areas to claim State farmland preservation tax credits as well as qualify owners of farmland for other state-funded programs and opportunities. Working Lands will also enable farmers to form “agricultural enterprise areas” (AEA) and enter into farmland preservation agreements with the Wisconsin Department of Agriculture, Trade and Consumer Protection, (DATCP). Manitowoc County must monitor each farm for which an owner claims farmland preservation tax credits for compliance with Wisconsin’s land and water conservation standards (ATCP 50, Wis. Admin. Code).

Planning Process

This update represents much research, study, and effort on the part of the staff of the Manitowoc County Planning and Zoning Department, Manitowoc County Soil and Water Conservation Department, UW-Extension, Town officials or representatives, and the Bay-Lake Regional Planning Commission.

Throughout the plan development process several informational meetings were held with Town officials, or their representatives, to review the Farmland Preservation Plan content and provide input on the past, present, and future of the agriculture industry in the county. Assistance was also provided, as needed, at the town level to assist with the development of the county’s Farmland Preservation Plan map.

Public Participation

The Farmland Preservation Plan followed the Public Participation Plan procedures that were adopted as part of the county’s Comprehensive Planning process (see Volume I: Appendix A of the *Manitowoc County 20-Year Comprehensive Plan*). The process was designed to be

responsive to citizen participants, was committed to utilizing the agricultural knowledge and understanding of citizens to address important issues, and offered multiple opportunities for engagement – at varying levels of involvement.

Public Input

In 2007 and 2008, a variety of nominal group sessions, a visioning workshop, and an economic S.W.O.T workshop were conducted with local officials and citizens to provide guidance during the development of comprehensive plans for Manitowoc County and many of the county's local jurisdictions. The Manitowoc County Planning and Zoning Department, Bay-Lake Regional Planning Commission, and a variety of agricultural stakeholders reviewed the results of the 2007 and 2008 workshops and determined that many of the agricultural issues identified remain valid and provide evidence that the future of agriculture in Manitowoc County is encouraging and the preservation of farmland is necessary. Manitowoc County's 20-Year Vision Statement also indicates the county's commitment to agriculture into the future.

"In 2030 Manitowoc County is envisioned as a progressive area of East Central Wisconsin, promoting its lakeshore identity while being keenly aware of its diverse heritage and the preservation of individual property rights.

Rural communities maintain a strong agricultural tradition, while new housing and business developments, along with innovative industries, are constructed in areas that provide exceptional services and the skilled workforce to support them. This diversity of use, coupled with forward thinking policies, results in the preservation of farmland, natural resources, and rural character.

The cities, villages, and towns maintain a working relationship with each other, providing quality amenities to enjoy a relaxed, healthy, and active lifestyle that supports a vital and diverse economy, while recognizing the rich agricultural, industrial, and maritime heritage of the county."

The information gathered during the 2007 and 2008 nominal group, visioning, and economic S.W.O.T. sessions provided support material that was used for updating the county's Farmland Preservation Plan. The results of the workshops are viewable in Volume I: Appendices B, C, and D of the *Manitowoc County 20-Year Comprehensive Plan*.

CHAPTER 2: MANITOWOC COUNTY PROFILE

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INTRODUCTION

This section of the Farmland Preservation Plan includes a basic summary and analysis of Manitowoc County's demographics, economics, utilities, community facilities, and transportation. Detailed demographic and background information is available in the *Manitowoc County 20-Year Comprehensive Plan*, which contains a collection of information from the U.S. Census Bureau, Wisconsin Department of Administration, Wisconsin Department of Workforce Development, and the Wisconsin Department of Revenue.

LOCATION

Manitowoc County is located in East Central Wisconsin encompassing an area of approximately 590 square miles, or approximately 380,000 acres. The county has a total of 30 municipalities that is comprised of 18 towns, nine (9) villages, and the cities of Manitowoc, Two Rivers, and Kiel. Manitowoc County is situated south of Brown and Kewaunee counties; while Calumet County is located to the west; and Sheboygan County is found to the south. Lake Michigan makes up Manitowoc County's entire eastern border.

POPULATION

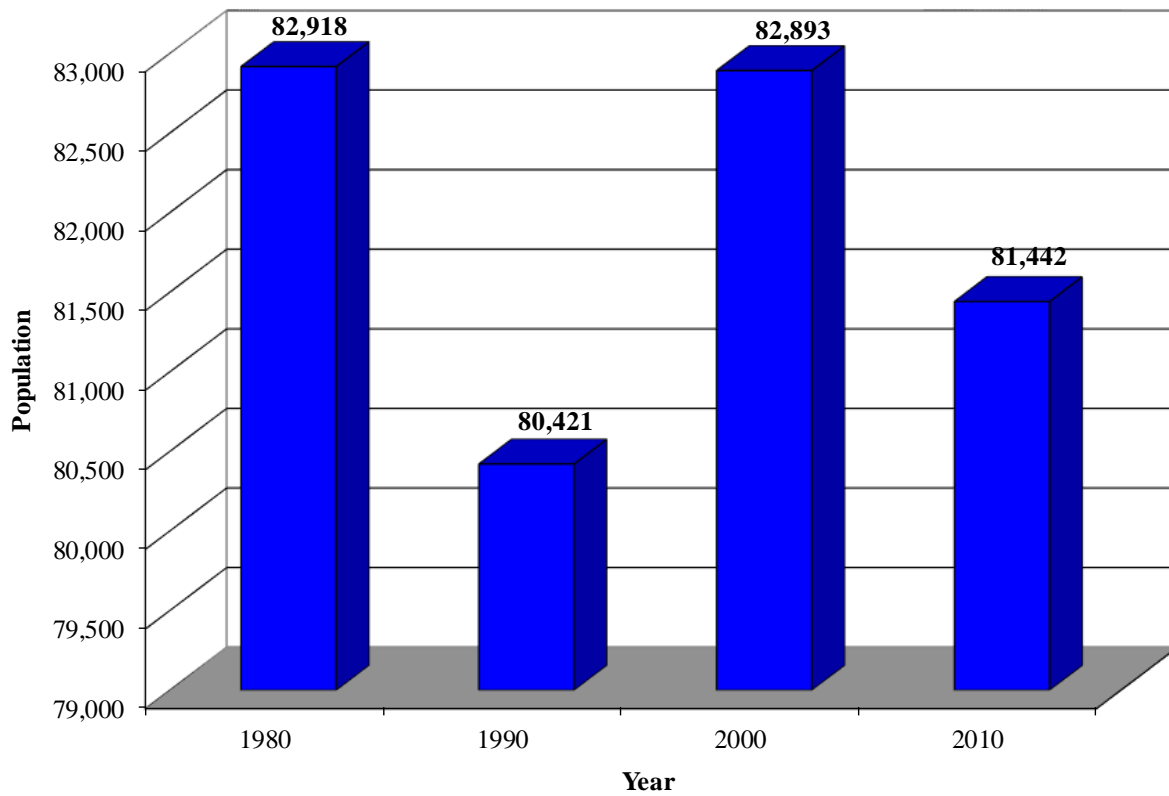
This portion of the document details Manitowoc County's population and housing trends and projections. These demographic characteristics are important in predicting future population and housing trends and their influence on the county's infrastructure and community facility capacities, along with future economic development opportunities.

Population Trends

Figure 2.1 illustrates population fluctuations for Manitowoc County since 1980, whereas Table 2.1 details population trends for the municipalities in the county from 1980 thru 2010.

- Manitowoc County experienced a 1.8 percent population decrease from 2000 to 2010, a decline of 1,451 people.
- According to the 2010 U.S. Census, 60 percent of Manitowoc County's population resides in its three cities, while another 10 percent reside in the villages. Town's makeup the remaining 30 percent of the county's population. City of Manitowoc's population makes up 41 percent of the county's overall population
- Sixteen (16) of Manitowoc County's 30 municipalities experienced a loss in population between 2000 and 2010.
 - The City of Kiel experienced the largest population growth by number of any municipality in the county from 2000 to 2010 with an increase of 300 people. The City of Two Rivers lost the largest number of people in the county during the same time period with a decline of 927.
 - Largest population growth in the county by percentage was the Village of Maribel with just under 24 percent growth, while the Town of Two Creeks experienced a nearly 21 percent population decline.
- Manitowoc County's median age in 2010 was 43.0 years, compared to the 2000 figure of 38.3 years.

Figure 2.1: Population Trends, Manitowoc County 1980-2010.



Source: U.S. Bureau of the Census, 1980-2010.

Table 2.1: Population Trends, Manitowoc Municipalities 1980-2010.

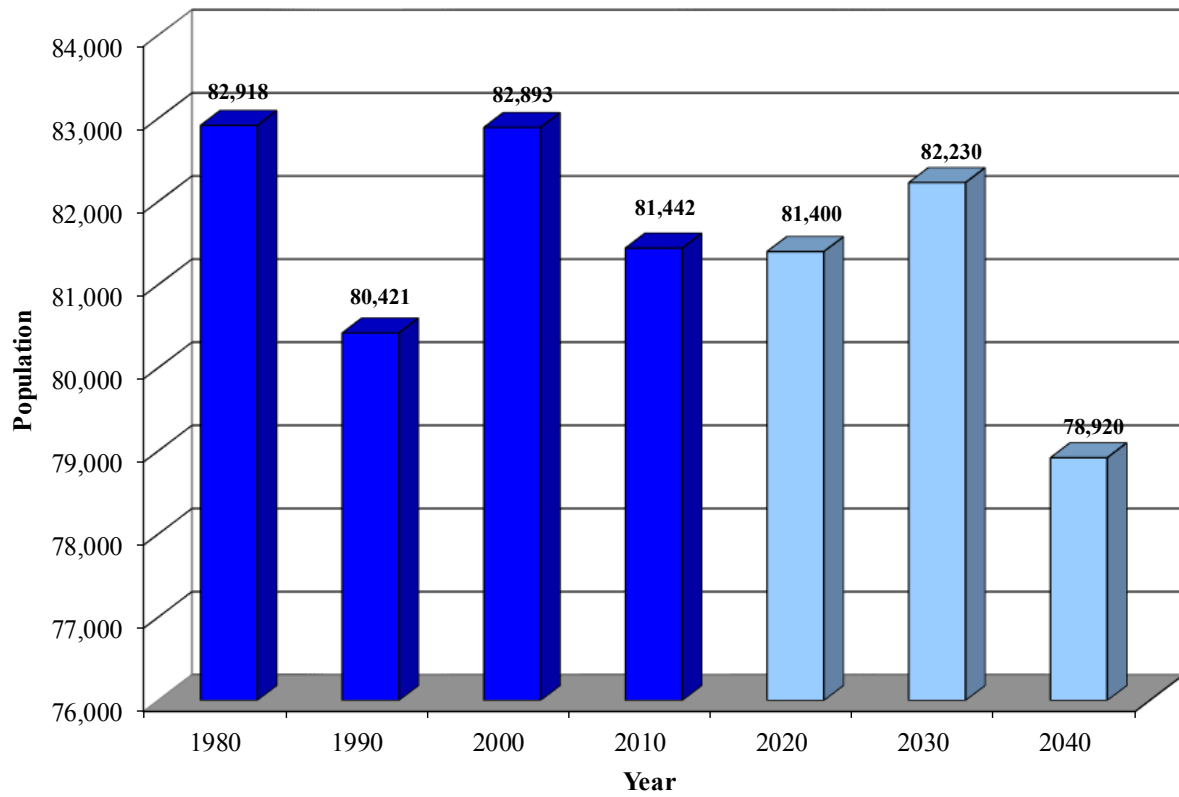
Geographic Location	U.S. Census						Number Change	Percent Change
	1960	1970	1980	1990	2000	2010	2000-2010	2000-2010
Town of Cato	1,513	1,581	1,653	1,503	1,616	1,566	-50	-3.1
Town of Centerville	817	784	796	685	713	645	-68	-9.5
Town of Cooperstown	1,308	1,094	1,249	1,320	1,389	1,292	-97	-7.0
Town of Eaton	716	741	764	761	761	833	72	9.5
Town of Franklin	1,384	1,488	1,372	1,325	1,293	1,264	-29	-2.2
Town of Gibson	1,154	1,323	1,416	1,445	1,352	1,344	-8	-0.6
Town of Kossuth	2,131	1,966	2,097	1,951	2,033	2,090	57	2.8
Town of Liberty	966	1,089	1,170	1,218	1,287	1,281	-6	-0.5
Town of Manitowoc	1,001	1,258	1,177	937	1,073	1,083	10	0.9
Town of Manitowoc Rapids	3,106	3,552	3,186	2,579	2,520	2,150	-370	-14.7
Town of Maple Grove	882	910	962	888	852	835	-17	-2.0
Town of Meeme	1,367	1,480	1,535	1,516	1,538	1,446	-92	-6.0
Town of Mishicot	1,296	1,743	1,334	1,344	1,409	1,289	-120	-8.5
Town of Newton	1,940	2,256	2,332	2,242	2,241	2,264	23	1.0
Town of Rockland	935	971	936	911	896	1,001	105	11.7
Town of Schleswig	1,220	1,542	1,633	1,641	1,900	1,963	63	3.3
Town of Two Creeks	458	580	489	466	551	437	-114	-20.7
Town of Two Rivers	2,110	2,806	2,663	2,147	1,912	1,795	-117	-6.1
Village of Cleveland (1958)	687	761	1,270	1,398	1,361	1,485	124	9.1
Village of Francis Creek (1960)	---	492	589	562	681	669	-12	-1.8
Village of Kellnersville (1971)	---	---	369	350	374	332	-42	-11.2
Village of Maribel (1963)	---	316	363	372	284	351	67	23.6
Village of Mishicot (1950)	762	938	1,503	1,296	1,422	1,442	20	1.4
Village of Reedsville (1892)	830	994	1,134	1,182	1,187	1,206	19	1.6
Village of St. Nazianz (1956)	669	718	738	693	749	783	34	4.5
Village of Valders (1919)	622	821	984	905	948	962	14	1.5
Village of Whitelaw (1958)	420	557	649	700	730	757	27	3.7
City of Kiel [#] (1920)	2,253	2,550	2,654	2,534	3,129	3,429	300	9.6
City of Manitowoc (1870)	32,275	33,430	32,547	32,520	34,053	33,736	-317	-0.9
City of Two Rivers (1878)	12,393	13,553	13,354	13,030	12,639	11,712	-927	-7.3
Manitowoc County	75,215	82,294	82,918	80,421	82,893	81,442	-1,451	-1.8
Wisconsin	3,951,777	4,417,731	4,705,642	4,891,769	5,363,675	5,686,986	323,311	6.0

Source: U.S. Bureau of the Census, 1980-2010. Bay-Lake Regional Planning Commission, 2014.

Population Projections

According to the WDOA population projections released in 2013, Manitowoc County's population is expected to decline to 78,920 by 2040. This projection would be a decrease of 2,522 persons from the county's 2010 Census population of 81,442 (Figure 2.2 and Table 2.2). The municipalities' 2040 population projections illustrate growth and decline at different rates with 17 of the counties 30 communities expected to experience a decrease in their population (Table 2.3).

Figure 2.2: Population Projections, 1980-2040



Source: U.S. Bureau of the Census, 1960-2010; WDOA Population Projections for Wisconsin Counties, 2020 – 2040; and Bay-Lake Regional Planning Commission, 2014.

Table 2.2: Population Projections, Manitowoc County Municipalities 2010-2040.

Geographic Location	US Census 2010	WDOA Population Projections						# Change 2010-2040	% Change 2010-2040
		2015	2020	2025	2030	2035	2040		
Town of Cato	1,566	1,545	1,565	1,575	1,580	1,565	1,515	-51	-3.3
Town of Centerville	645	630	625	620	610	590	560	-85	-13.2
Town of Coopers town	1,292	1,280	1,285	1,285	1,280	1,260	1,215	-77	-6.0
Town of Eaton	833	825	845	865	880	885	870	37	4.4
Town of Franklin	1,264	1,235	1,240	1,235	1,225	1,200	1,150	-114	-9.0
Town of Gibson	1,344	1,325	1,335	1,335	1,335	1,315	1,265	-79	-5.9
Town of Kossuth	2,090	2,075	2,120	2,155	2,185	2,180	2,135	45	2.2
Town of Liberty	1,281	1,265	1,285	1,300	1,305	1,295	1,260	-21	-1.6
Town of Manitowoc	1,083	1,085	1,120	1,155	1,180	1,190	1,175	92	8.5
Town of Manitowoc Rapids	2,150	2,115	2,135	2,150	2,150	2,125	2,055	-95	-4.4
Town of Maple Grove	835	820	820	820	815	800	770	-65	-7.8
Town of Meeme	1,446	1,430	1,435	1,435	1,425	1,400	1,345	-101	-7.0
Town of Mishicot	1,289	1,265	1,260	1,250	1,235	1,205	1,150	-139	-10.8
Town of Newton	2,264	2,265	2,320	2,360	2,385	2,385	2,335	71	3.1
Town of Rockland	1,001	995	1,030	1,060	1,080	1,090	1,080	79	7.9
Town of Schleswig	1,963	1,975	2,050	2,120	2,180	2,210	2,190	227	11.6
Town of Two Creeks	437	415	410	400	390	375	350	-87	-19.9
Town of Two Rivers	1,795	1,750	1,730	1,710	1,675	1,620	1,535	-260	-14.5
Village of Cleveland	1,485	1,520	1,585	1,645	1,695	1,725	1,715	230	15.5
Village of Francis Creek	669	665	680	690	700	700	685	16	2.4
Village of Kellnersville	332	320	315	310	300	290	275	-57	-17.2
Village of Maribel	351	345	355	360	365	370	360	9	2.6
Village of Mishicot	1,442	1,430	1,455	1,480	1,495	1,495	1,460	18	1.2
Village of Reedsville	1,206	1,185	1,200	1,210	1,210	1,200	1,160	-46	-3.8
Village of St. Nazianz	783	775	795	815	825	830	815	32	4.1
Village of Valders	962	950	965	975	980	975	950	-12	-1.2
Village of Whitelaw	757	750	770	785	795	795	775	18	2.4
City of Kiel	3,738	3,455	3,610	3,745	3,860	3,930	3,910	172	4.6
City of Manitowoc	33,736	33,320	33,760	34,060	34,180	33,890	32,870	-866	-2.6
City of Two Rivers	11,712	11,420	11,300	11,140	10,910	10,560	9,990	-1,722	-14.7
Manitowoc County	81,442	80,430	81,400	82,045	82,230	81,450	78,920	-2,522	-3.1
Wisconsin	5,686,986	5,783,015	6,005,080	6,203,850	6,375,910	6,476,270	6,491,635	804,649	14.1

Source: U.S. Bureau of the Census, 2010; WDOA Population Projections for Wisconsin Counties, 2015–2040; Manitowoc County Municipalities; and Bay-Lake Regional Planning Commission, 2014.

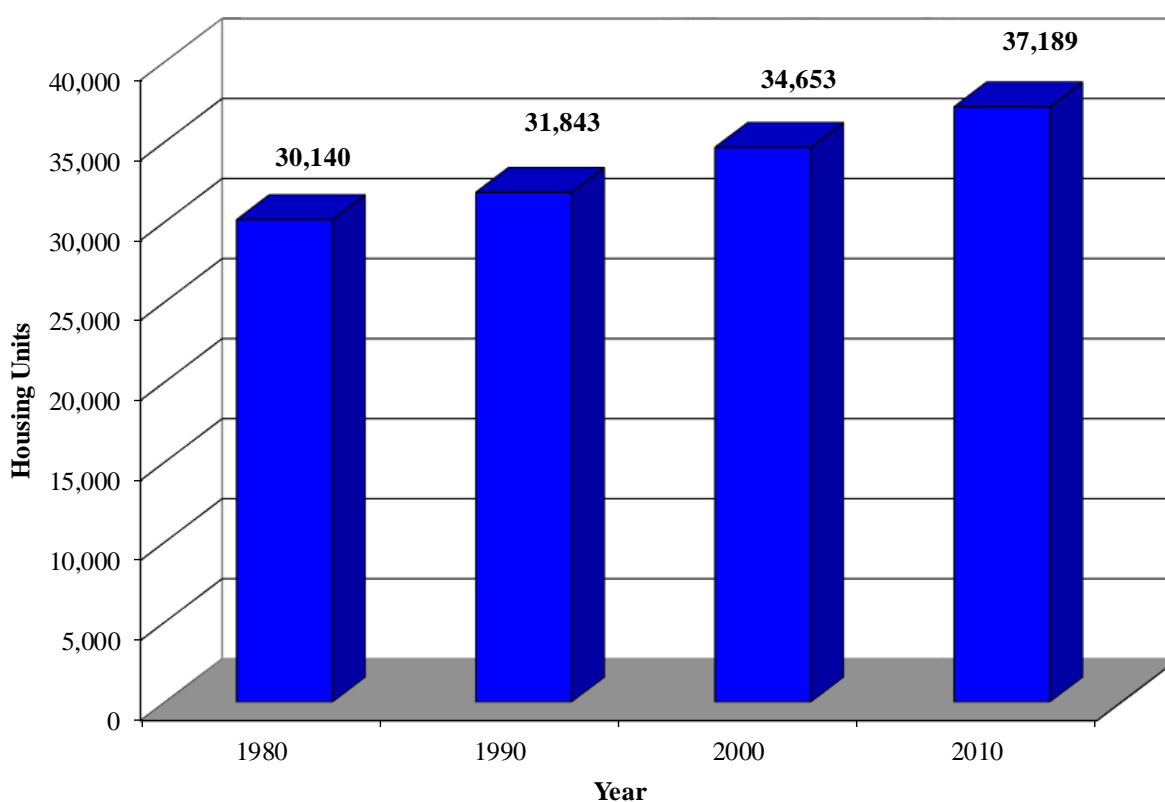
HOUSING

Housing Trend

Total housing units for Manitowoc County between 1980 and 2010 are displayed in Figure 2.3. Total housing units between 2000 and 2010 for all communities within Manitowoc County can be found in Table 2.3.

- Between 1980 and 2010, the total number of housing units in Manitowoc County increased by 23 percent. Manitowoc County has averaged slightly over 2,300 new housing units every 10 years since 1980. Over 63 percent of the housing units in the county are located in the cities and villages.

Figure 2.3: Historic Housing Unit Levels, Manitowoc County, 1980-2010



Source: U.S Bureau of the Census, 1980 - 2010; and Bay-Lake Regional Planning Commission, 2014.

Table 2.3: Total Housing Units, Manitowoc County and State of Wisconsin, 1980-2010

Geographic Location	Year				Number Change	Percent Change
	1980	1990	2000	2010	2000-2010	2000-2010
Town of Cato	461	505	571	621	50	8.8
Town of Centerville	265	243	262	283	21	8.0
Town of Cooperstown	352	418	486	520	34	7.0
Town of Eaton	242	272	288	345	57	19.8
Town of Franklin	399	443	491	537	46	9.4
Town of Gibson	443	478	495	577	82	16.6
Town of Kossuth	676	703	795	899	104	13.1
Town of Liberty	431	446	498	565	67	13.5
Town of Manitowoc	385	354	442	459	17	3.8
Town of Manitowoc Rapids	933	798	822	878	56	6.8
Town of Maple Grove	272	291	308	319	11	3.6
Town of Meeme	462	508	558	598	40	7.2
Town of Mishicot	408	449	489	520	31	6.3
Town of Newton	783	805	850	953	103	12.1
Town of Rockland	360	378	336	403	67	19.9
Town of Schleswig	709	779	871	965	94	10.8
Town of Two Creeks	164	166	202	195	-7	-3.5
Town of Two Rivers	838	770	766	825	59	7.7
Village of Cleveland	444	503	387	432	45	11.6
Village of Francis Creek	205	229	284	314	30	10.6
Village of Kellnersville	131	140	578	643	65	11.2
Village of Maribel	125	125	280	296	16	5.7
Village of Mishicot	500	503	168	172	4	2.4
Village of Reedsville	434	463	105	144	39	37.1
Village of St. Nazianz	262	275	614	663	49	8.0
Village of Valders	339	352	502	513	11	2.2
Village of Whitelaw	216	249	302	346	44	14.6
City of Kiel	1,003	1,051	1,349	1,551	202	15.0
City of Manitowoc	12,870	13,728	15,007	15,955	948	6.3
City of Two Rivers	5,000	5,414	5,547	5,698	151	2.7
Manitowoc County	30,140	31,843	34,653	37,189	2,536	7.3
Wisconsin	1,863,897	2,055,774	2,321,157	2,624,358	303,201	13.1

Source: U.S. Bureau of the Census, 1980-2010; and Bay-Lake Regional Planning Commission, 2014.

Household Forecasts

Manitowoc County's population is projected to fluctuate over the next several decades (see Table 2.3) gaining as many as 788 additional people by 2030 and then experiencing a decline of 3,300 between 2030 and 2040. In addition, average household size is expected to decline from 2.36 in 2010, to 2.18 by 2040. These projections can make it difficult to determine an approximate number of additional homes that could have an impact existing farmland. By utilizing the year of the county's largest projected population increase (2030) and utilizing that year's projected persons per household of 2.23, Manitowoc County could anticipate more than 350 new homes. The amount of agricultural land remaining in the county will be determined by where these additional housing units are located, along with housing density.

The WDOA projections can be impacted by many different factors, such as changes in municipal boundaries, housing availability, and economic development can have a substantial affect on population trends. These projections are important because they not only help to assess the area's future need for housing, but also community facilities, transportation, and other population-related facilities.

ECONOMIC GROWTH AND BUSINESS DEVELOPMENT

The economic growth portion of this chapter provides a summary of the county's labor force characteristics and economic base. Refer to the *Manitowoc County 20-Year Comprehensive Plan* for more detailed information on the county's economic characteristics including a summary of the county's economic strengths and weaknesses with respect to attracting and retaining businesses.

Labor Force

- Manitowoc County's labor force has decreased by 2.7 percent from 2008 to the 2013 figure of 43,370.
- According to the Wisconsin Workforce Development, the 2012 per capita personal income for Manitowoc County was \$40,394, which is a 13 percent increase since 2002.
- In 2012, the majority of employed county residents worked in manufacturing (30%) followed by education and health at 20 percent. Table 2.6 illustrates employment by major industry group for Manitowoc County.

Table 2.4: Percent Employment by Industry Group (Non Farm Industries), Manitowoc County, 2012

Industry	Number	Percent
Natural Resources	986	2.9
Construction	1,347	4.0
Manufacturing	10,045	30.0
Trade, Transportation, Utilities	6,162	18.4
Financial Activities	927	2.8
Professional and Business Services	2,034	6.1
Education and Health	6,711	20.0
Leisure and Hospitality	2,810	8.4
Other services (except public administration)	808	2.4
Public Administration	1,380	4.1
Information	314	0.9
Not assigned	0	NA
Total	33,524	100.0

Source: Wisconsin Workforce Development, 2013; and Bay-Lake RPC, 2014.

- With the exception of the construction sector and the trade, transportation, and utilities sector; each of Manitowoc County's industry annual average wages is lower than the state average.
- According to 2012 American Community Survey 1-Year Estimates, over 76 percent of the 39,667 employed Manitowoc County residents age 16 and older worked within Manitowoc County.

- The county's unemployment rate of 3.2 percent in 2000 was the lowest between 2000 and 2013, whereas the 2009 unemployment rate of 10.1 percent was the highest during this time period. The greatest shift occurred from 2008 to 2009, when the county's unemployment rate went from 4.9 to 10.1 percent due to the economic recession. The county's unemployment rate in 2013 was 7.3 percent.
- According to the Wisconsin Department of Workforce Development, nearly 67 percent of Manitowoc County's population, age 16 and older, were in the labor force as of 2012. This percentage is referred to as the labor force participation rate (LFPR).
- The five largest employers in Manitowoc County in 2012 were: Holy Family Memorial, Manitowoc Public School District, Nextera Energy Point Beach LLC, Manitowoc Cranes, and County of Manitowoc.

Industry and Employment Forecast

Industry and employment projections have been developed from the year 2010 to 2020 for the 11 county Bay Area Workforce Development district which consists of Brown, Door, Florence, Kewaunee, Manitowoc, Marinette, Menominee, Oconto, Outagamie, Shawano, and Sheboygan counties.

- As seen in Table 2.7, it is anticipated that there will be an overall 12 percent increase in full and part-time nonfarm employment from 2010 to 2020. The Professional and Business Services industries are expected to add 8,750 jobs for a 23 percent increase, followed by Leisure and Hospitality with 8,091 new jobs reflecting a 21 percent gain.

Table 2.5: Bay Area Workforce Development Employment Projections, 2010-2020

NAICS Code	Industry Title	2010 Annual Employment	2020 Projected Employment	Change (2010-2020)	Employment Percent
Total, All Nonfarm Employment		428,331	481,083	52,752	12.32
Goods-Producing		100,518	110,295	9,777	9.73
	Natural Resources and Mining / Construction	18,189	23,159	4,970	28.26
	Manufacturing	82,329	87,136	4,807	5.84
Services-Providing		298,752	340,027	41,275	13.82
	Trade, Transportation, and Utilities	74,502	81,018	6,516	8.75
420000	Wholesale Trade	15,272	16,872	1,600	10.48
440000	Retail Trade	42,750	45,409	2,659	6.22
480000	Transportation and Warehousing	14,236	16,574	2,338	16.42
	Information	5,105	5,503	398	7.80
	Financial Activities	23,010	26,489	3,479	15.12
520000	Finance and Insurance	20,343	23,483	3,140	15.44
530000	Real Estate and Rental and Leasing	2,667	3,006	339	12.71
	Professional and Business Services	37,366	46,116	8,750	23.42
540000	Professional, Scientific, and Technical Services	11,256	14,120	2,864	25.44
550000	Management of Companies and Enterprises	7,338	8,306	968	13.19
560000	Administrative and Support and Waste Management and Remediation Services	18,772	23,690	4,918	26.20
	Education and Health Services, including State and Local Government	74,548	86,007	11,459	15.37
610000	Educational Services, including State and Local government	27,149	28,795	1,646	6.06
620000	Health Care and Social Assistance, including State and Local Government	47,399	57,212	9,813	20.70
	Leisure and Hospitality	38,738	46,829	8,091	20.89
710000	Arts, Entertainment, and Recreation	5,131	5,784	653	12.73
720000	Accommodation and Food Services	33,607	41,045	7,438	22.13
	Other Services (Except Government)	22,375	24,880	2,505	11.20
	Government	23,108	23,185	77	0.33
Total Self-Employed and Unpaid Family Workers		29,061	30,761	1,700	5.85

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development October 2013.

Tourism

Manitowoc County is strategically located adjacent to one of Wisconsin's most valuable recreational and economic assets, Lake Michigan. Tourism is playing an increasing economic role in Manitowoc County. In 2013, travelers spent over \$107 million in Manitowoc County, a 6.3 percent increase from 2012. Manitowoc County ranked 23rd in the State of Wisconsin in visitor spending in 2013. Businesses that cater to these visitors such as motels, campgrounds, bed and breakfasts, 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.

Agriculture

Agriculture remains an important economic component in Manitowoc County. It includes hundreds of family-owned farms, 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 these farm products generates significant employment income opportunities for residents.

According to a 2014 UW-Extension Agricultural report entitled, *Manitowoc County Agriculture: Value & Economic Impact*, agriculture:

- Provides jobs for 5,105 county residents, or 11.5 percent of the county's total employment. Jobs include farm owners and managers, farm employees, veterinarians, crop and livestock consultants, feed, fuel and other crop input suppliers, farm machinery dealers, etc.
- Accounts for \$1.5 billion in economic activity and contributes \$360 million to the county's total income.
- Pays over \$16 million in taxes (not including all property taxes paid to local schools).

TRANSPORTATION

Streets and Highways

As of January 2014, there are over 1,506 miles of county and local streets and roads in Manitowoc County (this does not include the mileage of State trunk highways, Interstate highways, and U.S. marked highways found within the county). Of these, over 283 miles are under county jurisdiction, while nearly 1,223 miles 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. Due to the numerous highways located in the county, any future highway redevelopment/expansion projects that are planned should identify the agricultural and natural resources that may be impacted.

There are several basic considerations useful in assessing the existing street and highway system including functional classification and an evaluation of the system's capability to handle present and projected future traffic volumes. This information can provide an indication of the road and highway improvements that may be needed.

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. (Note: the functional classification of state trunk highways, Interstate highways, and U.S. marked highways, and their mileage are not included the following classifications).

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.

- There are approximately 40 miles of local and county arterial facilities that pass through Manitowoc County. The majority of these miles are found in the cities of Manitowoc and Two rivers and their surrounding towns.)

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 traffic from the local road and highways and provide relatively fast and efficient routes to farm markets, agricultural service centers and larger urban areas.

- Manitowoc County contains over 315 miles of collector facilities with 266 of these miles being under county jurisdiction. Some examples of collector facilities in Manitowoc County include County Highways A, B, BB, C, CR, J, JJ, K, LS, NN, Q, R, T, V, VV, W, X, XX, and Z.

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.

Rail Service

In Manitowoc County, the main 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. 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, Random Lake, and Saukville, which connects to a CN line to the south which travels to the Milwaukee area.

Air Service

Regional Airports

The primary commercial-passenger and air freight service for residents of Manitowoc County is provided by either General Mitchell International Airport located south of the City of Milwaukee or Austin Straubel International Airport located near the City of Green Bay.

Manitowoc County Airport

The Manitowoc County Airport, located on Freedom Way in the City of Manitowoc, covers nearly 500 acres. 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. Manitowoc County oversees all daily operations, financial planning and airport/runway development and maintenance.

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. Over 70 airplanes of various types are based at the airport, including jets, multi-engine aircraft, seaplanes and single-engine aircraft. Under a long-term contract with the county, Lakeshore Aviation manages commercial operations at the airport.

Private Airports

In Manitowoc County, there are five privately owned airstrips and several helipads. These small, private airport facilities offer minimal services, and are generally utilized by recreational fliers. Helipads were recorded for hospitals serving the Manitowoc-Two Rivers area.

Harbors

- 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. Major industrial and commercial businesses utilize the Manitowoc Harbor. In addition, 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.
- The Two Rives Harbor 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. Major uses of the harbor include charter and commercial fishermen, recreational boaters and fishermen

Trucking

The trucking industry provides efficient and safe transportation services and is an integral part of the Manitowoc County economy. All State and U.S. Highways, along with several County Trunk Highways in the county serve as truck routes. Commercial trucking terminals exist in the cities of Kiel, Manitowoc and Two Rivers, as well as in the Town of Newton.

Transportation Plans

Chapter 8 of the *Manitowoc County 20-Year Comprehensive Plan* provides a listing and description of various county, regional, and State transportation plans and the projects that will have an impact on Manitowoc County's transportation network.

UTILITIES AND COMMUNITY FACILITIES

Public utilities and community facilities are important infrastructure needed to support the county's agricultural community along with a healthy, safe, and sustainable environment for businesses and individuals to live and work. The availability, quality, and level of services (e.g., sanitary sewer service, storm water management, water supply, recycling facilities, and public facilities, such as police, fire, and rescue facilities; and schools) are all contributing factors that attract and retain families and businesses in a community.

Sanitary Sewer Service

Sanitary Districts

A sanitary district is an independent special district which provides wastewater collection, treatment, and disposal services to residents and businesses in a pre-determined geographic area.

Sanitary districts serving communities in Manitowoc County:

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

Established sanitary districts, but no 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

The Sewer Service Area (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, encompasses both cities along with the Village of Mishicot.

Wastewater Treatment

Manitowoc County has 12 municipal wastewater treatment systems that are permitted through the Wisconsin Pollutant Discharge Elimination System (WPDES) permit program.

Private Onsite Wastewater Treatment Systems

The most common private onsite wastewater treatment systems (POWTS), also known as “septic systems”, in Manitowoc County are conventional seepage trenches; mound systems; and at-grade systems. Holding tanks are also regulated as a POWTS.

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

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

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.

Manitowoc County towns and the Village of Francis Creek do not provide a public supply of drinking water.

Wellhead Protection

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.

Well Casing Requirements

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 of the *Manitowoc County 20-Year Comprehensive Plan*). 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.

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

Community Facilities and Services

Many of the county's departments and facilities are located within the City of Manitowoc including the County Administration Building, the County Courthouse, the County Office Complex, the Manitowoc County Expo, the Sheriff's Department, and the Human Services Department. The following is a summary of several of the facilities and services that are provided and available to county residents. Refer to Chapter 9 of the *Manitowoc County 20-Year Comprehensive Plan* for more detailed information on the following items.

- The Manitowoc County Sheriff Department provides 24-hour law enforcement services to a majority of the communities of the county. Assistance is also provided to the fire departments, rescue squads, and city and village police departments in the county including City of Manitowoc, Cleveland, Kiel, Mishicot, Reedsville, St. Nazianz, Two Rivers, and Valders. These police departments work together to provide law enforcement services to the entire County.
- Fire protection for Manitowoc County communities is provided by 25 fire departments (Map 9.2 of the County's Comprehensive Plan).
- All areas of Manitowoc County are covered by six municipal based EMS/ambulance service providers in or adjacent to Manitowoc County (see Chapter 9 of the *Manitowoc County 20-Year Comprehensive Plan*). In addition, there are nine state licensed first responder units throughout the County.

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

- Holy Family Memorial Medical Center in the City of Manitowoc and the Aurora Medical Center in the City of Two Rivers offer a full range of medical services to Manitowoc County residents.
- Manitowoc County is located within 12 public school districts, with six of these districts maintaining facilities within Manitowoc County. Chapter 9 of the *Manitowoc County 20-Year Comprehensive Plan* details these facilities and displays a map of the school districts within Manitowoc County. In addition, 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.
 - Post-Secondary Institutions in Manitowoc County include Silver Lake College, Lakeshore Technical College, and University of Wisconsin-Manitowoc.

Waste Management

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.

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 Manitowoc Recycling Center located in the Town of Manitowoc Rapids also maintains a residential recycling drop-off area that is intended for use by all county residents.

ENERGY

Electric Power

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. The City of Two Rivers purchases its electric necessities from Wisconsin Public Power Inc. (WPPI).

Overhead transmission lines, owned by American Transmission Company, consist of three 345 kV lines, three 138 kV lines, and one 69 kV line running through Manitowoc County. Chapter 9 of the *Manitowoc County 20-Year Comprehensive Plan* provides for more information as well as a map detailing the location of the transmission lines.

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.

Alternative Energy

- The Lakeshore Technical College Wind Generation Facility located in the Village of Cleveland.
- Compressed Natural Gas generated from anaerobic digesters.
- 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.

COMMUNICATIONS

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

Internet service may be accessed through a telephone or cable company, while some of the satellite companies are providing high-speed internet access to subscribers. In addition, internet is available at many commercial/businesses through WiFi, or via mobile broadband which have become a prominent fixture in our world through cellular phones, laptops, tablet computers, etc.

MUNICIPAL EXPANSION

Municipal expansion occurs through annexation and most often results in the loss of quality agricultural land. Manitowoc County consists of 12 incorporated communities, along with sanitary sewer districts, the Manitowoc-Two Rivers Sewer Service Area, etc. Surrounding towns should be aware of changing land uses and the impacts on agricultural and natural resource lands. The use of boundary agreements and extraterritorial review should be explored as development pressures increase near the municipal borders.

The Comprehensive Plan of Manitowoc County and its municipalities should be reviewed regularly to ensure the lands allocated for future development continue to meet the community's vision for growth and preservation of valuable agriculture and natural resources. According to the Manitowoc County Comprehensive Plan, lands allocated for future development are envisioned to be concentrated in and around cities, villages, and communities, which are already served, or planned to be serviced, by public sewer, water, along with easy access to highways. Based on the WDOA population projections released in 2013, Manitowoc County's population is expected to decrease by 2,522 persons from 2010 to 2040. Overall 17 of the county's 30 communities are expected to experience fluctuations and an overall decrease in their population by 2040 (Table 2.3). These projections can make it difficult to determine the impacts that future development (e.g., homes, businesses, infrastructure, etc.) could have on existing farmland. With the Manitowoc-Two Rivers urbanized area containing the majority of the existing population; that portion of the county is envisioned to experience most of the development in the next 20 years, while the unincorporated areas of Manitowoc County will likely remain in agriculture and natural areas over the next 20 years.

ENVIRONMENTAL PRESERVATION

In an effort to promote preservation of areas with environmental significance from other land use influences, Manitowoc County utilizes a guidance tool referred to as “environmental corridors”. Environmental corridors are based on the delineation of environmental features adjacent to waterways and water-related resources. The various elements that make up 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. Primary elements that make up environmental corridors 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

Additional information on environmental corridors and other significant environmental features in Manitowoc County is discussed in Chapter 3 of this Farmland Preservation Plan.

CHAPTER 3: LAND USE AND NATURAL RESOURCES

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EXISTING LAND USE

County Land Use Inventory

The county's most recent land use inventory was conducted in 2008 during the Manitowoc County Comprehensive Planning project by the Bay-Lake Regional Planning Commission. Since the existing land use survey was completed in 2008 as a windshield survey, some of the acreage likely has increased and/or decreased. However, this land use survey will still give a general perspective of the acreage the various land uses consume in the county. The amount of existing land uses by general type and distribution within the County are shown in Table 3.1.

As summarized in Table 3.1 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.

- Nearly 86 percent of Manitowoc County's 381,500 acres is classified as undeveloped, while existing development covers under 14 percent of the county.
- The largest amount of total land in Manitowoc County was used for agriculture related uses (cropland/pasture and agriculture structures), followed by woodlands. Cropland/pasture make up 56 percent of all the land in Manitowoc County.
- Together, residential development and the transportation network comprise 64 percent of the developed land uses in the county.

Refer to the *Manitowoc County 20-Year Comprehensive Plan* for more information regarding Manitowoc County's land use inventory calculations and to view the land use inventory map (Map 10.2).

Table 3.1: 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, including Open Space	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, 2014.

In addition to 2008 land use survey for agricultural land, the USDA – National Agricultural Statistics Service publishes the Census of Agriculture. According to the most recent Census of Agriculture for Wisconsin, in 2012 there were 230,735 acres of land in farms in Manitowoc County (see Table 4.1). Using this figure, over 60 percent of the county had land in farms in 2012. Looking back to the prior Census of Agriculture in 2002, there were 257,111 acres of land in farms, and in 2007 there were 248,238 acres were in farmland. From 2002 to 2012 there was a decrease of 26,400 acres of land in farms, which represents a 10.3 percent decrease during that time span.

The USDA reports of 2007 and 2012 illustrate a larger amount of land in farms than the 2008 Bay-Lake RPC inventory. This may be due to the Census of Agriculture’s definition of a farm, which is “any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year.” This definition of a farm would allow for more land to be considered a farm that traditionally may not be considered a farmland.

SOIL AND WATER RESOURCES

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

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 significant in the county, 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. 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. Refer to Map 5.1 of the *Manitowoc County 20-Year Comprehensive Plan* for an illustration of these geologic features.

Manitowoc County is covered by glacial deposits consisting primarily of 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.

The general 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.

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.

General Soils Descriptions

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 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, SPS 383 allows new technologies for private on-site wastewater treatment systems. Additional housing and greater population densities may be a result of the SPS 383 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.

SPS 383

SPS 383 safety and professional services 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 SPS 383 refer to the Wisconsin Administrative Code, Chapter SPS 383.

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.

- There are 131,777 acres in Manitowoc County that are classified as Prime Farmland based on the NRCS soil types. Refer to Map 5.11 of the *Manitowoc County 20-Year Comprehensive Plan* for an illustration of the Prime Farmland found in the county.

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.

WATER RESOURCES

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.

Manitowoc County lakes and ponds greater than 20 surface acres along with the major rivers and tributaries are listed in Chapter 5 of the *Manitowoc County 20-Year Comprehensive Plan*. A complete list of lakes and ponds located in the county is also found in Appendix A of *Volume II: Manitowoc County Resources* of the county's comprehensive plan.

- Branch River and Millhome Creek are designated 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.

- Manitowoc County also contains several impaired waters, meaning the state’s water quality standards are not being met. See Appendix A of *Volume II: Manitowoc County Resources* within the county comprehensive plan for a listing of impaired waters in Manitowoc County.

Watersheds

Manitowoc County consists of ten subwatersheds which are part of three watershed basins (Lakeshore, Lower Fox River, and Sheboygan basins). Refer to Map 5.4 of the *Manitowoc County 20-Year Comprehensive Plan* for an illustration of the watersheds in Manitowoc County.

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.

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.

Groundwater Resources

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.

In Wisconsin, potential sources of groundwater contamination include municipal landfills, leaky underground storage tanks, abandoned hazardous waste sites, hazardous/toxic spills, septic tanks, and land application of wastewater, and agricultural activities. The most common groundwater contaminant is nitrate-nitrogen, which comes from fertilizers, animal waste storage sites and feedlots, municipal and industrial wastewater and sludge disposal, refuse disposal areas, and leaking septic systems.

Wetlands

Wetlands serve many functions including:

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

- Map 5.7 of the *Manitowoc County 20-Year Comprehensive Plan* 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

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*. This same authority is also vested to cities and villages in Chapter 62.23 of the *Wisconsin Statutes*.

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

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.

Significant Natural Features

The following sites located within Manitowoc County may be considered significant natural features and designated as a WDNR State Natural Area, a State Wildlife and Fishery Area, Significant Coastal Wetlands, or a Land Legacy Place.

Table 3.2: Significant Natural Features, Manitowoc County

Significant Natural Feature	Designation				
	State Natural Area	State Wildlife and Fishery Area	Significant Coastal Wetland	Land Legacy Place	Natural Area Inventory
Camp Vits					X
Cherney Maribel Caves	X				
Cleveland Hardwood Swamp			X	X	
Collins Marsh Wildlife Area		X			
Fischer-Centerville Creeks Area			X		
Fischer Creek				X	
Glonski Lake					X
Kiel Marsh Wildlife Area		X			
Lakeshore Technical College Maple Woods					X
Little Manitowoc River			X		
Little Mud Lake					X
Manitowoc-Branch River				X	
Millhome Woods				X	
Point Beach and Dunes			X	X	
Point Beach Ridges	X				X
Point Creek			X	X	
Silver-Calvin Creek			X		
Sugarbush Woods					X
Twin River Marsh					X
Twin Rivers				X	
Two Creeks Buried Forest	X				X
VanderBloemen Bog	X				
Wet Mesic Woods					X
Weyers Lake					X
Wilderness Ridge	X				X
Woodland Dunes	X				X

Source: Wisconsin Department of Natural Resources, 2013; Bay-Lake Regional Planning Commission, 2014.

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 *Manitowoc County 20-Year Comprehensive Plan* illustrates the environmental corridors of Manitowoc County which 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.

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CHAPTER 4: AGRICULTURAL TRENDS AND RESOURCES

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AGRICULTURAL LAND USE

In a 2008 land use inventory conducted by Bay-Lake Regional Planning Commission; 220,393 acres of land, or 58 percent of all land, in Manitowoc County (Table 3.1) was used for agricultural purposes. However, according to the most recent Census of Agriculture for Wisconsin, in 2012 there were 230,735 acres of land in farms in Manitowoc County (see Table 4.1). Using this figure, over 60 percent of the county had land in farms in 2012. Looking back to the prior Census of Agriculture in 2002, there were 257,111 acres of land in farms, and in 2007 there were 248,238 acres were in farmland. From 2002 to 2012 there was a decrease of 26,400 acres of land in farms, which represents a 10.3 percent decrease during that time span (Table 4.1).

The USDA reports of 2007 and 2012 illustrate a larger amount of land in farms than the 2008 Bay-Lake RPC inventory. This may be due to the Census of Agriculture's definition of a farm, which is "any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year." This definition of a farm would allow for more land to be considered a farm that traditionally may not be considered a farmland.

TRENDS IN AGRICULTURE

Farm Size and Numbers

The USDA Census of Agriculture determined the number of farms in Manitowoc County has decreased by nearly 17 percent between 2002 and 2012 (Table 4.1). However, the average acreage of farms increased from 2002 to 2012 by eight percent during the same time period.

Table 4.1: Farm Statistics in Manitowoc County, 2002-2012.

	2002	2007	2012	Percent Change 2007-2012
Number of Farms	1,469	1,444	1,224	(15.24)
Average Size of Farms (acres)	175	172	189	9.88
Total Land in Farms (acres)	257,111	248,238	230,735	(7.05)

USDA, Census of Agriculture, 2002, 2007, and 2012.

Concentrated Animal Feeding Operations

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.

- As of 2014, there were 14 WPDES CAFO permittees located in Manitowoc County. All 14 CAFO's are dairy operations (see Map 4.1).

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

Livestock Siting

Wisconsin's livestock facility siting rule (Wis. Admin. Code Ch. ATCP 51) provides State standards and procedures local governments must use if they choose to require conditional use or other permits for siting new and expanded livestock operations. Refer to Chapter 28 (Livestock

Facility Licensing) of the *Manitowoc County Code*, which establishes standards and procedures for the issuance of licenses for new and expanded livestock facilities with more than 750 animal units as well as waste storage facilities in the county.

- As of 2014, there were 21 licensed livestock facilities within Manitowoc County.

Hobby Farms

A hobby farm is a small farm that is maintained without expectation of being a primary source of income. Some hobby farms are simply for fun and recreation. Others grow products for themselves and their families, or are managed as working farms for side income by using land for the growing of crops, including nursery and horticultural crops, berry crops, maple syrup production; or the raising of a limited number of animals, poultry, or bees. While there is no firm data on the number of hobby farms in Manitowoc County, it is known that the number of hobby farms has been increasing. In 2012, hobby farms accounted for over 50 percent of all of the farms in the United States.

Conversion of Agricultural Lands to Other Uses

The amount of agricultural land sold over a period of time is a good indicator of how much development has taken place. Table 4.2 indicates that 2,496 acres of agricultural land was sold between 2007 and 2012 in Manitowoc County.

As Table 4.2 illustrates, 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.

- Only five percent (127 acres) of the 2,496 acres of agricultural land sold in the county between 2007 and 2012 was converted to non-agricultural uses.

Table 4.2: Manitowoc County Agricultural Land Sales, 2007-2012

	Agricultural Land Continuing in Agricultural Use			Agricultural Land Being Diverted to Other Uses			Total of all Agricultural Land		
Year	Number of Transactions	Acres Sold	Dollars per Acre	Number of Transactions	Acres Sold	Dollars per Acre	Number of Transactions	Acres Sold	Dollars per Acre
2007	43	1,974	\$3,358	1	60	\$7,050	44	2,034	\$3,467
2008	54	3,100	\$5,033	---	---	---	54	3,100	\$5,033
2009	30	1,894	\$5,156	---	---	---	30	1,894	\$5,156
2010	32	2,045	\$5,133	---	---	---	32	2,045	\$5,133
2011	38	3,546	\$5,721	1	67	\$6,946	39	3,613	\$5,744
2012	36	2,287	\$6,470	---	---	---	36	2,287	\$6,470
Average 2007-2012	38.8	2,474	\$5,145	0.3	21.2	\$2,333	39.2	2,496	\$5,167

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

Source: Wisconsin Agricultural Statistical Service, 2007 - 2012.

Farm Operator Demographics

The following is demographic data related to farm operators based on the 2007 and 2012 Census of Agriculture for Manitowoc County.

- There were 1,907 total farm operators in Manitowoc County in 2012, which is a decrease from the 2,254 operators in 2007 (Table 4.3).
- The average number of years on the present farm for principal operators in Manitowoc County was 24.1 in 2012, while the average age of the farm operators in 2012 was 56.4.

Table 4.3: Farm Operator Demographics, Manitowoc County, 2007 and 2012.

Year	Total Farm Operators	Total Female Operators	Principal Farm Operators		Average Number of Years on Present Farm for Principal Operators	Average Age of Farm Operators
			Male	Female		
2007	2,254	690	1,271	173	22.7	53.9
2012	1,907	539	1,117	107	24.1	56.4

Source: USDA Census of Agriculture, 2007 & 2012.

- Table 4.4 illustrates the organizational structure of all farms in Manitowoc County in 2007 and 2012. In 2012, individuals or families operate 87.3 percent of the farms in Manitowoc County, while 6.7 percent are family partnerships, 4.2 percent being family corporations, and less than one percent consisting of non-family corporations or other.

Table 4.4: Farm Organization in Manitowoc County, 2007 and 2012.

Type	2007	2012
Individuals or Families	1,280	1,068
Partnerships	106	83
Family Corporations	44	51
Non-Family Corporations	8	5

Source: USDA Census of Agriculture, 2007 & 2012.

AGRICULTURAL USES OF LAND

Manitowoc County continues to be a valuable contributor to Wisconsin's agricultural landscape and the products produced in the county have a large economic impact. This portion of the chapter provides a summary of prevalent agricultural commodities in Manitowoc County as well as the variety of products produced in the county.

Table 4.5 is a listing of the majority of the top agricultural commodities based on the 2007 and 2012 Census of Agriculture, while Table 4.6 displays the sales by dollar value of the primary commodities of Manitowoc County according to the 2007 and 2012 USDA Census of Agriculture.

Table 4.5: Farm Numbers and Types

Livestock and Poultry				
	2007		2012	
Type	Number of Farms	Total Animals	Number of Farms	Total Animals
Milk cows	318	45,704	268	52,502
Beef cows	182	1,908	143	2,349
Horses and Ponies	295	1,927	207	1,116
Goats (milk and angora)	70	1,033	36	1,585
Hogs and pigs	53	1,451	31	330
Sheep and lambs	53	1,770	1268	1,573
Broilers and other poultry	23	1,800	24	2,584
Harvested Crops				
	2007		2012	
Type	Number of Farms	Total Acreage	Number of Farms	Total Acreage
Forage*	778	63,082	658	56,994
Corn for grain	465	43,457	431	36,462
Corn for silage or greenchop	359	27,906	347	35,482
Soybeans	314	22,370	349	23,611
Wheat	324	17,972	294	15,657
Oats	205	5,032	130	3,062
Vegetables harvested for sale	89	5,124	56	2,788

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

Source: USDA Census of Agriculture, 2007 and 2012.

Dairy Farming

- According to the USDA Census of Agriculture, there were 372 dairy farms and 42,462 milk cows in Manitowoc County in 2002. Table 4.5 illustrates the decline in the number of dairy farms in Manitowoc County during the 2007 and 2012 USDA Census of Agriculture (318 and 268 respectively), however the number of milk cows have increased during those Census counts. This reflects a continuing trend of declining small dairy farms and the increase in the number of large dairy operations over the past decade. The 2012 Census of Agriculture shows Wisconsin had 10,400 dairy farms in 2012, down from more than 13,000 in 2007. However, approximately 20,000 dairy cows were added in the State from 2007 to 2012 to bring the number to about 1,270,000.
- The following lists the milk production (in pounds) in Manitowoc County based on the Wisconsin Agricultural Statistics Service and UW-Extension:
 - 2002: 827 million pounds.
 - 2007: 1.030 billion pounds.
 - 2012: 1.275 billion pounds, or an average of 25,000 pounds per cow. Manitowoc County ranked fourth in the State in total annual milk production and milk production per cow in 2012.
- Milk and other dairy products from cows accounted for Manitowoc County's top commodity in 2012 with \$226 million in sales (Table 4.6), ranking fourth place among the counties in the State of Wisconsin.

Table 4.6: Top Commodities, Manitowoc County, 2012.

Product	Value (Million \$)
Milk	226.0
Grains	58.4
Cattle and calves	35.1
Other Crops and Hay	7.5
Vegatables	6.2

Source: USDA Census of Agriculture, 2012.

Crops

The majority of the crops grown in Manitowoc County are grown for grain. The majority of all corn, wheat, and oats are for grain purposes. Corn is grown for both grain and silage purposes. Soybeans are another popular crop, primarily for the bean's oil. Forage is also land harvested for hay and haylage, silage, and green chop. Table 4.5 illustrates the agricultural production of the most productive crop commodities in Manitowoc County based on the 2007 and 2012 Census of Agriculture. In 2012, Manitowoc County crops accounted for \$74.8 million in sales, \$58.4 million from grains. The following data is according to the 2012 Census of Agriculture, unless another source is indicated:

- *Forage:* In 2012, forage covered 56,994 acres of land in Manitowoc County producing 221,742 tons of hay and haylage, silage, and green chop.
- *Corn:* In 2012, corn for grain covered 36,462 acres of the county, second only to forage. Corn for grain produced over 5.7 million bushels in 2012.
- *Soybeans:* In 2012, 23,611 acres of soybeans were harvested yielding 1.2 million bushels.
- *Wheat:* In 2012, 15,657 acres of wheat were harvested yielding 1.1 million bushels. The acreage of wheat being harvested for grain ranks second in the State of Wisconsin.
- *Oats:* In 2012, oats for grain covered 3,062 acres of the county, producing of over 193,000 bushels.
- *Barley:* In 2012, 267 acres of barley was harvested yielding 10,719 bushels.
- *Horticulture:* Horticulture involves intensive plant cultivation for human use is very diverse in its activities, incorporating plants for food (fruits, vegetables, etc.) and non-food crops (flowers, trees and shrubs, etc.). It also includes related services in plant conservation, landscape restoration, landscape and garden design/construction/maintenance. Horticulture generated nearly \$9 million in sales in Manitowoc County in 2012.
 - *Vegetables:* The County contained 56 farms covering 2,788 acres of land for vegetables in 2012, compared to 89 farms using 5,124 acres of land in 2007.
 - *Fruits and berries:* In 2012, 34 farms accounted for over 80 acres of land dedicated to producing fruits. Eight farms utilized 36 acres to grow berries in the county, primarily strawberries. Overall, fruits and berries in Manitowoc County accounted for \$247,000 in 2012.

- *Floriculture or flower farming*: The 2012 Census of Agriculture reports a total of 11 farms producing floriculture crops selling products for over \$1.8 million. Bedding/gardening plants were the most popular products in Manitowoc County.
- In 2012, *nursery stock* contributed to \$2.4 million in sales. Ten farms in the county contained nursery stock. One farm *harvested sod* and 12 farms reportedly grow *Christmas trees*.
- *Orchards*: Manitowoc County contained 12 farms that covered 42 acres of land in 2012.
- 12 *maple syrup* farms produced 332 gallons of syrup in 2012, versus 17 farms producing 415 gallons in 2007.

Livestock and Poultry

The 2012 Census of Agriculture revealed that the value of livestock, poultry, and their products in Manitowoc County accounted for \$269 million in sales. Beef, chicken, and pork are the most prevalent farm produced meats. In addition, some animals are valued more for their hair or hide than their meat. The following data is according to the 2012 Census of Agriculture, unless another source is indicated:

- *Cattle and Calves*: Between 2007 and 2012, the total number of cattle and calves in Manitowoc County increased from 97,330 to 113,863. Cattle and calves accounted for \$35.1 million in sales in 2012.
- *Hogs and Pigs*: From 2007 to 2012, Manitowoc County's hog and pig farms declined by nearly 44 percent (62 to 35) during the time period resulting in the total number of hogs and pigs to drop from 1,451 to 330.
- *Poultry*: All poultry farms decreased in the county from 135 in 2007 to 121 in 2012. The largest increase was in the number of broilers and other meat type chickens, which increased from 1,800 in 2007 to 2,584 in 2012.
- *Goats and Sheep*: The number of goats in Manitowoc County in 2012 was 1,585 on 36 farms. Eleven of these farms contained milk goats. Also the county contained 33 farms with sheep and lamb in 2012, down from 53 in 2007. There was a total of 1,268 sheep and lamb in 2012, compared to 1,770 in 2007. In 2012, 27 of the farms reported selling 7,078 pounds of wool, down 38 percent from 2007. Overall, goats, sheep and their products in Manitowoc County accounted for \$427,000 in 2012.
- *Other Livestock / Animal Species*: Manitowoc County contained nine alpaca farms containing 265 animals in 2012. Also five farms contained 41 llamas and 125 elk were found on five farms in the county in 2012. Several other farms in the county contain deer and bison.

Bee Colonies

Manitowoc County contained 19 farms with bee colonies in 2012. Eleven of these farms collected 11,447 pounds of honey according to the 2012 Census of Agriculture.

Organic Agriculture

Based on the 2012 Census of Agriculture, Manitowoc County had 20 farms that are USDA National Organic Program certified for organic production along with four farms that were USDA National Organic Program organic production exempt from certification. Organic product

sales in Manitowoc County for 2012 was over \$2.3 million. In 2012, the State of Wisconsin contained 1,137 USDA National Organic Program certified organic farms and an additional 205 organic farms that are exempt from the USDA National Organic Program certification.

Biomass

According to the 2012 Census of Agriculture, four farms in Manitowoc County harvested biomass for use in renewable energy.

Conservation Practices

In 2012, the Census of Agriculture for the first time asked whether producers applied specific practices to conserve the farmland or improve the productivity of their cropland. Such practices protect land from water and wind erosion, improve water quality, provide wildlife habitat, and reduce producers' operating costs by reducing the number of trips over fields.

- In 2012, 82 farms in Manitowoc County practiced rotational grazing (i.e., dividing larger pastures into smaller units to rest the pasture and improve forage), while one farm engaged in alley cropping or silvopasture (i.e., combining livestock, forage, and tree production on the same acreage; ultimately protecting the soil from wind and water erosion, improving water quality, and increasing wildlife diversity).

AGRICULTURAL INFRASTRUCTURE

Manitowoc County's agriculture industry has a larger impact to the County than just producing milk or livestock. The agriculture industry needs infrastructure to operate, which in turn, provides economic opportunities for other businesses. For instance, farmers need to have convenient access to supplies including machinery to work their fields, seeds to plant, feed for their animals, places to store grain, veterinarians to check on animals, etc. Over the past 10-15 years the county's agricultural infrastructure has experienced changes, including more specialized agricultural business (e.g., a dedicated cattle hoof trimmer versus veterinarians providing the service); fewer machinery dealers; and more dairy nutritionists and crop consultants that are independent, as opposed to being affiliated with feed mills/co-ops. While Manitowoc County's agricultural infrastructure has encountered several changes over the years, the current infrastructure is sufficient in meeting the needs of the county's farmers.

The following is a list of agricultural infrastructure facilities and service providers that are currently found in Manitowoc County. This is not a comprehensive list; however it provides examples of the various key facilities and the services offered for Manitowoc County farmers.

- | | |
|-----------------------------------|--|
| • Implement/Equipment Dealerships | • Veterinary Services |
| • Feed Mills/Storage/Fertilizer | • Custom Operators (e.g., Hauling, Harvesting, Tillage, Planting, Spraying) |
| • Farmer Co-ops | • Agronomy Services, (e.g., Soil Testing) |
| • Milk Processing | • Government Agriculture Services/Agencies (e.g., Education, Nutritional Services) |
| • Cheese Processing | • Farm Management Services |
| • Milk Hauling | • Genetics and Insemination |
| • Livestock Transport | • Farmers Markets |
| • Feed Transport | • Grocery Stores |
| • Grain Storage | • Engineering and Building Consultants |
| • Meat Processing | • Agricultural Lenders |
| • Canning | |
| • Fuel Suppliers | |

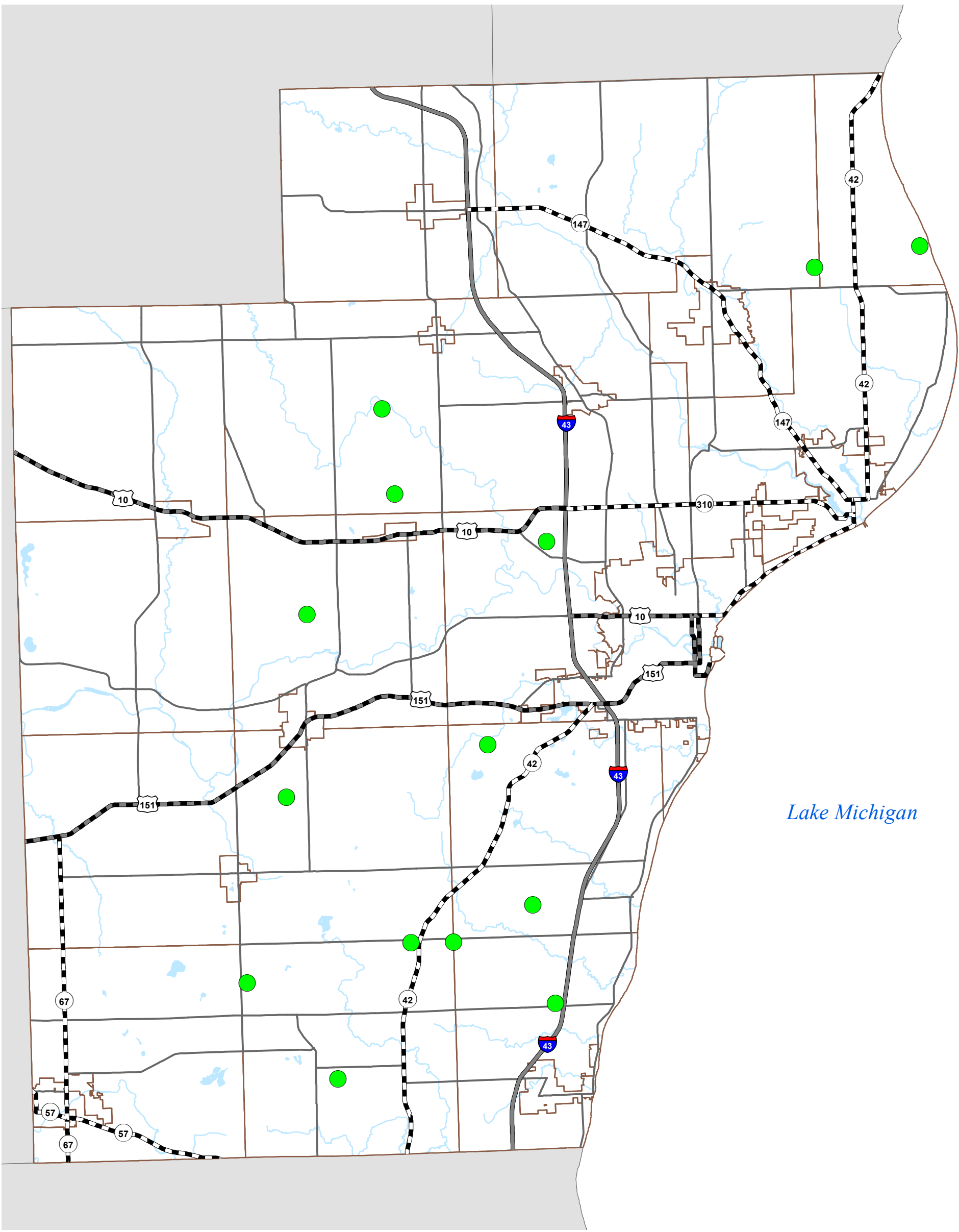
Transportation

- Vital components of Manitowoc County's transportation infrastructure include just under 13 miles of freeways and arterial facilities including Interstate 43, U.S. Highways 10 and 151, and State Highways 32/57, 42, 67, 147, and 310. Manitowoc County also contains over 315 miles of collector facilities. A more detailed description of Manitowoc County's transportation infrastructure can be found in Chapter 2 of this plan.


CAFO Dairy Farms

Manitowoc County Farmland Preservation Plan

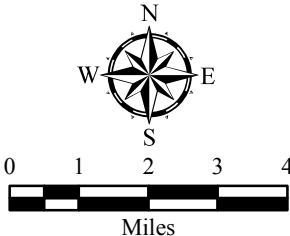
Manitowoc County, WI



- Base Map Features**
- Interstate Highway
 - U.S. Highway
 - State Highway
 - County Road
 - Surface Water

 Permitted CAFO*

*CAFO is a Concentrated Animal Feeding Operation containing 1,000 or more animal units of livestock or poultry.



G:\Manitowoc\County\Farmland_Preservation\Farm_Pres_2014
Source: WDOT, 2009; Manitowoc County, 2014; Bay-Lake Regional Planning Commission, 2014.

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.

CHAPTER 5: **FARMLAND PRESERVATION AREAS**

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FARMLAND PRESERVATION MAP

The Manitowoc County Farmland Preservation Map is the result of a cooperative effort between Manitowoc County staff and town officials. In order to collect valuable input during the planning process, town officials were requested to review and update farmland preservation maps for their communities. Staff from the Manitowoc County Planning and Zoning Department, Manitowoc County Soil and Water Conservation, and the Bay-Lake Regional Planning Commission provided support, as requested, through a variety of informational meetings. Once local maps were completed, the maps were then compiled to form the county's Farmland Preservation Map.

The Manitowoc County Farmland Preservation Map was developed for the entire county; however, the county's map is displayed as individual Town maps to illustrate the details for each town (Maps 5.1 to 5.18).

Farmland Preservation Areas

The following criteria were established by the Manitowoc County Planning and Zoning Department to determine the "Farmland Preservation Areas" on the Manitowoc County Farmland Preservation Map (Maps 5.1 thru 5.13).

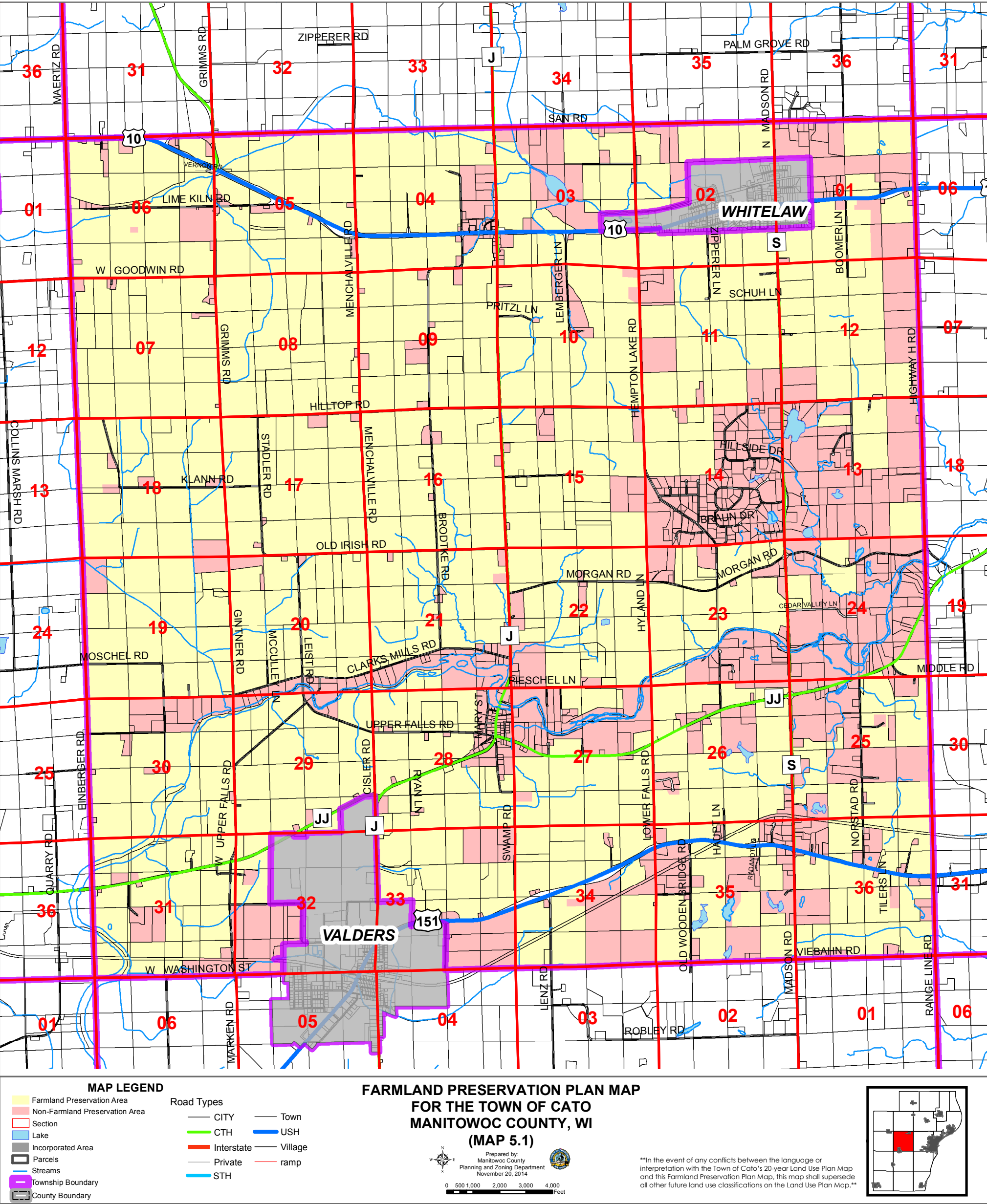
- Whether the land has historically been used for agricultural use or agriculture-related use.
- Lands containing soils are suitable for agricultural production; including prime soils, soils of statewide significance, or soils of local significance (as illustrated on Map 5.11 of the *Manitowoc County 20-Year Comprehensive Plan*).
- Lands identified as existing and proposed resource conservation areas and scientific and natural areas.
- Significant environmental features including floodplains, wetlands, and woodlands for their natural aesthetics as well as their environmental attributes.
- Mineral extraction sites.
- Lands identified as "agriculture areas" and "woodlands/natural areas" on the 20-Year Land Use Plan map (Map 3.1) of the *Manitowoc County 20-Year Comprehensive Plan*, as well as locally adopted comprehensive plan maps.

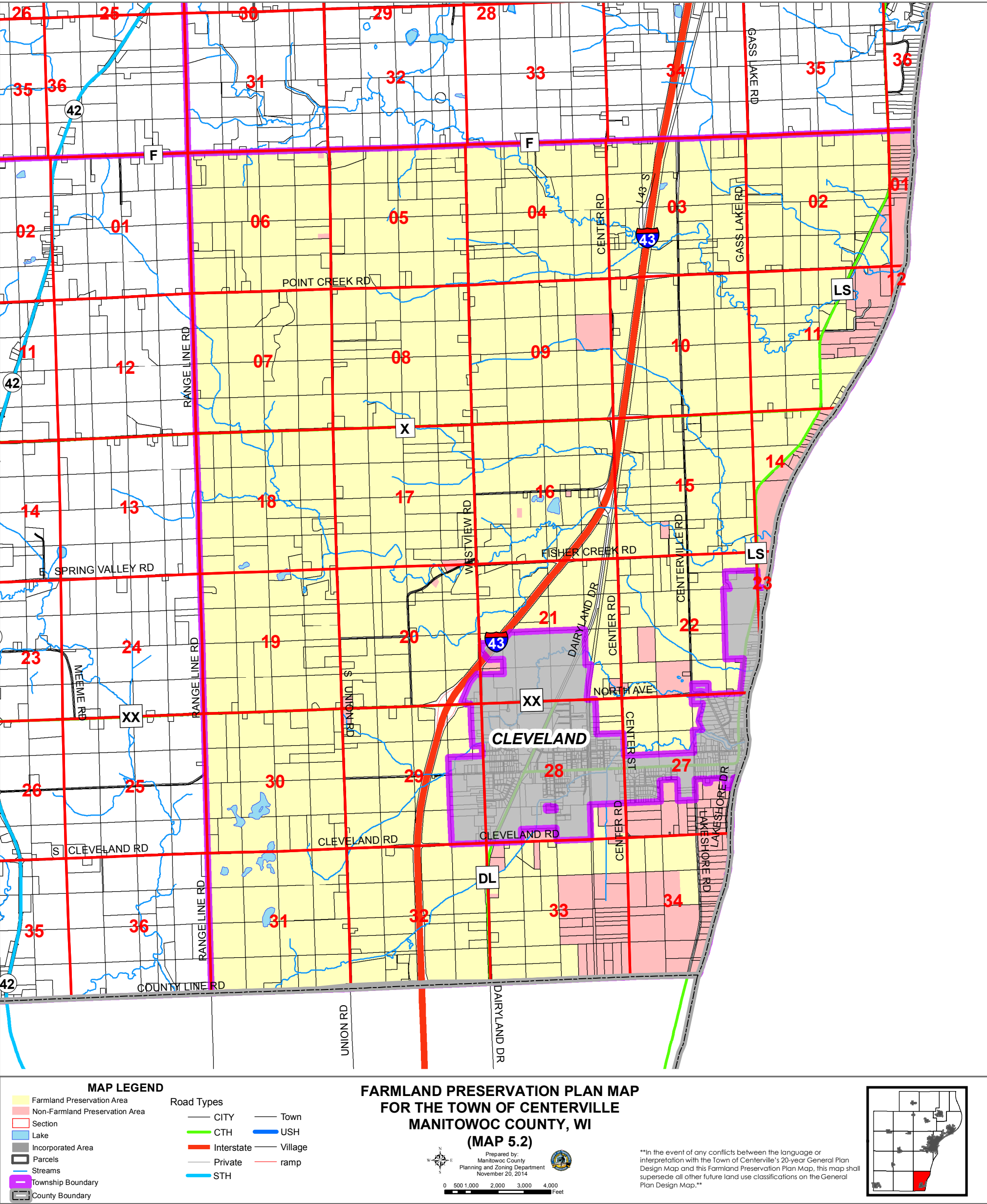
Non-Farmland Preservation Areas

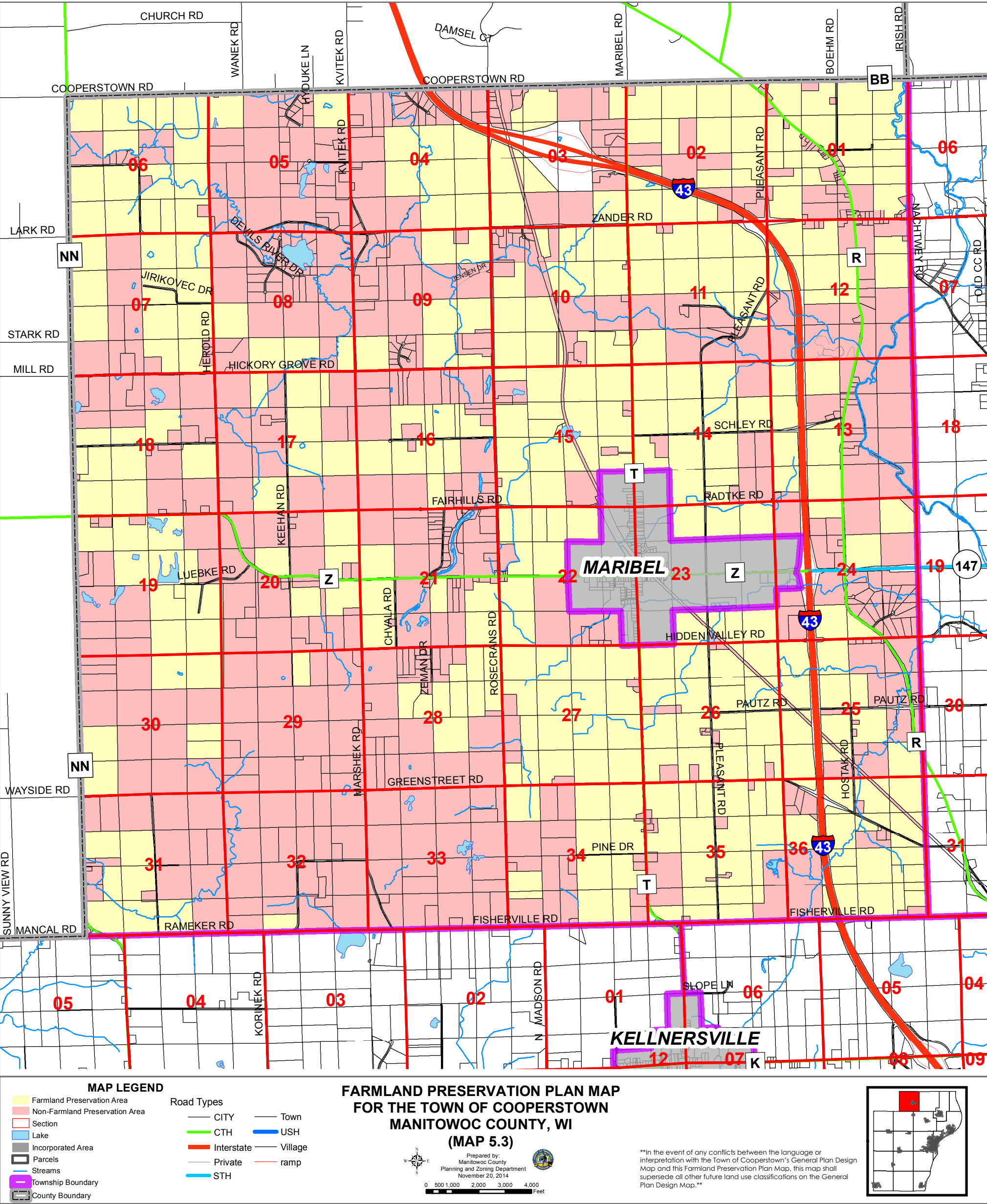
Areas categorized as "Non-Farmland Preservation Areas" are considered lands unsuitable for agricultural activity and match the following criteria:

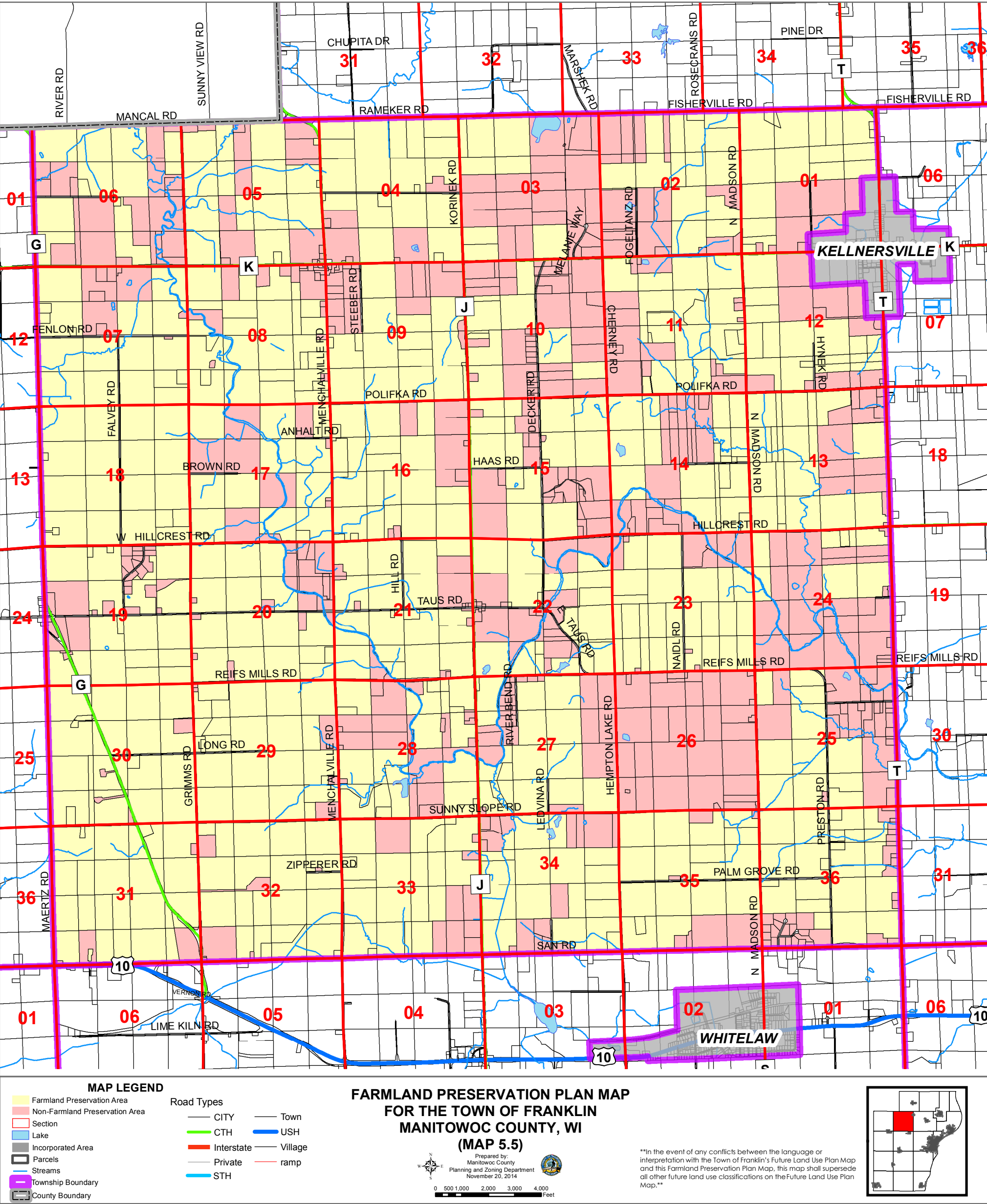
- All incorporated areas (i.e., cities and villages) of Manitowoc County.
- Lands on 20-Year Land Use Plan maps identified as developed or planned for future non-farm development including residential, business, and industrial developments; subdivisions; and areas presently receiving and planned for water and sewer service.
- Natural areas and recreation land owned by the State or county government.
- Communication and utilities uses including wind energy systems and wireless communication facilities.
- Transportation facilities including major highways and railroads
- Additional parcels containing churches, cemeteries, golf courses, and non-profit entities.

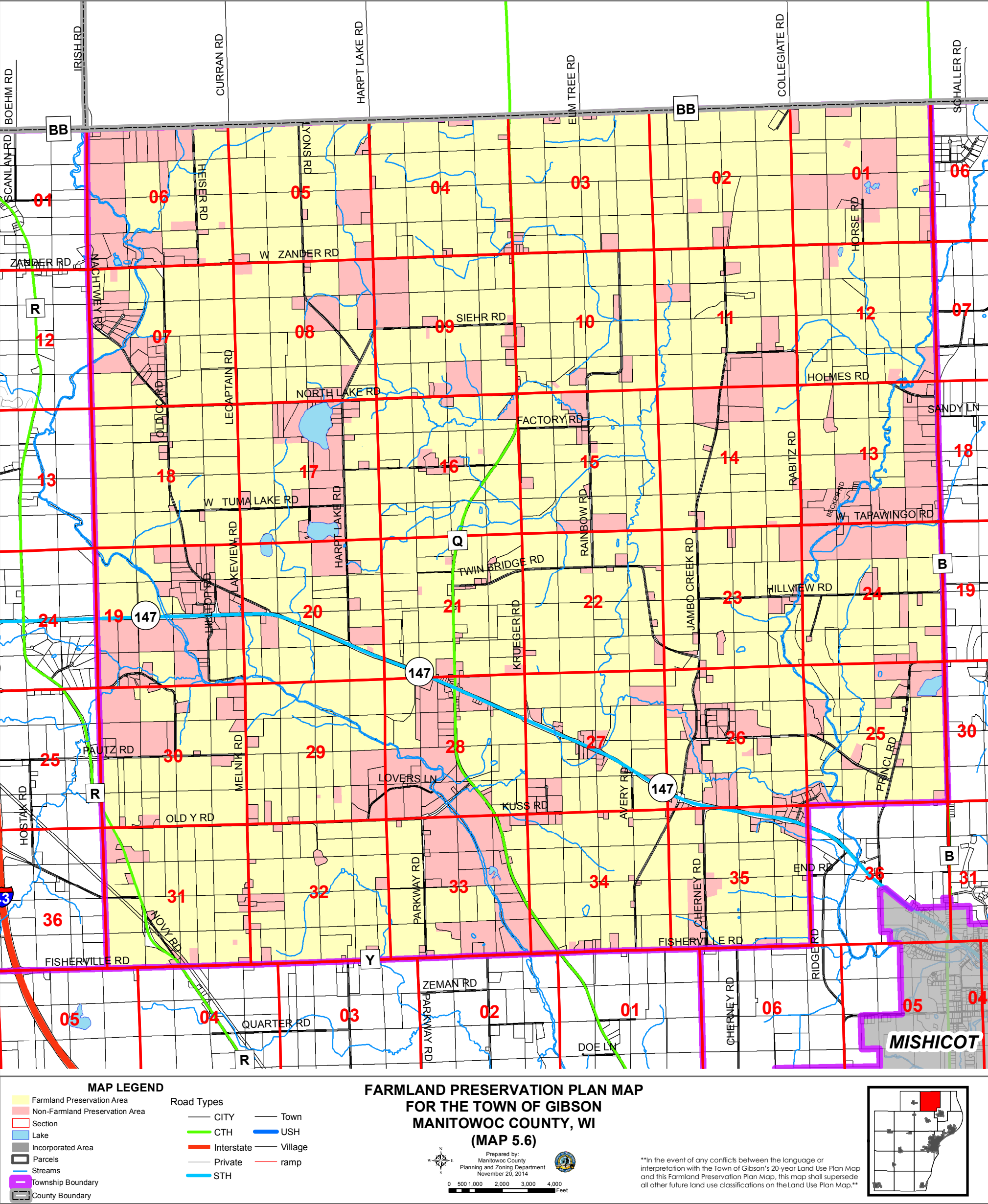
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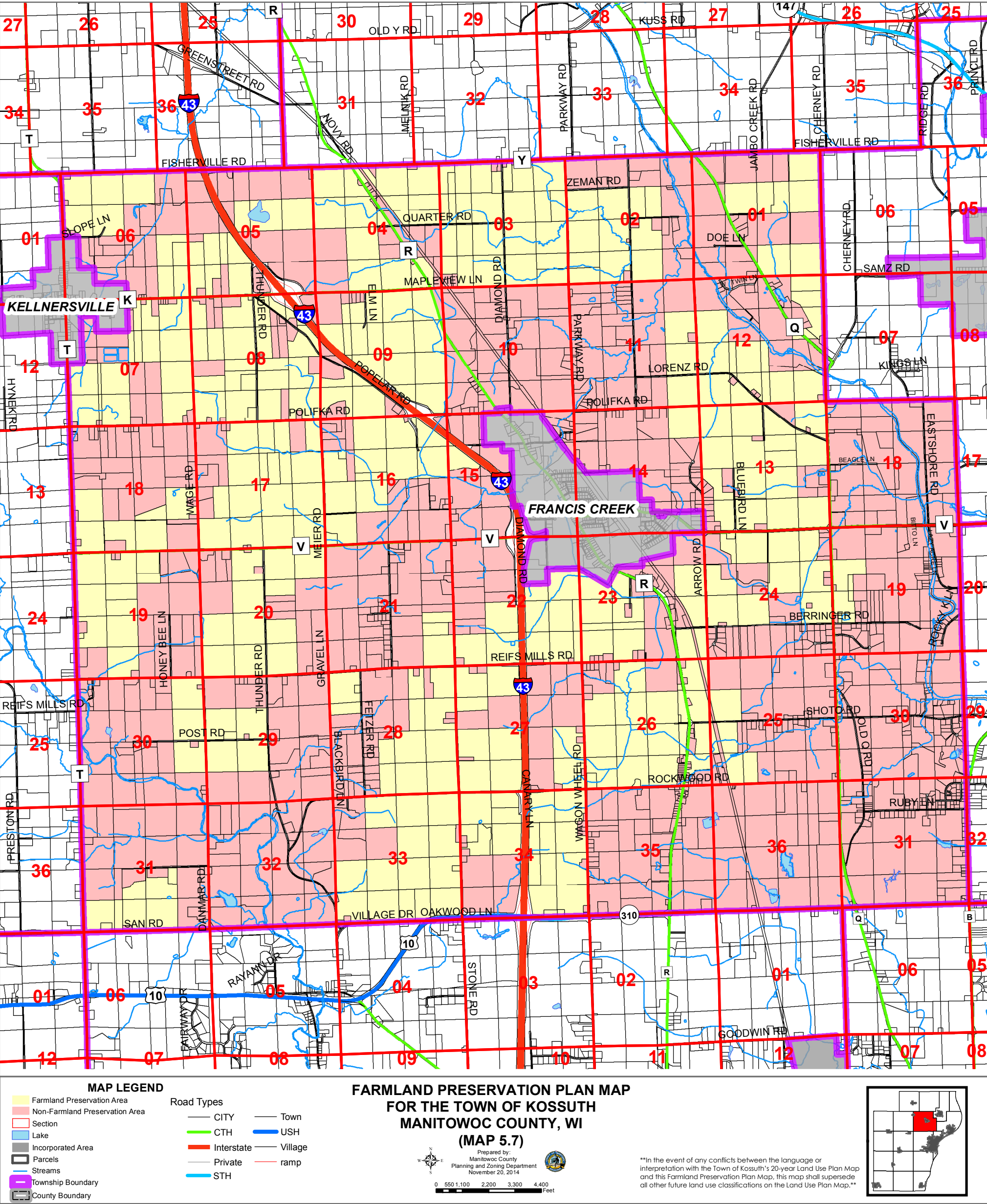


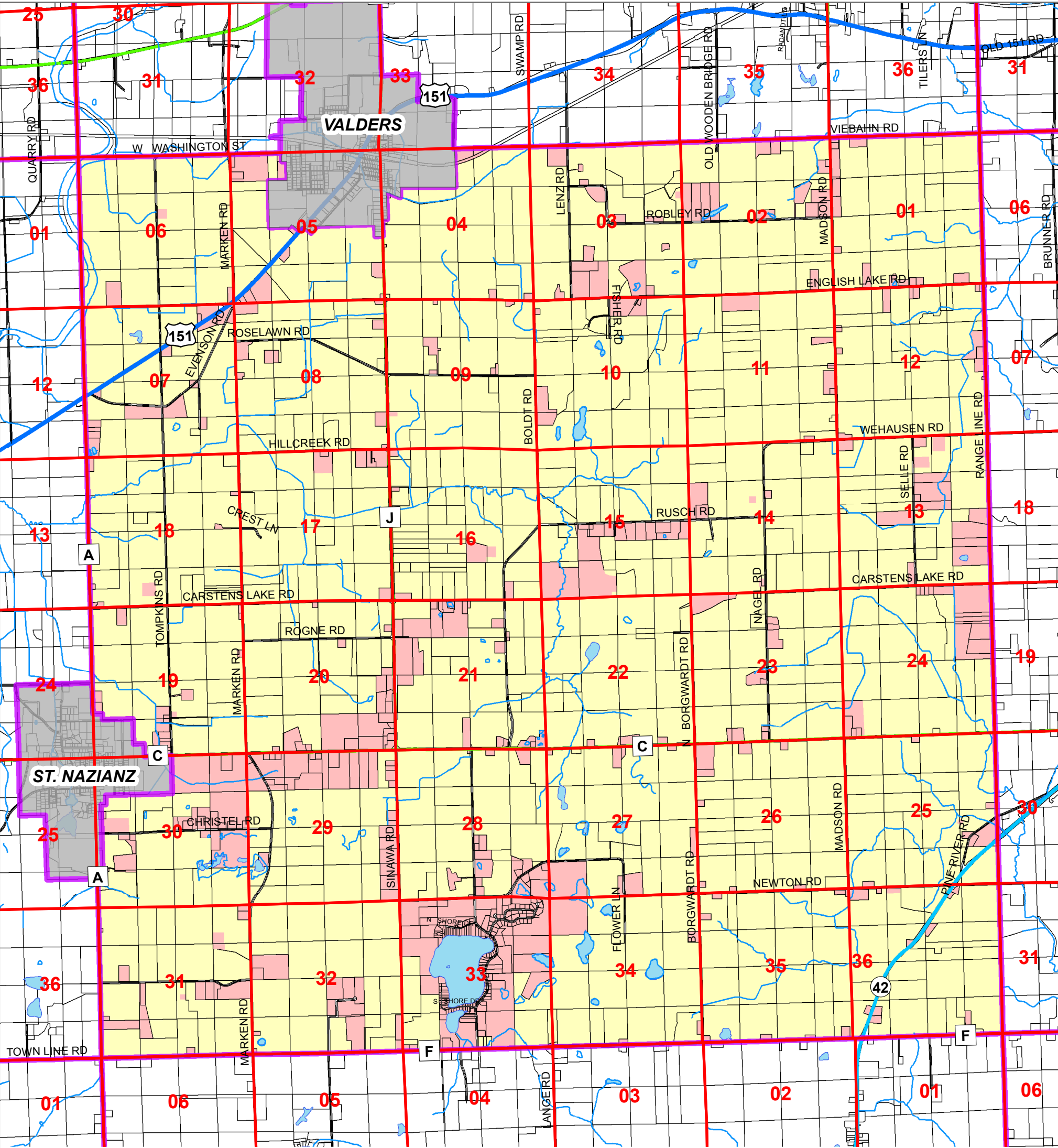












MAP LEGEND

- Farmland Preservation Area
- Non-Farmland Preservation Area
- Section
- Lake
- Incorporated Area
- Parcels
- Streams
- Township Boundary
- County Boundary

Road Types

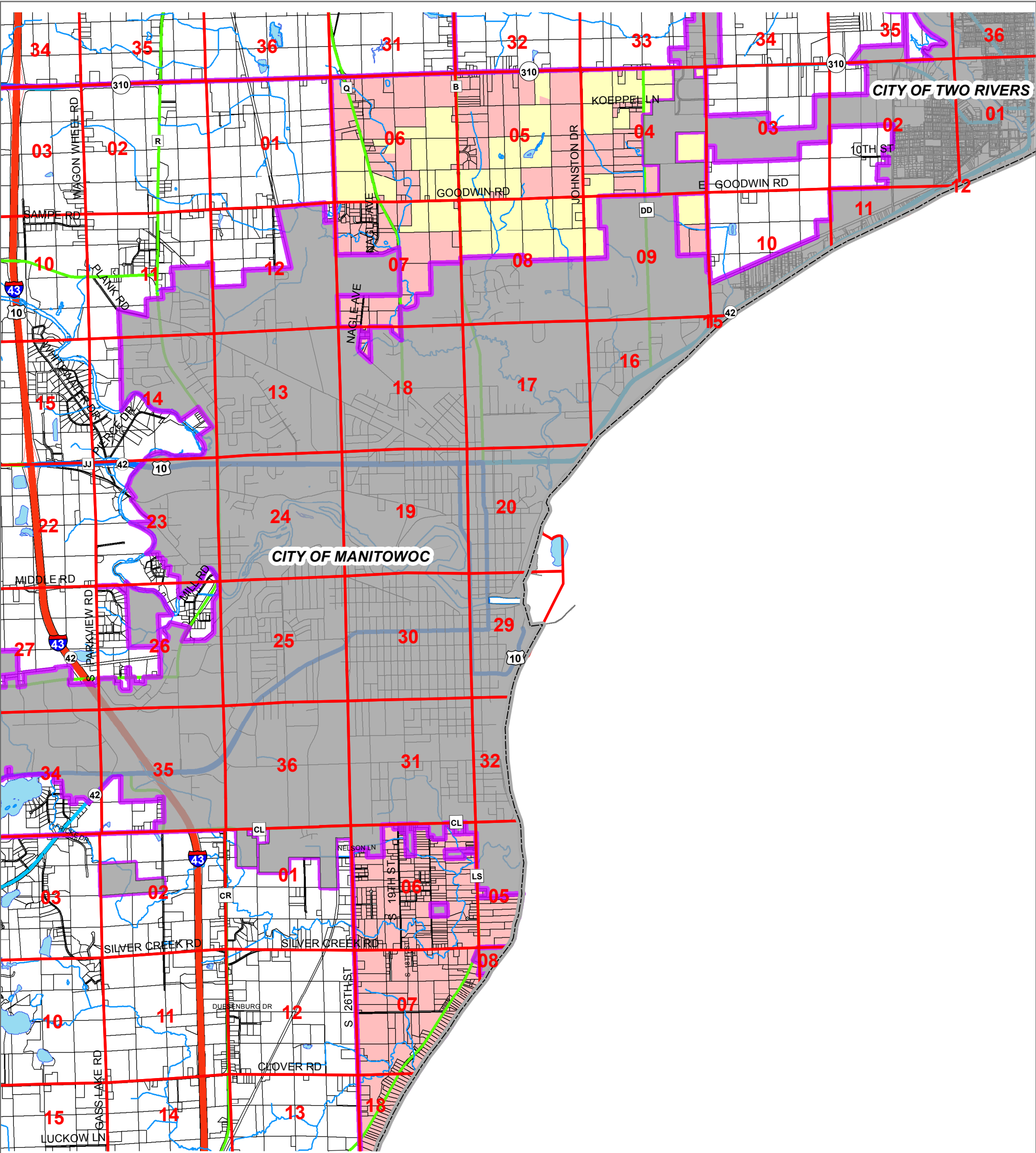
- CITY
- CTH
- Interstate
- Private
- STH
- Town
- USH
- Village
- ramp

**FARMLAND PRESERVATION PLAN MAP
FOR THE TOWN OF LIBERTY
MANITOWOC COUNTY, WI
(MAP 5.8)**

Prepared by:
Manitowoc County
Planning and Zoning Department
November 20, 2014

0 500 1,000 2,000 3,000 4,000 Feet

In the event of any conflicts between the language or interpretation with the Town of Liberty's 20-year Land Use Plan Map and this Farmland Preservation Plan Map, this map shall supersede all other future land use classifications on the Land Use Plan Map.



MAP LEGEND

Farmland Preservation Area

Non-Farmland Preservation Area

Section

Lake

Incorporated Area

Parcels

Streams

Township Boundary

County Boundary

Road Types

CITY

CTH

Interstate

Private

STH

Town

USH

Village

ramp

**FARMLAND PRESERVATION PLAN MAP
FOR THE TOWN OF MANITOWOC
MANITOWOC COUNTY, WI
(MAP 5.9)**

Prepared by:
Manitowoc County
Planning and Zoning Department
November 20, 2014

0

600

1,200

2,400

3,600

4,800

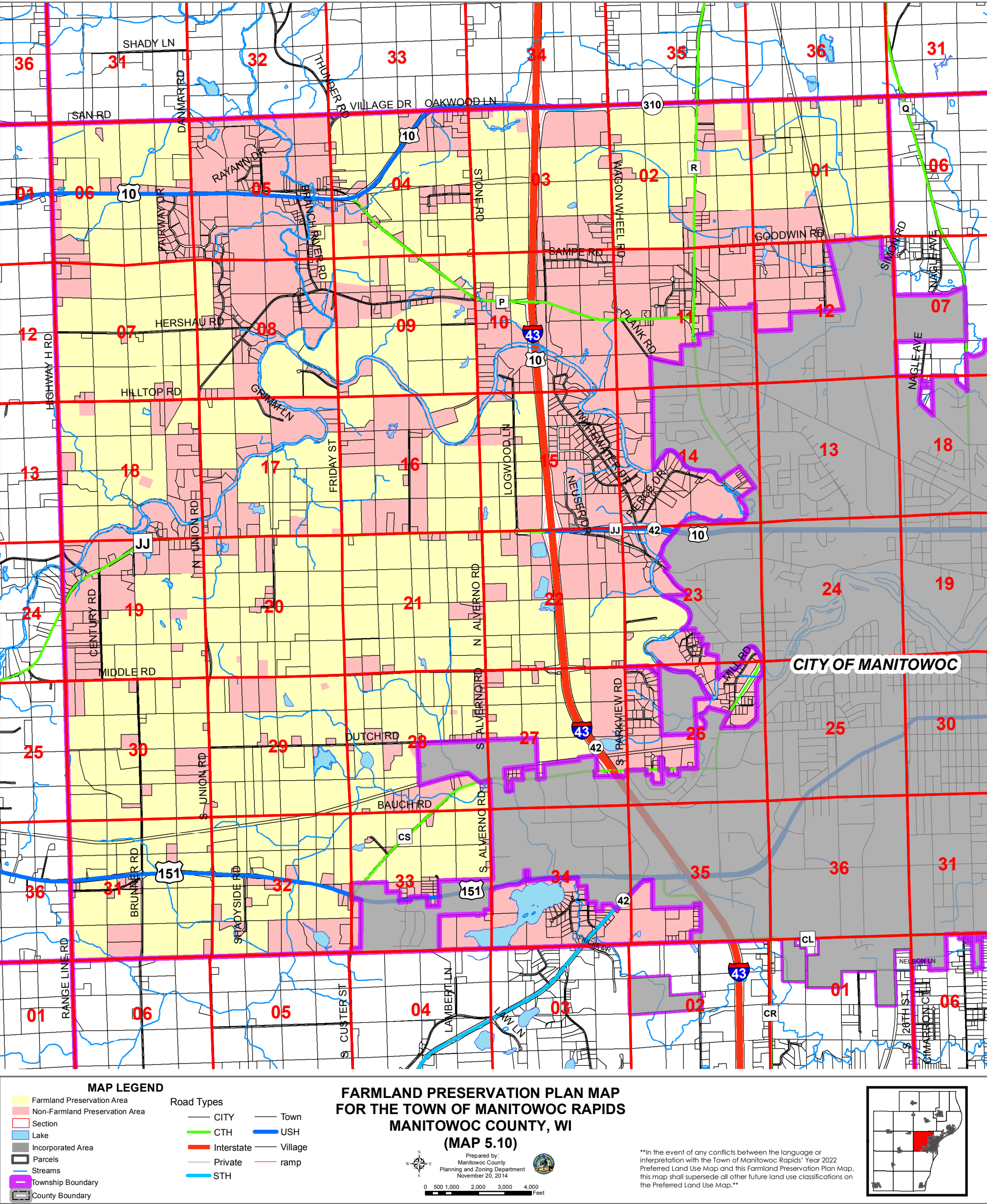
Feet

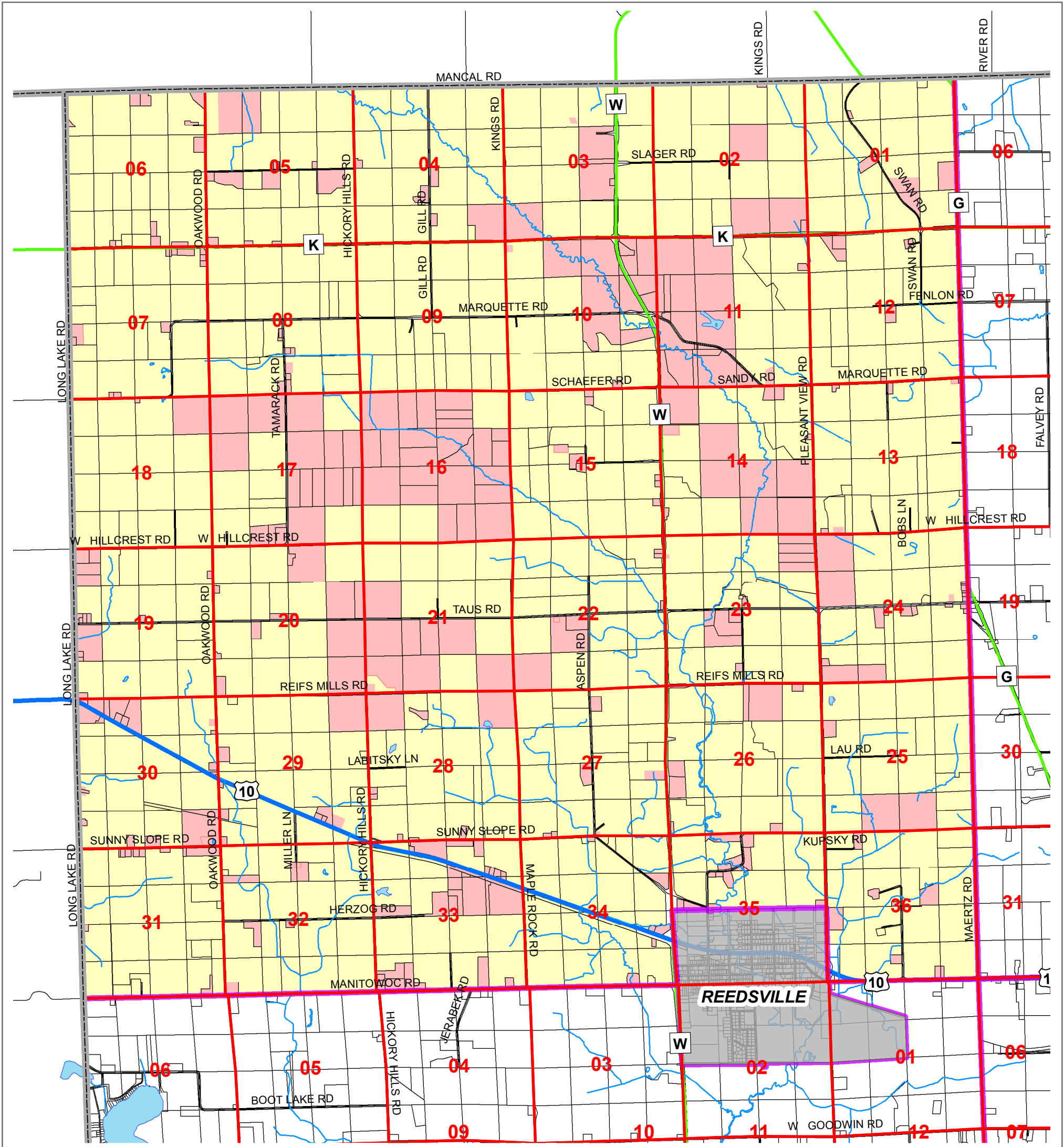
In the event of any conflicts between the language or interpretation with the Town of Manitowoc's 20-year Land Use Plan Map and this Farmland Preservation Plan Map, this map shall supersede all other future land use classifications on the Land Use Plan Map.

Manitowoc County

5-19

Farmland Preservation Plan





MAP LEGEND

- Farm Land Preservation Area
- Non-Farm Land Preservation Area
- Section
- Lake
- Incorporated Area
- Parcels
- Streams
- Township Boundary
- County Boundary

Road Types

- CITY
- CTH
- Interstate
- Private
- STH
- Town
- USH
- Village
- ramp

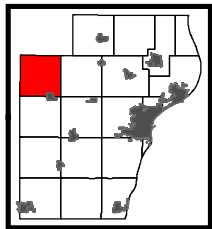
**FARMLAND PRESERVATION PLAN MAP
FOR THE TOWN OF MAPLE GROVE
MANITOWOC COUNTY, WI
(MAP 5.11)**

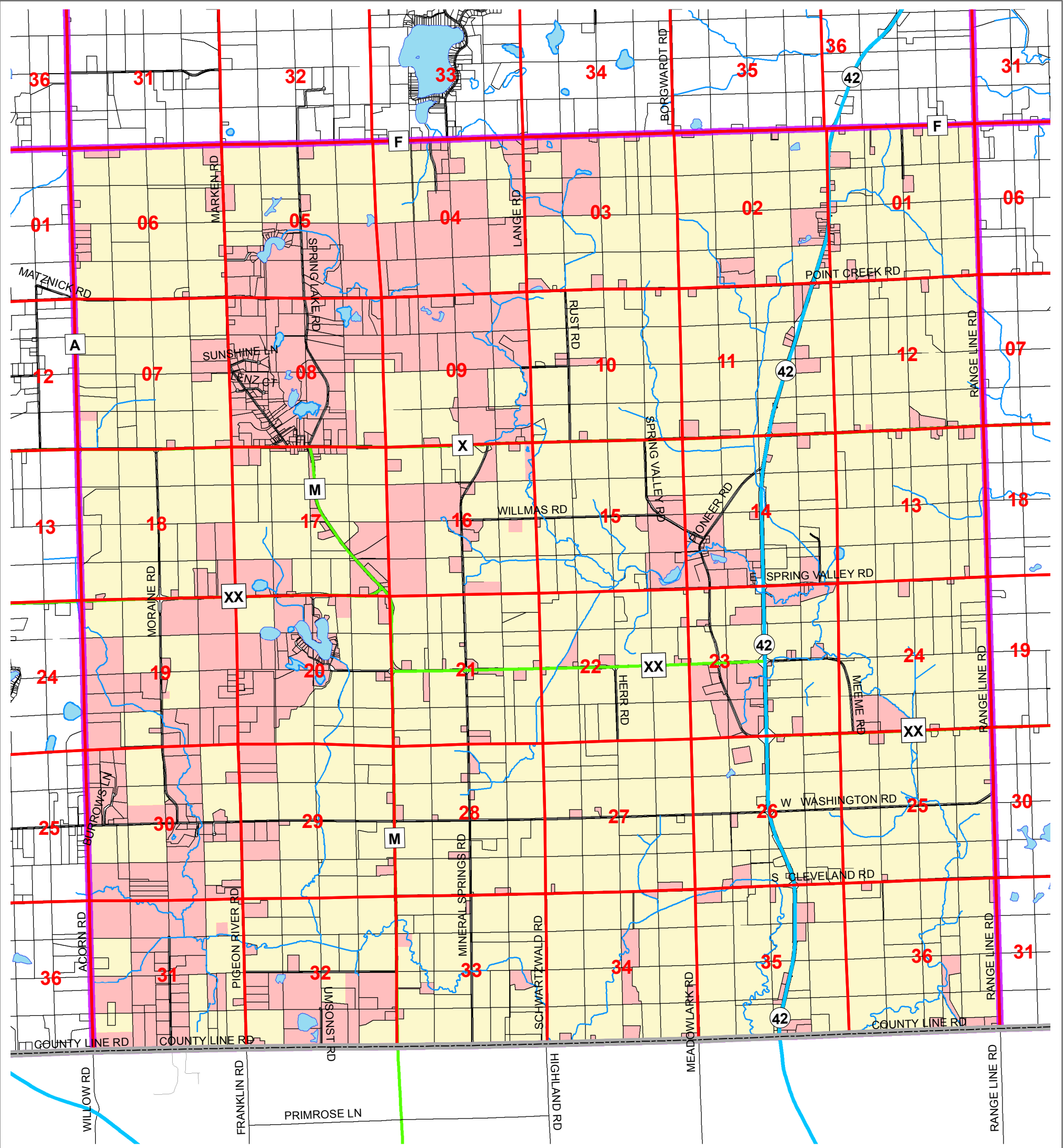
Prepared by:
Manitowoc County
Planning and Zoning Department
November 20, 2014



0 500 1,000 2,000 3,000 4,000
Feet

In the event of any conflicts between the language or interpretation with the Town of Maple Grove's 20-year Land Use Plan Map and this Farmland Preservation Plan Map, this map shall supersede all other future land use classifications on the Land Use Plan Map.





MAP LEGEND

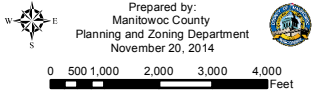
- Farmland Preservation Area
- Non-Farmland Preservation Area
- Section
- Lake
- Incorporated Area
- Parcels
- Streams
- Township Boundary
- County Boundary

Road Types

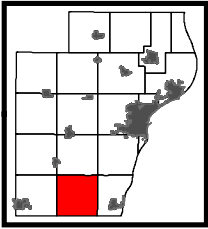
- CITY
- CTH
- Interstate
- Private
- STH
- Town
- USH
- Village
- ramp

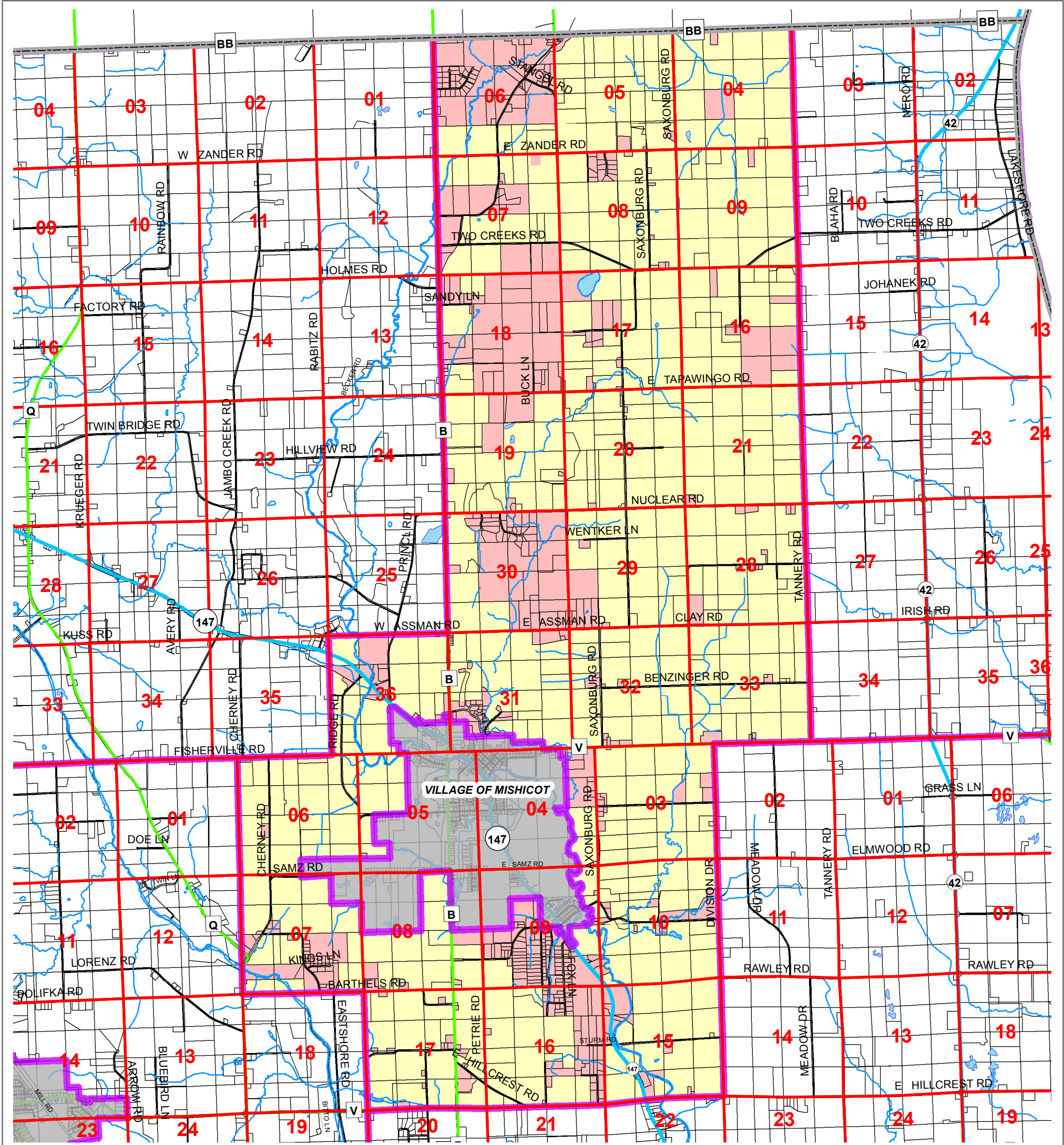
**FARMLAND PRESERVATION PLAN MAP
FOR THE TOWN OF MEEME
MANITOWOC COUNTY, WI
(MAP 5.12)**

Prepared by:
Manitowoc County
Planning and Zoning Department
November 20, 2014



In the event of any conflicts between the language or interpretation with the Town of Meeme's 20-year Land Use Plan Map and this Farmland Preservation Plan Map, this map shall supersede all other future land use classifications on the Land Use Plan Map.





MAP LEGEND

- Farmland Preservation Area
- Non-Farmland Preservation Area
- Section
- Lake
- Incorporated Area
- Parcels
- Streams
- Township Boundary
- County Boundary

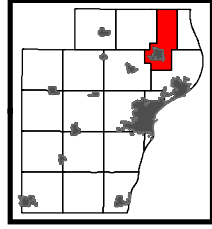
Road Types

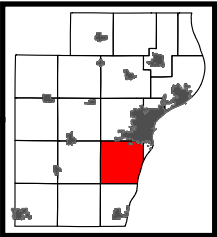
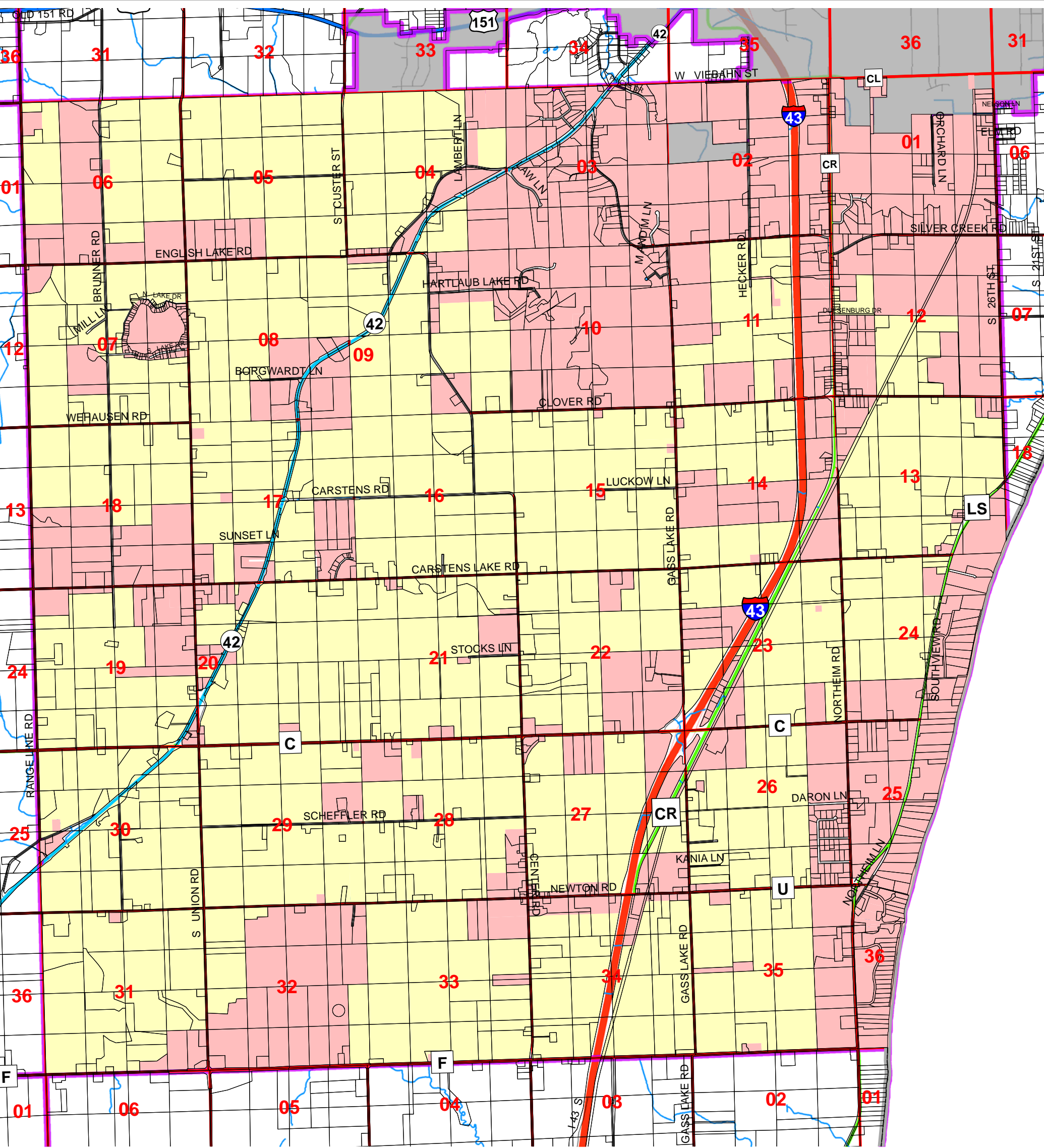
- CITY
- CTH
- Interstate
- Private
- STH
- Town
- USH
- Village
- ramp

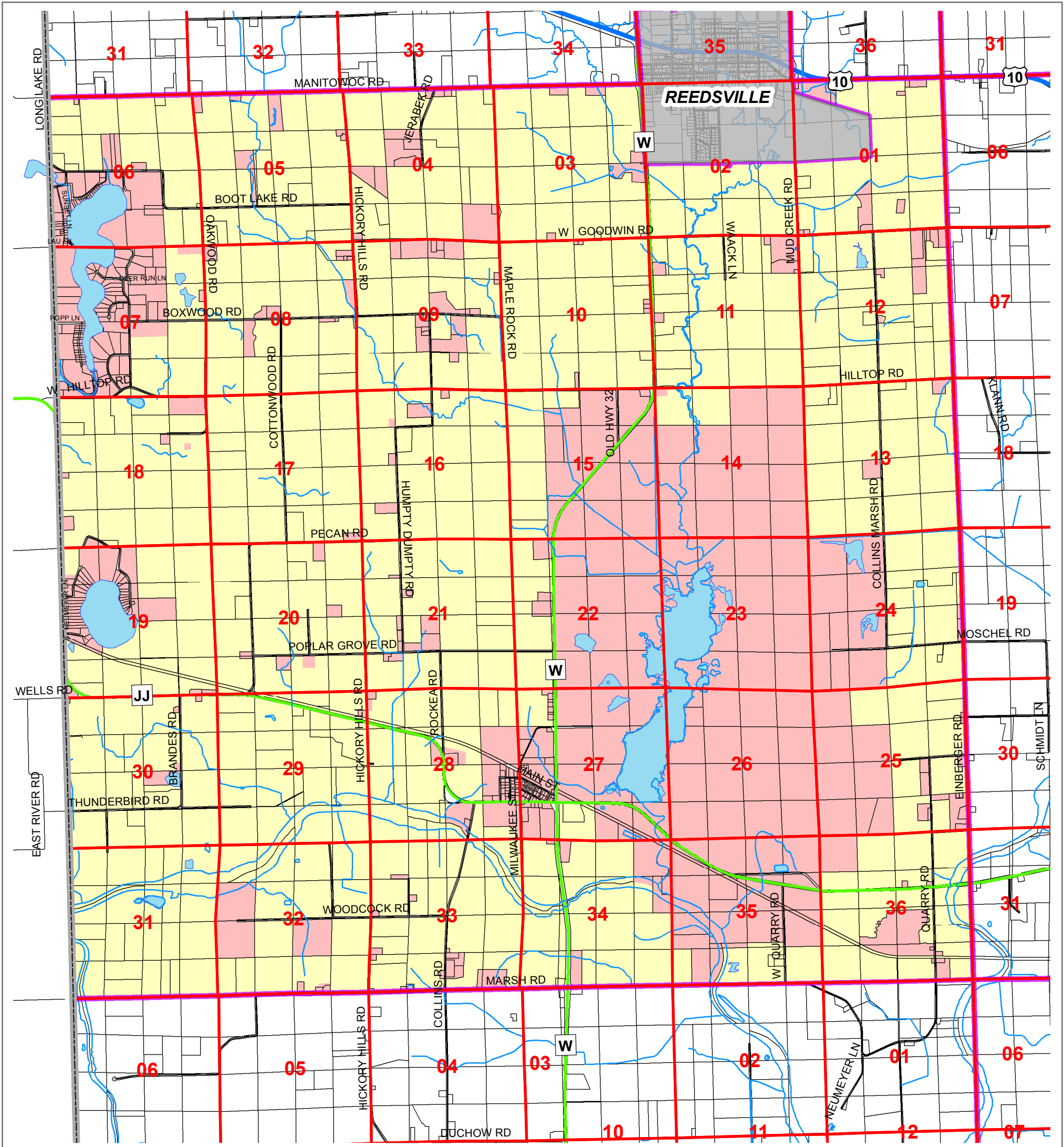
**FARMLAND PRESERVATION PLAN MAP
FOR THE TOWN OF MISHICOT
MANITOWOC COUNTY, WI
(MAP 5.13)**

Prepared by:
Manitowoc County
Planning and Zoning Department
November 20, 2014

In the event of any conflicts between the language or interpretation with the Town of Mishicot's 20-year Preferred Land Use Map and this Farmland Preservation Plan Map, this map shall supersede all other future land use classifications on the Preferred Land Use Map.







MAP LEGEND

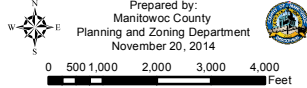
- Farmland Preservation Area
- Non-Farmland Preservation Area
- Section
- Lake
- Incorporated Area
- Parcels
- Streams
- Township Boundary
- County Boundary

Road Types

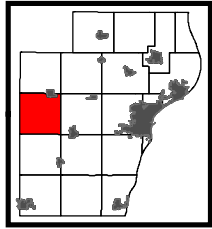
- CITY
- CTH
- Interstate
- Private
- STH
- Town
- USH
- Village
- ramp

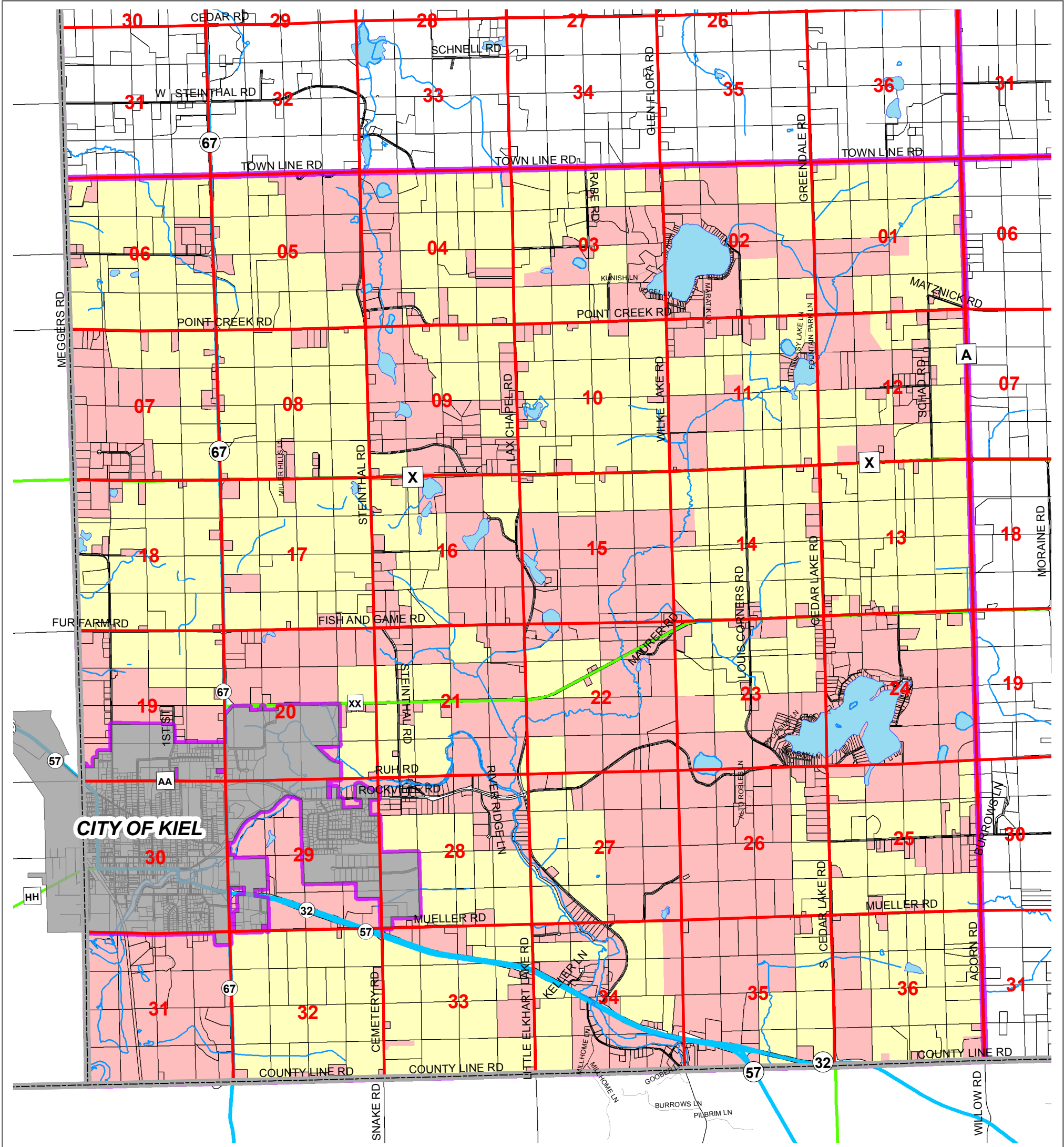
FARMLAND PRESERVATION PLAN MAP FOR THE TOWN OF ROCKLAND MANITOWOC COUNTY, WI (MAP 5.15)

Prepared by:
Manitowoc County
Planning and Zoning Department
November 20, 2014



In the event of any conflicts between the language or interpretation with the Town of Rockland's 20-year Land Use Plan Map and this Farmland Preservation Plan Map, this map shall supersede all other future land use classifications on the Land Use Plan Map.





MAP LEGEND

- Farmland Preservation Area
- Non-Farmland Preservation Area
- Section
- Lake
- Incorporated Area
- Parcels
- Streams
- Township Boundary
- County Boundary

Road Types

- CITY
- CTH
- Interstate
- Private
- STH
- Town
- USH
- Village
- ramp

**FARMLAND PRESERVATION PLAN MAP
FOR THE TOWN OF SCHLESWIG
MANITOWOC COUNTY, WI
(MAP 5.16)**

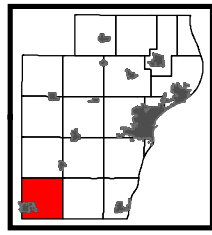
Prepared by:
Manitowoc County
Planning and Zoning Department
November 20, 2014

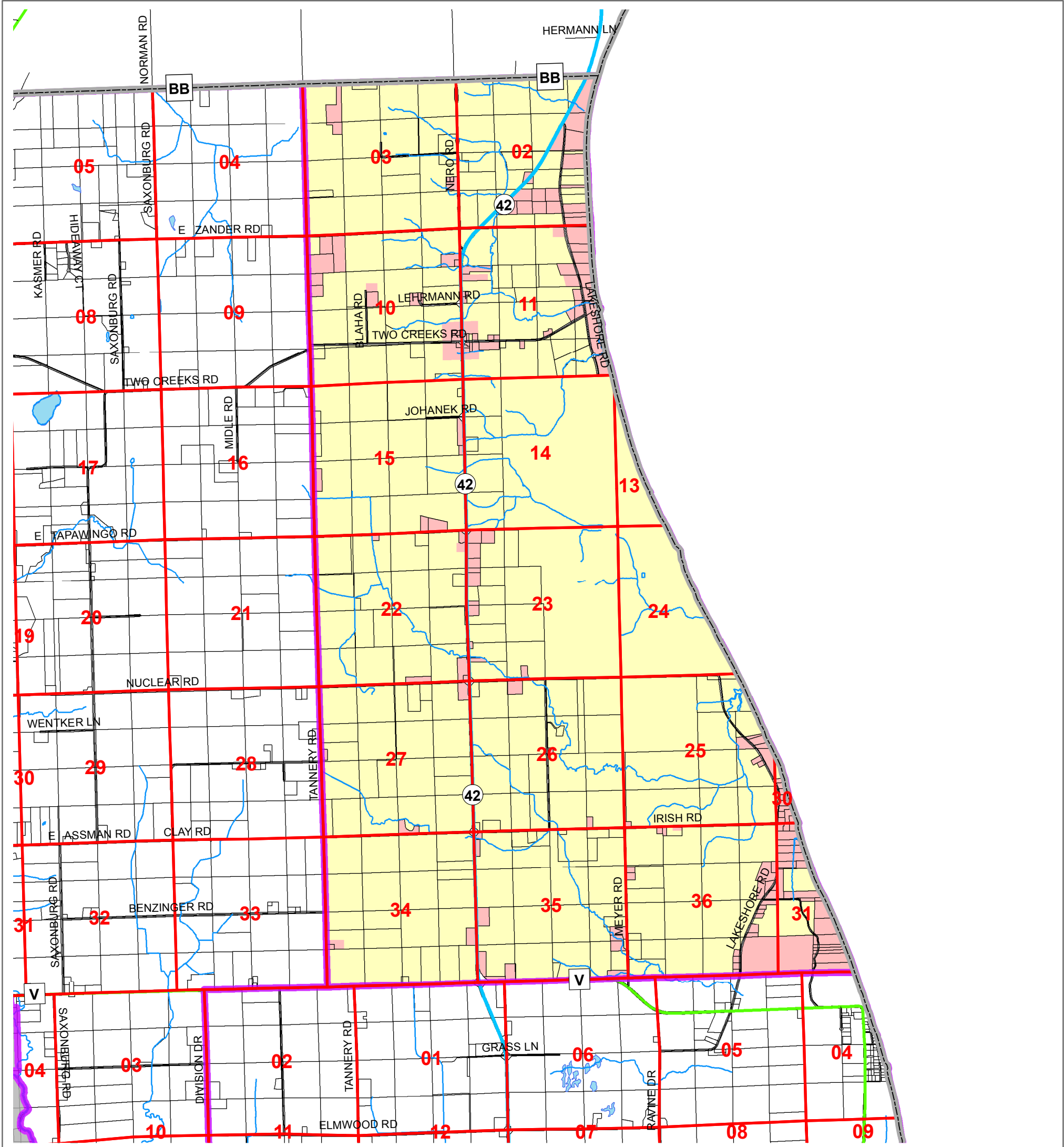


0 500 1,000 2,000 3,000 4,000
Feet



In the event of any conflicts between the language or interpretation with the Town of Schleswig's 20-year Land Use Plan Map and this Farmland Preservation Plan Map, this map shall supersede all other future land use classifications on the Land Use Plan Map.








MAP LEGEND

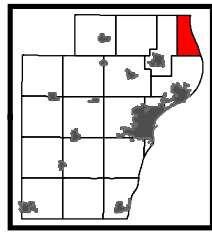
- | | | |
|--------------------------------|------------|---------|
| Farmland Preservation Area | CITY | Town |
| Non-Farmland Preservation Area | CTH | USH |
| Section | Interstate | Village |
| Lake | Private | ramp |
| Incorporated Area | STH | |
| Parcels | | |
| Streams | | |
| Township Boundary | | |
| County Boundary | | |

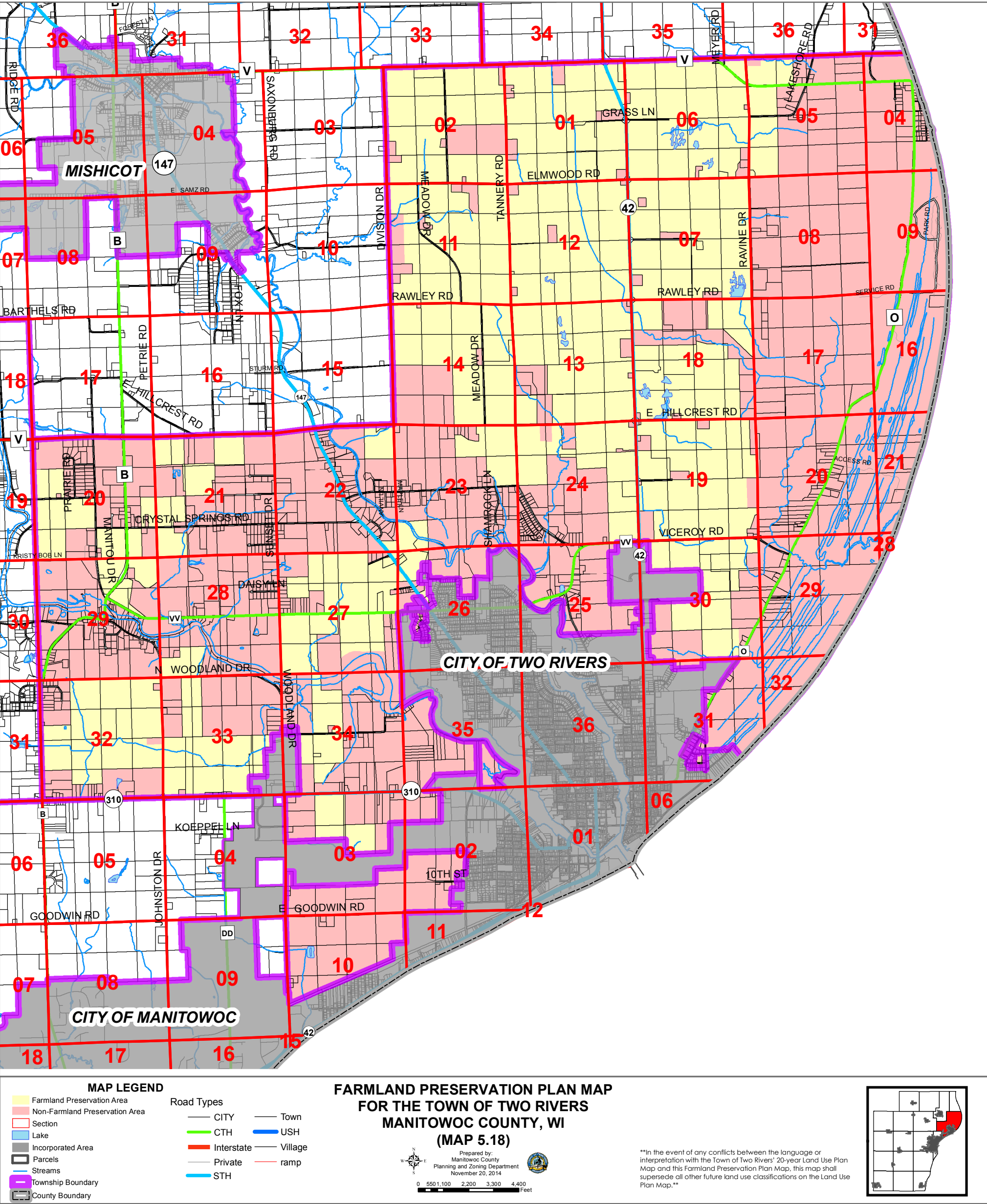
**FARMLAND PRESERVATION PLAN MAP
FOR THE TOWN OF TWO CREEKS
MANITOWOC COUNTY, WI
(MAP 5.17)**

Prepared by:
Manitowoc County
Planning and Zoning Department
November 20, 2014



In the event of any conflicts between the language or interpretation with the Town of Two Creeks' 20-year Preferred Land Use Map and this Farmland Preservation Plan Map, this map shall supersede all other future land use classifications on the Preferred Land Use Map.





CHAPTER 6: IMPLEMENTATION

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KEY AGRICULTURAL LAND USE ISSUES AND STRATEGIES

The following is a list of current land use issues and strategies related to preserving farmland and to promoting agricultural development in Manitowoc County.

- Development pressure and fragmentation of important agricultural areas when planning for nonfarm development.
- Preserve agricultural lands by encouraging towns to follow through on their “20-Year Land Use” plans.
- Preserve natural resources and public lands.
- Protect groundwater and surface water resources.
- Preserve, restore, and improve surface water quality (wetlands, lakes, rivers, and streams) through education, erosion control, buffer strips, easements, land use controls, flood controls, and nutrient/sediment reductions.
- Consider the key geologic features (e.g., sinkholes, karst, etc.) when conducting farming activities.
- Encourage the preservation of environmental corridors and other sensitive areas.
- Showcase sustainable and responsible agriculture with the development of a Wisconsin Agricultural Education Center on land located near the Interstate Highway 43 corridor in Manitowoc County. The attraction will emphasize the history and tradition of agriculture in Wisconsin, while connecting people to modern farming.

ANTICIPATED CHANGES IN AGRICULTURAL PRODUCTION, PROCESSING, SUPPLY, AND DISTRIBUTION

Changes in population and housing and advances in technology are just several issues that will continue to alter Manitowoc County’s agricultural industry. Therefore, an important piece of the development process for the county’s Farmland Preservation Plan was anticipating changes in Manitowoc County’s agriculture industry. Below is a list of potential changes that could impact the agriculture industry for Manitowoc County. This list will assist county and community officials as they make important planning decisions.

- Non-farm development pressures and advances in technology will continue to increase in the rural areas of the county. As a result farmers and all property owners are forced to contend with conflicts such as; increased traffic and complaints by neighbors related to slow moving vehicles on roadways, noise, dust, odors, and late hours of operation.
- There will continue to be an increase in large farming operations (corporate, partnerships, etc.), while individual family farms will encounter a decline, especially in the dairy industry.
- Dairy farming will continue to be the major agriculture industry in Manitowoc County. Even though the number of farms is decreasing, the number of dairy cows is increasing.
- As the average age of farmers increases, the possibility exists that they sell their farmland for residential, commercial, or other developed land use as they retire.
- The continued consolidation of smaller farming operations into large operations may pose both an economic opportunity as well as environmental challenges.
- Manitowoc County contains a quality transportation network and support infrastructure that allows for product to move in and out of the county easily and efficiently. However,

communities and farmers will also continue to encounter infrastructure challenges such as road deficiencies and deterioration as farm equipment increases in size and weight. The Implements of Husbandry (IOH) law will need to be addressed by farmers, custom operators, and municipalities.

- The proper regulation of noise and odor will enhance or promote farming activities by reducing conflicts.
- Many advances in technology, including robotic milking and feeding systems, will continue to make agriculture less labor intensive.
- Demands in services and infrastructure will continue to change as feedlots and animal confinements have different needs than most agricultural operations had in the past.
- Agricultural processing will continue to be a significant part of the local economy including more specialty food processors.
- Interest in cash cropping and specialty farming will continue to increase.
- Manitowoc County has quality farming soils that can grow a variety of crops. These soils can tolerate periods of drought and wet conditions in given years and still produce acceptable yields.
- Land values will continue to increase due to the global demands for food both in volume and quality.
- The effects of climate change may need to be considered along with other evolving factors that affect agricultural production, such as changes in farming practices and technology.

AGRICULTURE STRATEGY

To address Manitowoc County’s current and anticipated agriculture issues, a variety of goals and objectives have been developed by the Manitowoc County. Several planning and implementation documents, discussed later in this chapter, are also in place to address agriculture-related issues.

Farmland Goals and Objectives

In December 2009, a listing of “Agricultural Resource” goals, objectives, and policies had been detailed in Chapter 2 of the *Manitowoc County 20-Year Comprehensive Plan*. During the development of this Farmland Preservation Plan, a review of these items by the Manitowoc County Planning and Zoning Department and the Manitowoc County Planning and Park Commission, revealed that the current comprehensive plan goals, objectives, and policies remain viable for the continued preservation and promotion of agricultural advancement in Manitowoc County.

Housing Density Goals and Objectives

Wisconsin Statutes 91.10 (c)(7m) requires a statement of policies, goals, strategies, and proposed actions to increase housing density in areas that are not identified as farmland preservation areas per Wisconsin Statutes 91.10(d).

As detailed in Chapter 2 of this Farmland Preservation Plan, projections illustrate the possible need for over 350 additional housing units in Manitowoc County by 2040. In an effort to accommodate future housing, while also preserving the county’s valuable farmland and natural resources, the County has developed strategies in their comprehensive plan for higher housing density in areas where residential development is suitable. By implementing higher density housing strategies, the county and its communities would likely encounter fewer acres per

housing unit and reduced utility costs as the distance for the provision of infrastructure and utility lines would be lessened.

Refer to the “Issues and Opportunities” element (Chapter 2) of the Manitowoc County Comprehensive Plan for a listing of housing density goals, objectives, and policies that encourage sensible housing development while preserving the county’s agricultural areas.

COMPREHENSIVE PLAN CONSISTENCY

To ensure consistency between the *Manitowoc County 20-Year Comprehensive Plan* and the Farmland Preservation Plan update, the county adopted the Farmland Preservation Plan as a component to the Comprehensive Plan per s. 91.10(2), Wis. Stats. This consistency is also evident in the Farmland Preservation Plan through referencing tables and data, in addition to mapping that is found within the Manitowoc County Comprehensive Plan. The result is consistent data that is necessary to determine trends and needs of agriculture in the county.

In an effort to plan for the future while preserving agricultural land, it was also important to ensure the goals, objectives, and other strategies from the Comprehensive Plan were reiterated, or written to be consistent, within the Farmland Preservation Plan. These goals, objectives, and strategies from the Comprehensive Plan are mentioned earlier in this chapter as well as various locations within the Farmland Preservation Plan.

The primary indicator of consistency between the Farmland Preservation Plan and the Comprehensive Plan was utilizing the 20-Year Land Use map of the County and Town Comprehensive Plans as the foundation for the development of the Farmland Preservation Plan Map. Town officials utilized the local adopted Comprehensive Plan maps as the basis of the formation of each town Farmland Preservation Plan Map promoting consistency between the two maps. The Town Farmland Preservation maps were then consolidated to create the Manitowoc County Farmland Preservation Plan Map. The County’s Farmland Preservation Plan Map depicts local commitment to agricultural production, agriculture-related uses, and natural resource protection consistent with the Working Lands Initiative.

***** In the event of any conflicts between the language or interpretation of a 20-Year Land Use Plan Map of a local Comprehensive Plan and the County’s Farmland Preservation Plan Map, the County’s Farmland Preservation Plan Map shall supersede all other future land use classifications on the Comprehensive Plan map.***

MANITOWOC COUNTY AND LOCAL PLANS AND CONTROLS TO PRESERVE AGRICULTURE

In addition to the Manitowoc County and local Comprehensive Plans, this section of the chapter provides a list of additional land use plans and controls at the County and local level that can have a positive impact on Farmland Preservation. It is important to note that due to a mixture of county and local development regulations within the county, the Manitowoc County Planning and Zoning Department worked with the communities during the update of this Farmland Preservation Plan to ensure plan consistency.

General Zoning Ordinances

Manitowoc County has zoning jurisdiction within nearly all unincorporated communities of the county under Chapter 8 of the *Manitowoc County Code* (note: the towns of Centerville,

Franklin, and Newton administer their own zoning ordinances). Manitowoc County maintains and administers the general zoning ordinance to regulate and restrict the locations, construction and use of buildings, structures, and the use of land in the county. It provides for the public health, safety and general welfare of the unincorporated areas of Manitowoc County. Manitowoc County will advise those towns with their own general zoning ordinances to update and recertify their exclusive agriculture zoning ordinances following the certification and adoption of this Manitowoc County Farmland Preservation Plan.

Soil and Water Conservation Standards

Participants in the Farmland Preservation Program are required to implement soil and water conservation standards according to a schedule of compliance approved by the Manitowoc County Soil and Water Conservation Department. The standards to be implemented are those required under ATCP 50 Wis. Adm. Code (also refer to Appendix A of this Farmland Preservation Plan).

Manitowoc County Plans and Ordinances

The Manitowoc County Planning and Zoning Department and Manitowoc County Soil and Water Conservation Department maintain and administer the following land use plans and ordinances that help ensure farmland and natural resources are preserved.

- Manitowoc County 20-Year Comprehensive Plan
- Manitowoc County Park and Open Space Plan.
- Manitowoc County Land & Water Resource Management Plan.
- Nonmetallic Mining Operations – Chapter 21 of the *Manitowoc County Code*.
- Private Sewage System – Chapter 13 of the of the *Manitowoc County Code*.
- Private Water Systems Ordinance - Chapter 23 of the *Manitowoc County Code*.
- Shoreland/Floodplain Zoning – Chapter 9 of the *Manitowoc County Code*.
- Floodplain Zoning – Chapter 31 of the *Manitowoc County Code*.
- Subdivision Regulations – Chapter 12 of the *Manitowoc County Code*.
- Animal Waste Management Ordinance– Chapter 19 of the *Manitowoc County Code*.
- Animal Waste Storage Ordinance– Chapter 26 of the *Manitowoc County Code*.
- Agricultural Shoreland Management Ordinance– Chapter 27 of the *Manitowoc County Code*.
- Livestock Facility Licensing - Chapter 28 of the *Manitowoc County Code*.

FARMLAND MANAGEMENT PROGRAMS

Many farmland preservation and rural land preservation programs are available on county, state, and federal levels in an effort to implement agricultural conservation practices and natural resource protection. Below is a listing of a variety of these programs, some of which are currently being utilized in the Manitowoc County.

Landowners can get additional program information from the Manitowoc County Planning and Zoning Department, Manitowoc County Soil and Water Conservation Department, UW-

Extension, Natural Resource Conservation Service (NRCS), USDA Farm Service Agency, and the Wisconsin Department of Natural Resources (WDNR).

County Programs

Farmland Preservation Program

The purpose of this program is to preserve agricultural land and open spaces by promoting orderly land use planning and development and by promoting soil and water conservation. Landowners are eligible for state tax credits under the Farmland Preservation Program if land is located in a certified farmland preservation zoning district (i.e., EA zoning district of the *Manitowoc County Code*) or in a designated agricultural enterprise area.

Under the revisions to the farmland preservation program, a credit can be claimed under the old Schedule FC law if, among other considerations, the claimant remains subject to a farmland preservation agreement that was entered into prior to July 1, 2009. Alternatively, a credit can be claimed on new the Schedule FC-A form by a person who owns a farm that is covered by a farmland preservation agreement entered into on or after July 1, 2009 or owns a farm located in an area designated in a certified exclusive agricultural use zoning or farmland preservation zoning ordinance.

- In 2013, Manitowoc County had 78 claimants receive \$41,544 covering 11,067 acres under the old law (Schedule FC). There were also 640 claimants under the new version of the credit (Schedule FC-A) that received \$809,575 covering 106,760 acres.

Farmland Preservation Zoning

Local governments may choose to adopt and have certified a farmland preservation zoning ordinance to ensure that landowners covered by the ordinance are eligible to claim farmland preservation tax credits, (ch. 91, Wis. Stats.).

Comprehensive Land Use Planning

The County and Towns use their comprehensive land use plans as the basis for farmland preservation zoning ordinances that identify areas to protect for agricultural use and areas where growth will be recommended.

Land & Water Resource Management Plan Implementation

The purpose of this program is to control soil erosion and reduce nonpoint source water pollution. The program provides a cost share and technical assistance to landowners to install soil and water conservation practices. The following agricultural conservation practices may be utilized; grass waterways, diversions, critical area stabilization, terraces, grade stabilization structure, sediment basin, barnyard runoff control practices, rural well abandonment, manure storage abandonment and roof runoff system.

Animal Waste Management Regulations Ordinance

The purpose of this Ordinance is to assure the safe handling and spreading of animal waste as well as to regulate the location, design, construction, alteration, operations, and maintenance of all animal feeding operations and livestock waste storage facilities. The Manitowoc County Soil and Water Conservation Department shall receive and review all permit applications. See the Animal Waste Management Ordinance, Chapter 19 of the *Manitowoc County Code*.

Nutrient Management Planning

This program provides technical and educational assistance to landowners for the preparation and implementation of a nutrient management plan. The plan details a strategy for obtaining the maximum return from on and off farm fertilizer resources in a manner that protects environmentally sensitive areas and the quality of nearby water resources. Cost share/incentive funding is available for program participation.

Wisconsin Nonpoint Runoff Rule Implementation

This program provides technical and financial assistance to landowners that do not meet nonpoint pollution control rules. Farms are evaluated to determine if they are compliant with the rules. If they are found to be out of compliance, technical and financial assistance may be available.

State and Federal Conservation Programs**Agricultural Enterprise Areas (AEA)**

The Agricultural Enterprise Area (AEA) concept was established in 2009 as part of the state's Working Lands Initiative. By definition an AEA is a contiguous land area devoted primarily to agricultural use and locally targeted for agricultural preservation and development.

If land is in an AEA, part of a Farmland Preservation Agreement, and meets eligibility and conservation requirements, the farmer can receive a tax credit of \$5 per acre. Land in an AEA does not have to contain Exclusive Agricultural Zoning.

The designation of an AEA is voluntary and can be initiated by land owners or local governments by filing a petition with the State of Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP). Petitions filed with DATCP must meet minimum criteria, but additional evaluation criteria may be used to review competing petitions. As a minimum the land subject of the petition must be identified as being in a farmland preservation area in the county's Farmland Preservation Plan, be a contiguous land area, and primarily be used for agriculture.

Purchase of Agricultural Conservation Easements (PACE) – Farmland Preservation Program

The PACE program provides state funding for the purchase of agricultural conservation easements. An agricultural conservation easement allows a landowner to be compensated for limiting development on his or her farmland. Easements are permanent and are carried over to subsequent landowners if the property is sold. The Department of Agriculture, Trade and Consumer protection (DATCP) will provide funding to cooperating local entities (local governments or non-profit organizations) for the purchase of easements from willing landowners. Local entities purchase the easements and may be reimbursed for up to 50 percent of the easement cost by the PACE program. The state and local entities will then be co-holders of the easement. PACE funded easements are intended to strengthen areas that have been planned and designated as local farmland preservation areas in a certified county farmland preservation plan.

State and Federal Environmental Assistance Programs**Discovery Farms**

Discovery Farms is a University of Wisconsin program designed to address the environmental

research needs of agricultural producers. Through addressing those needs, Discovery Farms is working to assure a healthy environment and a healthy farm economy. Discovery Farms is part of UW-Extension and the College of Agriculture and Life Sciences at UW-Madison, and have a relationship with the Wisconsin Agriculture Stewardship Initiative.

Wisconsin Focus on Energy

Focus on Energy works with eligible Wisconsin residents and businesses to install cost effective energy efficiency and renewable energy projects. Focus information, resources and financial incentives help to implement projects that otherwise would not be completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment and control the state's growing demand for electricity and natural gas.

Wisconsin Public Service

The Wisconsin Public Service agency offers programs to increase the energy efficiency of farming operations.

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APPENDIX A

SOIL AND WATER CONSERVATION STANDARDS

For farmers who grow agricultural crops

- Meet tolerable soil loss (“T”) on cropped fields.
- Follow a nutrient management plan designed to limit entry of nutrients into state waters (groundwater and surface water)

For farmers who raise, feed, or house livestock

- Prevent direct runoff from barnyards, feedlots, or stored manure into state waters.
- Limit livestock access to state waters to avoid high concentrations of animals and maintain adequate or self-sustaining sod cover along waterways.
- Follow a nutrient management plan for manure application.

For farmers who have, or plan to build, a manure storage structure

- Maintain structures to prevent overflow.
- Repair or upgrade any failing or leaking structures that pose an imminent health threat or that violate groundwater standards.
- Close abandoned structures according to accepted standards.
- Meet technical standards for newly constructed or substantially altered structures.

For farmers with land in a Water Quality Management Area

These areas are 300 feet from a stream, 1,000 feet from a lake, or in areas susceptible to groundwater contamination.

- Do not stack manure in unconfined piles.
- Divert clean water away from feedlots, manure storage areas, and barnyards located within this area.

Nutrient Management Plans

To meet the new nutrient management standards, farmers may hire an agronomist or prepare their own nutrient management plans if they complete a DATCP-approved training course or otherwise demonstrate that they are qualified. These plans must:

- Rely on soil nutrient tests from a DATCP certified laboratory.
- Comply with current NRCS Nutrient Management Standard 590.
- Follow the recommendations for nutrient applications in the Soil Test Recommendations for Field, Vegetable, and Fruit Crops, UWEX publication A2809, unless there are circumstances that justify more than the recommended application.

***** Contact the Manitowoc County Soil and Water Conservation Department for more information regarding agricultural runoff standards.***