

## CHAPTER 5: AGRICULTURE, NATURAL, AND CULTURAL RESOURCES

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## CHAPTER 5: AGRICULTURAL, NATURAL, AND CULTURAL RESOURCES

### INTRODUCTION

Agricultural, natural, and cultural resources give definition to a community and strongly affect its quality of life. For communities in Waushara County, a tapestry of working farms interwoven with large stands of woodlands and wetlands continue to dominate the rural landscape and help shape the area's identity and culture. The County's natural features such as topographic relief, lakes, streams, wetlands and soils also have a significant bearing on historic and contemporary land use, development patterns and contribute to a strong heritage of outdoor recreational pursuits. Fishing, swimming, hunting, and other outdoor activities are important quality of life past-times. The area's lakes and other scenic landscape features provide attractive home sites for many permanent and seasonal residents. At the same time, many of these environmental elements have limiting conditions that make them less than ideal for supporting particular types of activity or development. Understanding the relationship between these environmental characteristics and their physical suitability to accommodate specific types of activity or development is a key ingredient in planning a community's future land use.

### INVENTORY AND ANALYSIS

This chapter provides an inventory of existing agricultural, natural, and cultural resources. In addition, existing policies associated with these resources are discussed.

#### **Agricultural Resources**

The Town of Leon has had a farming history and tradition that have attracted residents to the area. Waushara County farmers produce a variety of feed and cash crops. Farming and other agricultural activities contribute significantly to the local economy. As with elsewhere in rural Wisconsin, these trends are changing as new developments encroach on productive farmland. The suburbanization trend is of great concern to both farmers and residents of the County. This section will look at important farmland classifications, agricultural land cover and farmland loses, and sales between 1990 and 1997. The UWEX Program on Agricultural Technology Studies is currently finalizing an updated *Wisconsin Town Land Use Databook; Town-Level Farming and Land Use Trends* from 2002 - 2007. This document is to be published in early 2009 and will provide a more comprehensive view of Waushara County's agricultural trends.

#### ***Agricultural Land Cover***

Agricultural land cover includes row crops (corn, peas, potatoes, snap beans, soybeans and other row crops); forages (hay and hay/mix); and grassland (timothy, rye, pasture, idle, Conservation Reserve Program land, grass and volunteer grasses).<sup>1</sup> ***Agricultural land cover, which includes row crops, forages, and grassland, comprised about 43 percent of the total area of the Town of Leon and 56 percent of the total area of Waushara County (Table 5-1).***<sup>1</sup>

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<sup>1</sup> Jackson-Smith, D., and E. Finnin. 2001. *Wisconsin County Agricultural Trends in the 1990s*.

**Table 5-1. Percent of Land Cover, 1991–1993**

Community	Row Crop	Forages	Grassland	Total Farmland
T. Leon	13.3	6.4	23.0	42.7
County	26.6%	9.0%	20.4%	56.0%

Source: UWEX Program on Agricultural Technology Studies, 1999

### **Farmland Losses**

Farm and farmland losses are the result of economic pressures within agriculture as well as competition for agricultural lands from residential and recreational development. Within the state and nation there has been a steady decline in the number of farms and farmland acreage. Trends have indicated that, while the number of farms has remained the same, the acreage per farm has increased. However, this was not true for the Town of Leon (430 and 409, respectively) and Waushara County (291 and 278, respectively) as a whole between 1990 and 1997.

**In 1997, an estimated 21 farms existed within the Town of Leon. The total number of farms remained consistent from 1990** (Table 5-2). The Town of Leon also has a lower percentage of farms based on land area than the county with 0.6 farms per square mile, compared to 1.2 farms per square mile for Waushara County.<sup>2</sup>

Dairy farms within the Town of Leon and Waushara County have declined since 1990 (Table 5-2). **In 1990, there were 14 dairy farms in the Town and 232 in Waushara County; by 1997, the Town lost six dairy farms while the County lost 101 dairy farms.**

**Table 5-2. Trends in Farm Numbers, 1990 – 1997**

Community	Estimated Farms				Dairy Farms			
	1990	1997	% Change	Per sq. mile (1997)	1990	1997	% Change	Per sq. mile (1997)
T. Leon	21	21	0.0%	0.6	14	8	-42.9%	0.2
County	709	710	0.1%	1.2	232	131	-43.5%	0.2

Source: UWEX Program on Agricultural Technology Studies, 1999

Although the total number of farms remained the same, the total amount of farmland decreased in both the Town and County during this time frame. **Between 1990 and 1997, 444 acres (4.9%) of farmland were lost in the Town of Leon** (Table 5-3). Waushara County experienced a smaller decline in the amount of farmland (4.4%) than the Town. The average farm size in Leon and Waushara County in 1997 was 409 acres and 278 acres respectively. The percent of town taxed as farmland represents the overall percentage of the Town that is considered agricultural by the local assessor.

<sup>2</sup> UWEX Program on Agricultural Technology Statistics. 1999. *Wisconsin Land Use Databook: Town-level Farming and Land Use Trends 1990-1998, Waushara County.*

**Table 5-3. Loss of Farm Acres, 1990 – 1997**

Community	Farmland (Acres)		Percent Change	% of Town Taxed as Farmland (1997)
	1990	1997		
T. Leon	9,030	8,586	-4.9%	37.3%
County	206,263	197,197	-4.4%	54.1%

Source: UWEX Program on Agricultural Technology Studies, 1999

When agricultural land is sold in the State of Wisconsin, information is collected by the Wisconsin Department of Revenue regarding whether the land is going to remain in agricultural use. It should be noted that the Wisconsin Department of Revenue only collects information on larger parcels. In 1990 a "large" parcel was 20 acres in area and in 1997 a large parcel was increased to 35 acres in area. Between 1990 and 1997, 56 parcels encompassing 2,218 acres was sold in the Town of Leon (Table 5-4). Approximately 64 percent of this land remained in agricultural use, while 36 percent was converted to other uses. Losses of agricultural lands in the Town of Leon are higher than the average conversion rates throughout Waushara County; approximately 22 percent of land in the County sold was converted to non-agricultural uses.

**Table 5-4. Farmland Sales, 1990 – 1997**

Community	No. Parcels Sold	Remain Agricultural	Converted to Other	Total Acres
T. Leon	56	1,415	803	2,218
County	974	33,881	9,558	43,439

Source: UWEX Program on Agricultural Technology Studies, 1999

### ***Farmland Soils***

Waushara County's farmland contributes to the quality of life, provides an open agricultural landscape, and adds to the economy of the area. A classification system rating the suitability of a specific area based on soil type and condition was developed by the U.S. Department of Agriculture.<sup>3</sup> These classifications in order of importance are: 1.) prime farmland, 2.) unique farmland, 3.) farmlands of statewide importance, 4.) farmlands of local importance, and 5.) other lands. Table 5-5 and Exhibit 5-1 summarize the distribution of available farmland in these categories.

**Prime farmland**, as defined by the U.S. Department of Agriculture is "the land that is best suited for food, feed, forage, fiber, and oilseed crops" when managed according to acceptable farming methods. These lands may be cultivated, pasture, woodland, or other land, however the land cannot be built-up, urbanized, or a water area. Prime farmland produces the highest yields with minimal inputs of energy and economic resources with the least damage to the environment. Criteria used to determine prime farmland include an adequate and dependable supply of moisture from precipitation or

<sup>3</sup> USDA. 1993. *USDA Handbook 18: Soil Survey Manual*.

irrigation, few or no rocks, high permeability, gently sloping terrain (0 to 6%) and a low erodibility. Prime farmland is not frequently flooded during the growing season or saturated with water for long periods of time. Soils that have a seasonal high water table may qualify as prime farmland if this limitation is overcome by drainage measures.

**Unique farmland** is defined as land other than prime farmland that is used to produce specific high-value food or fiber crops. It has a moisture supply, either from stored precipitation or irrigation systems, and combines favorable factors of soil quality, growing season, temperature, humidity, drainage, elevation, aspect or other conditions. Examples of specialty crops that typically require a high management and investment level include apple orchards, lettuce, carrots, celery, and cauliflower.

**Farmlands of statewide importance** are lands in addition to prime and unique farmland that are important to the State of Wisconsin for crop production.

**Farmlands of local importance** are lands in addition to the previous three categories which are important to Waushara County for crop production.

**Other lands** are areas which have little value for producing crops.

According to the above criteria, the highest percentage of land within the Town of Leon is considered unique farmland. Within the Town, 42.1 percent (9,755 acres) is classified as local unique farmland. Of this total approximately 1,890 acres needs to be drained before the land can be utilized. Local importance farmlands are the second most abundant category of farmland (21.4%) with a total of 4,957 acres. ***Prime farmland only accounts for 16.1 percent (3,732 acres) of the land in the Town of Leon.*** Approximately 17 percent (3,846 acres) of land is considered other lands, while 3.1 percent (719 acres) of the land is classified as state importance lands (Table 5-5, Exhibit 5-1). The remaining 176 acres are classified as water.

**Table 5-5. Important Farmland Classes**

Farmland Class	T. Leon	
	Acres	Percent
Prime Farmland	3,732	16.1%
Unique Farmland	9,755	42.1%
State Importance	719	3.1%
Local Importance	4,957	21.4%
Other Lands	3,846	16.6%
Water	176	0.8%
<b>Total</b>	<b>23,185</b>	<b>100.0%</b>

Source: USDA-NRCS, 1982, Waushara County, 2003.

## Natural Resources

This section will describe the general soils' associations of the Town of Leon together with the soils' suitability for on-site waste disposal, septage spreading, the potential for building site development and steep slopes. It will also explain the water resources of the area including watersheds and drainage; lakes, ponds and quarries; rivers and streams; floodplains; wetlands

and groundwater. Wildlife, parks, open space, recreational and mineral resources will also be touched upon.

### ***Soils***

Soils provide the physical base for development and agriculture within a community. Knowledge of their limitations and potential difficulties is important in evaluating crop production capabilities and other land use alternatives such as residential development, and utility installation. The criteria considered by the Natural Resource Conservation Service (NRCS) in establishing the severe rating of soils include wetness, shrink–swell potential, bearing strength, susceptibility to flooding, land spreading, slope steepness, and frost action.<sup>4</sup> Severe soil limitations do not necessarily exclude areas from being developed, but instead indicate that more extensive construction measures must be taken to prevent environmental and property damage.

Soils are classified according to their associations, which are a grouping of similar soil types based on geographic proximity, physical characteristics, and permeability. There are six major soil associations within the Town of Leon.

**Plainfield-Okee-Richford Association soils** are sloping to steep sandy soils located on moraines, hills, and terraces. Plainfield soils are rapidly permeable and excessively drained, while Okee and Richford soils are moderately permeable and somewhat excessively drained. Slopes range from 6 to 30 percent. While some of the Richford soils are used for cropland, most acreage in this association is used for woodlands. These soils are especially suited for pine species.

**Plainfield-Richford-Boyer Association soils** are nearly level and gentle sloping soils that are well drained to excessively drained sandy soils located on outwash plains and terraces. Most acreage in this association is used as irrigated cropland; a few areas are suitable for woodlands. Soil erosion and very rapid permeability are the main concerns with this association.

**Kingsville-Meehan Association soils** are located throughout the town's northern regions. These nearly level and gently sloping soils are poorly drained sandy soils located on glacial outwash plains, glacial depressions, and lake basins. Most of the acreage in this association is used as cropland; some areas are used as pasture or woodlands. Many of the areas are drained and used as irrigated cropland. The main concerns of this association are wetness and low available water capacity.

**Houghton-Adrian-Willette Association soils** are nearly level poorly drained, mucky soils; located in depressions of outwash plains, glacial lake basins, and moraines. Most of the acreage in this association is used for water tolerant native vegetation; however a few areas can be drained and used for specialty crops. The main management concerns are wetness, subsidence when the soils are drained, and a short growing season caused by cold air flowing into depressions.

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<sup>4</sup> U.S. Department of Agriculture Soil Conservation Service. 1989. *Soil Survey of Waushara County, Wisconsin*.

**Hortonville-Symco-Manawa Association soils** are nearly level to sloping, well drained to somewhat poorly drained, silty, loamy, sandy soils, located on moraines and in glacial lake basins. The majority of acreage in this association is used for cropland with some areas used as pasture or woodlands. The majority of this association are poorly suited for septic absorptions fields. Soil erosion is the only major management concern for this association.

**Morocco-Kingsville-Keowns Association soils** are nearly level and gently sloping, poorly drained, sandy and silty soils, located in drainageways and depressions in glacial lake basins. Most of the acreage in this association is used as cropland; however some areas are used as pasture or woodlands. The Morocco and Keowns soils are suited to trees, but the Kingsville soils are poorly suited to this use due to wet conditions during the growing season. The main management concerns are wetness, low available water capacity, and hazard of soil blowing in the areas of the Morocco and Kingsville soils.

### ***On-Site Waste Disposal***

Exhibit 5-2 identifies suitability for on-site waste disposal options based on an evaluation of soil characteristics. This map is not intended to serve as a substitute for on-site soil investigations, but rather as an indicator of reasonable expectations for soils underlying a site.

Evaluation of the soil data indicates that the majority of the soils in the Town of Leon (67.2%) are rated suitable for conventional or at-grade in-ground pressure or mound systems (Table 5-6). Generally, soils near streams and rivers are the least suitable for on-site waste disposal. Areas with high groundwater or characterized by poorly drained soils (are also more likely to be unsuitable for on-site systems.

The vast majority of soils in the Town of Leon are capable of supporting private on-site wastewater disposal systems. ***Approximately sixty-seven percent of the area in the Town of Leon is suitable for conventional systems; while another 13.8 percent is suitable for at-grade, in-ground pressure and mound systems.*** The remaining 8.4 percent (1,950 acres) of the soils in Leon are rated unsuitable for on-site systems due primarily to wet soil conditions and low permeability. Water features account for about 0.8 percent of the surface area within the Town of Leon.

**Table 5-6. Soil Limitations for On-Site Waste Disposal**

Community	Conventional		At-Grade <sup>1</sup>		Holding Tank <sup>2</sup>		Unsuitable		No Rating		Water		Total Acres
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	
T. Leon	15,581	67.2%	3,208	13.8%	2,267	9.8%	1,950	8.4%	2	0.0%	176	0.8%	23,185

<sup>1</sup>Includes in-ground pressure and mound systems.

<sup>2</sup>Includes new technology systems producing 10<sup>4</sup> or less coliform fecal units (cfu) per 100ml.

Source: USDA-NRCS, 1982, Waushara County, 2003.

### ***Building Site Development***

The USDA-Natural Resource Conservation Service has evaluated soil characteristics and rated soil potential for building site development based upon wetness, shrink-swell potential, bearing strength, susceptibility to flooding, slope steepness, and frost action. The ratings range from low to very high potential. Typically, areas near flowages and in wetlands have the lowest ratings. Exhibit 5-3 identifies soil potential for building site development. ***Just over one-third***

**of the area within the Town of Leon (35.7%, 8,283 acres) has soils that are considered to have a very high suitability for building site development**, while an additional 21.5 percent (4,975 acres) have a medium suitability (Table 5-7). Approximately 42 percent (9,752 acres) of the Town is rated very low or is not rated for building site developments. Water accounts for slightly less than one percent of the area.

**Table 5-7. Soil Potential for Building Site Development**

Community	Very High		Medium		Very Low, No Rating		Water		Total Acres
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	
T. Leon	8,283	35.7%	4,975	21.5%	9,752	42.1%	176	0.8%	23,185

Source: USDA-NRCS, 1982, Waushara County, 2003.

### **Septage Spreading**

The Waushara County Land Conservation Office has evaluated soil characteristics for the suitability of septage spreading based on groundwater depths, permeability, soil texture, slope, wetness, and soil depths (Exhibit 5-4). The ratings range from none or slight to severe. Soils rated slight are relatively free of limitations that affect the intended use or have limitations that are easily overcome. Soils with moderate limitations can normally be overcome with corrective planning, careful design, and good management. Soils rated severe have physical limitations which are severe enough to make the use of the soil doubtful for the proposed use. Septage spreading cannot occur within 300 feet of rivers and streams or within 1,000 feet of lakes unless they are incorporated into the soil within 72 hours of application. Spreading rates need to be based on current soil tests, on-site vegetation, and a septic nutrient test.

**Almost one-third of the soils (30.9%, 7,173 acres) pose a slight risk to no limitations for septage spreading within the Town of Leon.** Twenty-six percent (6,039 acres) are listed as having a moderate risk, while 42 percent (9,736 acres) of the soils in Leon are considered a severe risk for septage spreading (Table 5-8).

**Table 5-8. Soil Limitations for Septage Spreading**

Community	None to Slight		Moderate		Severe		No Rating		Water		Total Acres
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	
T. Leon	7,173	30.9%	6,039	26.0%	9,736	42.0%	61	0.3%	176	0.8%	23,185

Source: USDA-NRCS, 1982, Waushara County, 2003.

### **Geography and Topography (Scenic Resources)**

The local communities in the Waushara County are defined by diverse topographical features<sup>5</sup>. Evidence of several phases of the Wisconsin Glacier can be found in the County.<sup>6</sup> The western edge of the County is a flat outwash plain. A narrow moraine is located on the eastern boundary of this outwash plain extending through the Villages and towns of Coloma, Hancock and Plainfield. This moraine ridge creates a groundwater divide separating the County's

<sup>5</sup> WDNR, *Ecological Landscapes of Wisconsin*; 2001

<sup>6</sup> Dutch, S. 2003. *Lake Oshkosh Drainage*. <http://www.uwgb.edu/dutchs/geolwisc/geohist/wi12ka.htm>

groundwater flow east and west. Central Waushara County (City of Wautoma, Village Wild Rose and surrounding towns) gradually flattens to a rolling plain as you move eastward across the County. The eastern third of the County is a gently rolling lake plain. The southeastern areas of Waushara County were once occupied by Lake Oshkosh and are characterized by relatively flat to gently rolling plains. The glacial plain areas of Waushara County have expansive deposits of red clay and organic-rich soils.<sup>7</sup> This combination has resulted in expansive wetlands and valuable agricultural areas.

As a result of glacial activity, land relief within Waushara County is quite varied.<sup>8</sup> ***Within the Town of Leon, land relief is approximately 260 feet, from a low of 770 feet above sea level along the Cedar Springs Creek corridor to a high of 1,030 east of CTH E and west of CTH EE.***

### ***Steep Slopes***

Exhibit 5-5 indicates areas that have slopes greater than 12 percent. ***The Town of Leon classifies 14.1 percent (3,271 acres) of its land as having slopes in excess of 12 percent (Table 5-9).*** Steep slopes are scattered throughout the Town of Leon and are generally found in conjunction with moraines, drumlins, and other glacial features.

**Table 5-9. Steep Slopes**

Community	0-12 Percent		>12 Percent		No Rating, Water		Total Acres
	Acres	Percent	Acres	Percent	Acres	Percent	
T. Leon	19,677	84.9%	3,271	14.1%	237	1.0%	23,185

Source: USDA-NRCS, 1982, Waushara County, 2003.

### **Water Resources**

Water resources are sources of water that are useful or potentially useful to humans. Water is important because it is needed for life to exist. Water is used for household, agricultural, recreational, industrial and environmental activities<sup>9</sup>. Essentially all these uses require fresh water.

### ***Watersheds and Drainage***

The WDNR has divided the state into 24 hydrological based geographic management units (GMUs) or basins. Each GMU is further divided into smaller units based on smaller sub-watersheds. The Wisconsin DNR has completed several reports analyzing water quality for designated GMUs.<sup>10</sup>

***Surface water drainage for the Town of Leon is located entirely within the Wolf River Basin.*** The Wolf River Basin covers a large area, draining over 3,600 square miles and

<sup>7</sup> Attig, J., et al. 2005. *Glacial Lakes Wisconsin and Oshkosh: Two Very Different Late-Glacial Ice-Marginal Lakes.* [http://gsa.confex.com/gsa/2005NC/finalprogram/abstract\\_86950.htm](http://gsa.confex.com/gsa/2005NC/finalprogram/abstract_86950.htm)

<sup>8</sup> USGS. 1984. *USGS 7.5 Minute Quadrangle Maps.*

<sup>9</sup> Wikipedia, [http://en.wikipedia.org/wiki/Water\\_resources](http://en.wikipedia.org/wiki/Water_resources), 2/16/07.

<sup>10</sup> WDNR. 2002. *State of the Basin Reports.* <http://dnr.wi.gov/org/gmu/stateofbasin.html>

fifteen sub-watersheds within portions of eleven counties, draining the northeast portion of the state to the Winnebago Pool Lakes in Winnebago County.

**The Town of Leon falls within one Sub-watershed** (Exhibit 5-5). The Pine and Willow Rivers Creek Sub-watershed (WR02) drains the entire Town to the south and southeast.

- **The Pine River and Willow Creek Sub-watershed** (Wolf River Basin) is the southernmost sub-watershed within the Wolf River Basin and covers two-thirds of Waushara County. This sub-watershed ranked high priority for streams and medium priority for groundwater. The Pine River and Willow Creek drain the center two-thirds of Waushara County.

### *Lakes, Ponds and Quarries*

The majority of lakes within Waushara County are natural and of glacial origin. Sandy soils readily allow for the percolation of precipitation into the ground rather than overland flow directly to surface waters. This results in a continual recharge of the shallow aquifer underlying the county and surrounding region.<sup>11</sup> ***There are five lakes and/or impoundments found within the Town of Leon.*** (Table 5-10, Exhibit 5-5).

**Table 5-10. Lakes and Ponds**

Name	Acres	Maximum Depth Feet	Location (Section Number)	Lake Type
Middle Lake	20	14	29	Seepage
Pearl Lake	92	50	30	Seepage
Pine River Mill Pond	28	4	4	Drainage
Taylor Lake	11	5	29	Seepage
Unnamed Lake	1	8	32	Not listed
Unnamed Spring	5	24	32	Not listed

*Source: WDNR Wisconsin Lakes, 1995; ECWPC, 2008.*

Lakes can be described as drainage, seepage, spring, or drained lakes. The vast majority of Lakes within Waushara County are classified as seepage lakes. Seepage lakes do not have an inlet or an outlet and are recharged by precipitation and runoff supplemented by groundwater. Seepage lakes commonly reflect groundwater levels and can fluctuate seasonally.

The second most common type of lake in Waushara County are drainage lakes. These lakes have both an inlet and an outlet; the main water source is stream drainage. Drainage lakes in which one-half of the maximum depth is dependant on a dam are considered to be artificial lakes or impoundments.

Waushara County has a small number of spring lakes, primarily scattered throughout north central and south central Waushara County (towns of Springwater, Saxeville, Mount Morris, Leon, Dakota, and Richford). Spring lakes have an outlet, but have no inlet. The primary source of water is groundwater flowing into the bottom of the lake from inside and outside the immediate surface drainage area. Spring lakes are the headwaters of many streams.

<sup>11</sup> WDNR. 1970. *Surface Water Resources of Waushara County.*

Waushara County has one listed drained lake (located in Mount Morris). Drained lakes have no inlet, but have a continuously flowing outlet. Drained lakes are not groundwater fed. The primary source of water is from precipitation and direct drainage from the surrounding land. Water levels fluctuate depending on the supply of water.

### ***Rivers and Streams***

**There are four named river/streams in the Town of Leon.**

**Pine River** is a 28 mile tributary to the southwest corner of Lake Poygan, split up between the Upper and Lower Pine River. The Lower Pine is a highly productive Class I trout stream, but is degraded by power dams which fluctuate water levels and surface discharge of warm water. The upper portions of the river (Upper Pine) are not influenced by power dams with tributaries that are listed Exceptional Resource Waters.

**Carpenter Creek** is a Class II trout stream that is in poor shape due to ditching near its headwaters and in wetlands along the entire stream channel. Old drainage ditches along the creek were recently dredged, affecting the entire stream. Runoff from upland fields is the most significant source of nutrients entering the creek.

**Little Silver Creek** classified as a Class I Trout stream; however portions of the stream have been degraded due to a beaver dam as well as heavy siltation from cattle access to the stream.

**Cedar Springs Creek** is Class I trout stream, drainage ditches in the lower one-third of the creek, along with beaver activity affects water quality.

There are several unnamed creeks within the Town of Leon and throughout the County. In addition, agricultural ditches have been constructed throughout Waushara County to drain excess water from agricultural fields.

### ***Floodplains***

Areas susceptible to flooding are considered unsuitable for development due to potential health risks and property damage. Flood Insurance Rate Maps for the unincorporated portions of Waushara County identify areas lying within the Town of Leon.<sup>12</sup> Floodplains occur along the town's stream corridors and lake shorelines (Exhibit 5-5).

Table 5-11 indicates the total number of acres and overall percentages of land which are within the 100-year floodplain. ***Approximately 6 percent (1,320 acres) of the land within the Town of Leon lie in a floodplain.***

**Table 5-11. Floodplains**

Community	Acres	Percent
T. Leon	1,320	5.7%

*Source: FEMA, 2001, Waushara County, 2001*

<sup>12</sup> FEMA. 1985. *Flood Insurance Rate Maps.*

Waushara County has adopted a floodplain ordinance requiring certain land use controls in designated flood hazard areas, thus making residents eligible to participate in the Federal Flood Insurance Administrative Flood Insurance Program. The program requires all structures that are constructed or purchased in designated flood areas utilizing loans from federally insured banks to be insured by a flood insurance policy.

### ***Wetlands***

Wetlands act as a natural filtering system for nutrients such as phosphorous and nitrates. More importantly, wetlands also serve as a natural buffer protecting shorelines and stream banks from erosion. Wetlands are essential in providing wildlife habitat, flood control, and groundwater recharge. Consequently, local, state, and federal regulations place limitations on the development and use of wetlands and shorelands. The Shoreland/Wetland Ordinance adopted by Waushara County regulates development within 1,000 feet of the ordinary high water elevation mark of navigable lakes, ponds, or flowages or 300 feet from the ordinary high water elevation mark of navigable rivers or streams. The U.S. Army Corps of Engineers has authority over the placement of fill materials in virtually all wetlands two acres and larger or adjacent to navigable waters. The Wisconsin Department of Natural Resources and United States Department of Agriculture also have jurisdiction over wetlands within Wisconsin. The U.S. Department of Agriculture incorporates wetland preservation criteria into its crop price support programs. Prior to placing fill or altering wetland resources, the appropriate agencies must be contacted to receive authorization.

The wetlands surveyed according to the Wisconsin Wetlands Inventory Map are shown in Exhibit 5-6.<sup>13</sup> They were identified on aerial photographs by interpreting vegetation, visible hydrology, and geography based on the U.S. Fish and Wildlife Service.

Wetlands in the Town of Leon are generally located along the town's stream corridors; however large wetland areas are located south of CTH Q between CTH E and 26<sup>th</sup> road. This wetland complex is associated with Cedar Springs Creek, an unnamed spring located in Section 32 and high ground water found throughout the southeast corner of the Town.

Table 5-12 indicates the number of acres and the percentage of wetlands within the Town of Leon. Not including small tracts of wetlands (less than five acres); ***approximately fourteen percent (3,223 acres) of the Town of Leon is classified as wetlands.*** The amount and variety of wetlands have moderate limitations on the future growth and development of the area.

**Table 5-12. Wetlands**

Community	Acres	Percent
T. Leon	3,223	13.9%

*Source: WDNR, 2004; Waushara County, 2008.*

<sup>13</sup> WDNR. 2004. *Wisconsin Wetland Inventory Maps.*

## Groundwater

In Waushara County, groundwater occurs mostly in the alluvium and glacial drift of the Quaternary Age and in the sandstone of the Cambrian Age. Precipitation in the form of either rain or snow is the largest contributor to recharge of the groundwater aquifers. Recharge is generally greatest in spring when water from melting snow and heavy rains saturates the ground and percolates to the water table. If discharge (the drawing out and use of groundwater) is greater than recharge, the elevation where the groundwater is extracted will fall and a local depression in the water table will result. Lower water levels cause the pumping lifts to increase and may reduce the yields of some of the wells.

Groundwater within the county occurs under both water table and artesian conditions. Water in the unconsolidated beds of sand and gravel is generally unconfined and occurs under water table conditions. Confined or artesian conditions exist locally where the water in the sand and gravel deposits is confined by layers of silt or clay.

***A groundwater divide, located west and parallel to the topographic divide, cuts diagonally through Waushara County. It extends from Marquette County, through the towns of Hancock and Coloma, the Village of Hancock, and then east of the Village of Plainfield to the Portage County line.<sup>14</sup> East of this divide, groundwater moves southeasterly toward the Wolf and Fox Rivers. West of this divide groundwater moves westerly toward the Wisconsin River.***

According to the well water information obtained from the Central Wisconsin Groundwater Center in Stevens Point, some private wells located in this area contain nitrate levels that are higher than the EPA Safe Drinking Water Act standards of 10 mg/L.<sup>15</sup> These standards apply to municipal water sources only, but are strongly suggested thresholds for private systems. Nitrates originate in both agricultural and residential fertilizers, human sewage, and farm animal waste. Excessive levels of nitrates in drinking water have caused serious illness or death in infants under six months of age. Pregnant women are also advised not to drink water in which nitrate levels exceed the EPA standards. Due to sandy soils within the County, there is potential for groundwater contamination in the shallower aquifers. However, this potential is greatly reduced in the deeper aquifers. Table 5-13 lists the results of water sample tests conducted between 1990 and 2001.<sup>16</sup> For conversion purposes, 1 part per million (ppm) is the same concentration as 1 mg/L. ***Five wells within the Town of Leon exceeded the 10 ppm threshold level for nitrate.*** According to Waushara County, ***the majority of homes within the Town of Leon are served by private wells.***

**Table 5-13. Nitrate Levels (ppm) in Waushara County Wells**

Community	None Detected	0.1 - 2.0 ppm	2 -10 ppm	10 -20 ppm	> 20 Ppm
T. Leon	14	8	8	1	4

Source: Central Wisconsin Groundwater Center, UW – Stevens Point, 2001.

<sup>14</sup> Geology and Ground-Water Resources of Waushara County, Wisconsin, Geological Survey Water-Supply Paper, 1809-B. Map of Waushara County, Wisconsin, Showing Configuration of Water Table, July 1957 and Location of Wells, Springs, and Streamflow-Measurement Sites.

<sup>15</sup> USEPA. 2005. *List of Drinking Water Contaminants & MCLs*. <http://www.epa.gov/safewater/mcl.html>.

<sup>16</sup> Central Wisconsin Groundwater Center. 2001. *UWEX Private Well Project: Waushara County*.

Although groundwater is found at varying depths throughout the area, the majority of groundwater in the Town of Leon is found in depths greater than six feet (Table 5-14 and Exhibit 5-5). **Groundwater depths of less than two feet are found in about twenty-four percent (5,504 acres) of the land area**, an additional 8.8 percent (2,039 acres) of the area has groundwater depths of 2 to 6 feet. Groundwater depths exceed 6 feet in 66.4 percent (15,405 acres) of Leon. The remaining one percent (237 acres) in Leon has either no rating or is surface water. In general, there is a strong correlation between areas of high groundwater and wetlands.

**Table 5-14. Depth to Groundwater**

Community	< 2 Feet		2-6 Feet		> 6 Feet		No Rating		Water		Total Acres
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	
T. Leon	5,504	23.7%	2,039	8.8%	15,405	66.4%	61	0.3%	176	0.8%	23,185

Source: USDA-NRCS, 1982. Waushara County, 2005.

According to the *Wisconsin Administrative Code, Chapter ATCP 30 Atrazine, Pesticides; Use Restrictions*, atrazine prohibition areas have been established throughout Waushara County. In the prohibition areas no person can apply, mix or load any atrazine product, except under special conditions. **The Town of Leon does not have lands within the atrazine prohibition areas.** The Department of Agriculture has determined these areas based on well samples. These areas are monitored, and if atrazine is not applied, the levels may diminish and may be removed from the list.

### ***Natural Springs and Artesian Wells***

There are a number of natural springs and artesian wells scattered throughout Waushara County. A natural spring can occur when an impermeable layer (usually consisting of clay) forces the water table to the surface or when water-bearing crevasses in fractured rock intersect the surface. An artesian well is created when a well is drilled into a confined aquifer which is recharged from a source located at a higher elevation<sup>17</sup>. The majority of springs within Waushara County are gravity depression springs, generally located in the eastern portions of the County.

### ***Groundwater Planning***

Water quality and quantity have been a concern for Waushara County communities. Low lake levels throughout Waushara County underscore a more pressing problem: groundwater quantity and quality preservation. Communities throughout East Central Wisconsin have been challenged with a number of issues ranging from potable water supply shortfalls to contamination issues such as elevated arsenic and radium levels. A prolonged drought coupled with increased water demands may be contributing to a declining water table. The anticipated population increases, agricultural irrigation demands, and growing recreational demands will continue to place significant demands on Waushara County's groundwater resources.

<sup>17</sup> Wisconsin Department of Natural Resources, Source Water Springs and Natural Wells  
<http://dnr.wi.gov/org/water/dwg/OpCert/HTML/chapter2/sw2a.htm>,

With an ever increasing demand on current groundwater supplies, local communities must assess how local and county-wide land use decisions will continue to affect groundwater quantity and quality. Identifying soil characteristics, water table levels, and groundwater susceptibility is just a beginning step in this process. Other underlining geological characteristics such as bedrock, groundwater flow direction, private well information, community groundwater pumping rates, and water table depth will be essential in understanding the current status of groundwater. Moreover, the abundance and quality of surface water is directly tied to groundwater supplies. Many streams and lakes rely on groundwater as their primary source of water; thus, local lake levels are directly tied to groundwater levels. Human impacts such as high capacity wells, irrigation systems, and others also place demands on groundwater supplies.

Additional information and technical expertise is available from several governmental and academic agencies statewide. The Center for Land Use education has completed several case studies and groundwater planning assistance documents for local communities. Additional information can be found at <http://www.uwsp.edu/cnr/landcenter/groundwater/index.html>.

## Wildlife Resources

### *Wildlife Habitat*

Waushara County falls within the following ecological landscapes<sup>18</sup>:

- **Central Sand Plains** is located in western Waushara County, occurring on a flat, sandy lake plain, and supports agriculture, forestry, recreation, and wildlife management. This Ecological Landscape formed in and around what was once Glacial Lake Wisconsin, which contained glacial meltwater extending over 1.1 million acres at its highest stage.
- **Central Sand Hills** encompasses the majority of Waushara County and is located at the eastern edge of what was once Glacial Lake Wisconsin. The landforms in this Ecological Landscape are a series of glacial moraines that were later partially covered by glacial outwash. The area is characterized by a mixture of farmland, woodlots, wetlands, small kettle lakes, and cold water streams, all on sandy soils. The mosaic of glacial moraine and pitted outwash throughout this Ecological Landscape has given rise to extensive wetlands in the outwash areas, and the headwaters of coldwater streams that originate in glacial moraines.
- **Southeast Glacial Plains** is located in the eastern portions of Waushara County, and are made up of glacial till plains and moraines. Most of this Ecological Landscape is composed of glacial materials deposited during the Wisconsin Ice Age.

***The majority of the Town of Leon falls within the Central Sand Hills, while the southeastern portions and the northeast corner of the Town falls within the Southeast Glacial Plains ecological landscape.*** Together, these ecological landscapes support numerous habitat types throughout Waushara County for a varied and abundant wildlife and fish community. Habitats found within Waushara County include streams, lakes, rivers, woodlands, marshes, open wet meadows, and fallow/abandoned farmland. White-tailed

<sup>18</sup> WDNR, 2002. *Ecological Landscapes of Wisconsin*

deer and small mammals such as opossum, raccoon, gray and fox squirrels are abundant in wooded areas. Lakes and streams support diverse warm and cold water fisheries. Wetlands attract waterfowl during spring and fall migrations as well as during the nesting season. Other wildlife found in the area include grassland and wetland birds, cottontail rabbits, mink, otter, muskrats, red fox, and a wide variety of songbirds and similar passerines.

### **Rare, Threatened and Endangered Species and Natural Communities**

The Wisconsin Department of Natural Resources maintains a database of rare, special concern, threatened, and endangered species and natural communities in Waushara County.<sup>19</sup> In order to protect these communities from harm, their exact locations are not released to the public; however, Waushara County has access to this database. When a development proposal is presented to the county, the WDNR database is consulted prior to granting approval. Before development, precautions should be taken to minimize adverse impacts which could disturb potential habitats for these flora and fauna. A list of the rare, threatened, and endangered species and natural communities is included in Appendix D (Table D-1).

### ***Exotic and Invasive Species***

Non-native species commonly referred to as exotic or invasive species have been recognized in recent years as a major threat to the integrity of native ecosystems, habitats, and the species that utilize those habitats. Invasive species disrupt native ecosystems by out-competing native plants and animals for valuable resources such as food and space. The resulting competition between native and invasive species has the potential to completely displace native species. Invasive species are found in both aquatic and terrestrial habitats. The WDNR updates a list of plant and animal invasive species in Wisconsin. This list can be found on the Department's website at: <http://dnr.wi.gov/invasives/>. Human livelihood and quality of life are greatly altered by invasive species; they hamper boating, swimming, fishing, and other water recreation; place an economic burden on local communities in eradication and control costs; and in some instances present a potential fire hazard. Prior to introduction of any non-native fish or wildlife, a permit from the WDNR is required pursuant to Wisconsin Statutes 29.736 and 29.745.

### **Woodlands**

Originally, the majority of Waushara County contained vegetation consisting of a mixture of oak forest species interspersed with pine forests and oak openings with an understory of prairie grasses. Waushara County once encompassed substantial areas of wetland conifers, lowland hardwoods, wet meadows with lowland shrubs, and marshes. Currently, upland forest areas are characterized by an oak-hickory association. Pine species are found throughout much of the county, while the wetland conifers have been replaced largely by shrub wetlands, general agriculture, and urban areas. Woodlands are found in large stands as well as scattered throughout the Town. ***Woodlands comprise about 62 percent of the total land area in the Town of Leon*** (Exhibit 5-6). The vast majority of wetlands, especially along stream corridors, are predominantly forested.

Forests and woodlands can be classified into one of two categories: general (unplanted) woodlands and planted woodlands. General woodlands are naturally occurring forests and

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<sup>19</sup> WDNR. 2005. *Natural Heritage Inventory Program*. <http://dnr.wi.gov/org/land/er/nhi/>.

hedgerows. Planted woodlands are tree plantations in which trees are found in rows; these areas include orchards, timber tracts, Christmas tree production and other general uses. ***There are 11,026 acres of general woodlands and 3,282 acres of planted woodlands in the Town of Leon.*** These woodlands should be considered as prime wildlife habitat areas; efforts to protect them from encroaching development should be evaluated (Table 5-15).

**Table 5-15. Woodlands**

Community	General Woodlands		Planted Woodlands		Total Woodlands		Total Acres
	Acres	Percent	Acres	Percent	Acres	Percent	
T. Leon	11,026	47.5%	3,282	14.2%	14,308	61.7%	23,185

Source: ECWRPC, 2005.

The Forest Crop Law of 1927 (FCL) and the Woodland Tax Law of 1954 (WTL) were established to encourage sound forestry practices on private lands. In 1985, the Managed Forest Law (MFL) replaced both the FCL and WTL.<sup>20</sup> Enrollment in the FCL closed in 1986, and renewal in the program is not permitted. The last WTL contract expired in 2000. The MFL ensures the growth of future commercial crops while balancing individual property owner objectives and society's need for compatible recreational activities, forestry aesthetics, wildlife habitat, erosion control and protection of endangered resources. ***In 2008, a total of 3,831 acres were actively managed under the MFL and a total of 161 acres were managed under FCL within the Town of Leon*** (Table 5-16).

**Table 5-16. Managed Forest Law  
And Forest Crop Law Lands**

T. Leon	Acres	Percent
Managed Forest Law	3,831	26.8%
Forest Crop Law	161	1.1%

Source: WDNR, 2008.

## Parks, Open Space, and Recreational Resources

Public open space such as parks and parkways are important to the quality of life within a community. These lands serve many purposes including outdoor recreation and education; buffers between different land uses; flood and stormwater management; habitat preservation; air and surface water quality improvements; protection of groundwater recharge areas; and aesthetics. They can also enhance the value of nearby properties. (See Utilities & Community Facilities Chapter)

### ***Wisconsin Department of Natural Resources (WDNR) and Public Lands***

Since 1876, the State of Wisconsin has been acquiring land to meet conservation and recreation needs. Public lands managed by the Wisconsin Department of Natural Resources provide many opportunities and public spaces to hunt, fish, hike, canoe, or watch or photograph wildlife. All Wildlife Areas are open to a full range of traditional outdoor recreational uses. These include

<sup>20</sup> WDNR. 2005. *Managed Forest Law*. <http://dnr.wi.gov/org/land/forestry/ftax/mfl.htm>.

hunting, fishing, trapping, hiking, nature study, and berry picking. Dog training or trialing (hunting dog competitions) may be allowed by permit. A limited number of properties allow additional outdoor recreation at designated locations; like camping, bicycling, horseback riding, and snowmobiling.

State Fishery Areas (SFAs) protect important waterways in Wisconsin by providing a natural buffer from agricultural practices and urban runoff. SFAs often preserve and manage the headwaters or springs of streams which serve as the biological base for fish and other aquatic life. SFAs also increase the availability of public access to navigable waterways throughout the state. ***The WDNR owns approximately 946 acres within the Town of Leon.*** The Town of Leon has the following State owned and managed lands:

State Wildlife Areas:

- ***There are no State Wildlife Areas within the Town of Leon.***

State Fishery Areas:

- **Pine River Fishery Area is composed of the Pine River and seven tributaries: Lower Pine, Jones, Davis, Clayton, Upper Pine, Kaminski, and Little Silver Creeks.** Humphrey Creek, while not mentioned as one of the seven tributaries on the WDNR website, is a tributary to Pine River and is part of the fishery area. These streams are high quality trout streams that are generally crystal clear. Public access is fragmented by various parcels along the stream corridor segments. Parcels along the Little Silver Creek within the Town are part of the Pine River Fishery.
- ***Willow Creek Fishery Area is composed of Willow Creek and three tributaries: Rattlesnake (within the Town of Mount Morris), Thorstad (Bruce), and Cedar Spring Creeks.*** Public access is fragmented by various parcels along stream corridor segments. Parcels along the upper Cedar Springs Creek corridor are part of the Willow Creek Fishery.

WDNR Managed Lands:

- ***The State does not manage lands within the Town of Leon, other than the lands classified as State Fishery Areas.***

### ***Environmental Corridors***

Environmental corridors are continuous systems of open space created by the natural linkage of environmentally sensitive lands such as woodlands, wetlands, and habitat areas that provide important travel ways for a variety of wildlife and bird species. These features are sensitive natural resources; preserving the corridors from development protects habitat and keeps non-point source pollution to a minimum, thus ensuring that high quality groundwater and surface water is maintained and habitat is not impaired.

As stated above the WDNR manages lands along the Little Silver Creek and the Cedar Springs Creek corridors, to preserve these resources and more specifically to protect the invaluable habitat these creeks provide. It is important that development is directed away from this

environmental corridor as well as other privately owned natural corridor areas which are scattered throughout the Town of Leon.

## Mineral Resources

**Non-metallic Mineral Resources.** Non-metallic mineral resources include all mined minerals other than those mined as a source of metal. Economically important non-metallic minerals include building stone, lime, sand, gravel, and crushed stone. ***There is one active non-metallic mining site in the Town of Leon*** (Table 5-17 & Exhibit 5-6).

**Table 5-17. Non-metallic Mining Sites**

Operator	Total Acres	Location (Section number)
Gary Jorgensen	2.75	2

Source: Waushara County Zoning, 2008.

**Metallic Mineral Resources.** Metallic mineral mining refers to mining of mineral deposits that contain recoverable quantities of metals such as copper, zinc, lead, iron, gold, silver, and others. ***There are no metallic mineral resource sites in the Town of Leon.***

## Solid and Hazardous Waste

The Wisconsin Department of Natural Resources has inventoried the past and current sites which have been used for solid and/or hazardous waste disposal.<sup>21</sup> The list includes active, inactive, and abandoned landfills and collection sites. Inclusion of a site on the Registry does not mean that environmental contamination has occurred, is occurring, or will occur in the future. Instead, the document is intended to be utilized as a general information resource and planning tool. The list has been updated by WDNR and County staff; generally sites have been removed from the list that are not considered to be of a concern or could not be located. ***There are two sites in the Town of Leon that are listed on the WDNR's registry of active, inactive and abandoned sites where solid waste or hazardous wastes were known or likely to have been disposed*** (Table 5-18).

**Table 5-18. Waste Disposal Sites**

Facility Name	Location (Section number)
Ed Fadrowski/Menard's	20
Town of Leon	30

Source: WDNR, 1999 *Registry of Waste Disposal Sites in Wisconsin*

## Air Quality

Air quality, particularly good air quality, is often taken for granted. Clean air is vital to maintain public health. Sound local and regional planning can minimize negative impacts to the air. Development patterns can impact automobile use. As communities become more spread out,

<sup>21</sup> Wisconsin Department of Natural Resources. 1999. *Registry of Waste Disposal Sites in Wisconsin*.

the use of automobiles increases dramatically, resulting in more emissions and subsequent decreases in air quality. As residential development moves into rural areas, there are increased conflicts between non-farm residents and agricultural operations that emit odors and dust. Emissions from certain industrial uses also have the potential to impact air quality.

***There are no areas in Waushara County which exceed the limits of the National Ambient Air Quality Standards (NAAQS) for ozone, particulates, or carbon monoxide.*** The nearest ozone monitoring sites are in Brown and Outagamie Counties.<sup>22</sup>

## Cultural Resources

Cultural resources, like natural resources are valuable assets which should be preserved. These resources define a community's unique character and heritage. Included in this section is an inventory of historic buildings, sites, structures, objects, archeological sites and districts.

### State and National Register of Historic Places.

The Wisconsin Historical Society's Division of Historical Preservation (DHP) is a clearing house for information related to the state's cultural resources including buildings and archaeological sites. A primary responsibility of the DHP is to administer the State and National Register of Historic Places programs. The National Register is the official national list of historic properties in the United States that are worthy of preservation. The program is maintained by the National Park Service in the U.S. Department of the Interior. The State Register is Wisconsin's official listing of state properties determined to be significant to Wisconsin's heritage. The inventory is maintained by the DHP. Both listings include sites, buildings, structures, objects, and districts that are significant in national, state, or local history. Sites are chosen based on the architectural, archaeological, cultural, or engineering significance.

The following items are listed on the National Register for Waushara County:

- Alanson M. Kimball House – Town of Leon
- Waushara County Courthouse, Waushara County Sheriff's Residence and Jail – City of Wautoma
- Whistler Mound Group – Village of Hancock

***At the present, the only property within the Town of Leon listed on the National Register is the Alanson M. Kimball House.*** Mr. Kimball was a United States Representative for the 6<sup>th</sup> Congressional District of Wisconsin from 1875 to 1877<sup>23</sup>. The National Register is not a static inventory. Properties are constantly being added, and, less frequently, removed. It is, therefore, important to access the most updated version of the National Register properties. This can be found by accessing the DHP website (<http://www.wisconsinhistory.org/histbuild/register/index.html>) or by contacting the DHP at (608) 264-6500.

<sup>22</sup> U.S. Environmental Protection Agency. 2007. *County Air Quality Report – Criteria Air Pollutants.*

<sup>23</sup> [http://en.wikipedia.org/wiki/Alanson\\_M\\_Kimball](http://en.wikipedia.org/wiki/Alanson_M_Kimball).

## Architecture and History Inventory (AHI)

In order to determine those sites that are eligible for inclusion on the National Register, the DHP frequently funds historical, architectural, and archaeological surveys of municipalities and counties within the state. Surveys are also conducted in conjunction with other activities such as highway construction projects. A minimal amount of this type of survey work has been done in Waushara County.

***A search of the DHP's on-line Architecture and History Inventory (AHI) indicates one property listed within the Town of Leon.*** The Alanson M. Kimball House in the unincorporated community of Pine River is the only property listed within the inventory for the Town of Leon. Inclusion in this inventory conveys no special status, rights, restrictions, or benefits to owners of these properties. It simply means that some type of information on these properties exists in the DHP's collections. As is often the case, some of these properties may no longer exist. AHI is primarily used as a research and planning tool. Like the National Register, this is not a static inventory. Properties are constantly being updated. Information can be found on the DHP web site (<http://www.wisconsinhistory.org/ahi/search.asp?cnty=WS>).

## Archaeological Sites Inventory (ASI)

An inventory similar to the AHI exists for known archaeological sites across the state: the Archaeological Sites Inventory (ASI). Due to the sensitive nature of archaeological sites, information as to their whereabouts is not currently made available on-line. This information is distributed only on a need-to-know basis. Archaeological sites are added to ASI as they are discovered; discovery is a continual process. For technical assistance and up to date information on sites within a given area, contact the DHP at (608) 264-6500.

## Wisconsin Historical Markers

Wisconsin historical markers identify, commemorate and honor important people, places, and events that have contributed to the state's rich heritage. The Wisconsin Historical Markers Program is a vital education tool, informing people about the most significant aspects of Wisconsin's past. The Society's Division of Historic Preservation administers the Wisconsin Historic Markers Program. Applications are required for all official State of Wisconsin historical markers and plaques.<sup>24</sup> ***There are no historical markers in the Town of Leon.***

According to the Wisconsin Historical Society, three historical markers or plaques are located within Waushara County:

- Sir Henry Wellcome – Town of Oasis
- Whistler Mound Group and Enclosure – Town of Hancock
- The Auroraville Fountain – Town of Aurora

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<sup>24</sup> Wisconsin Historical Markers of the Wisconsin Historical Society.  
[Http://www.wisconsinhistory.org/hp/markers/index.asp](http://www.wisconsinhistory.org/hp/markers/index.asp). Accessed 10/28/08

## Museums/Other Historic Resources

Museums protect valuable historic resources for community enjoyment. Residents are welcome to learn from the exhibits and amenities they have to offer. Although ***there are no museums in the Town of Leon***, several museums are located in close proximity to the town<sup>25</sup>.

- **Waushara County Museum** is housed in the former county jail in Wautoma. The Waushara County Historical Society maintains several exhibits detailing the genealogy, antiques, and the history of the sheriffs department. The original doors and bars of the jail cells have been preserved. Other nearby museums are located in the Oshkosh and Appleton areas.
- **Pioneer Museum** is located in the Village of Wild Rose. This museum encompasses the Victorian era home of Elisha and Jane Stewart, Pioneer Hall (bank and drug store), a country school, barn and carriage house.
- **Woodland Indian Mounds** in Whistler Park. These historic earthen structures were constructed by Woodland Indians during the period of 650 to 1200 AD.
- **Quarry Park** in Redgranite. In 1995, this popular quarry site was designated as a village park. Remains of some of the old quarry works can still be seen from the walking path that surrounds the quarry.

## Local History<sup>26</sup>

The earliest inhabitants of Waushara County were Native Americans. Considerable evidence of their civilization has been found. A total of 332 mounds, 49 camp and village sites, two spirit stones, two cemeteries, and several other archeological sites have been identified within the County<sup>27</sup>. At one time a number of trails used by Native Americans crisscrossed Waushara County. One of the trails originated near Plainfield and ran diagonally through the towns of Oasis, Rose and Springwater before intersecting a trail (in the Town of Leon) that diagonally cuts across the county in a north-south direction. Within Waushara County this north-south trail runs northwest from the Green Lake County line; intersecting the towns of Warren, Leon, Saxeville and Springwater. Another trail intersects the north-south trail in the Town of Leon and runs in a southeasterly direction through the towns of Leon, Warren and Aurora. ***Traces of Native American existence, in the form of a cemetery and campsites have been found in the Town of Leon.*** Evidence was found in the following areas: Pearl Lake (campsites).

On October 18, 1846, the Menominee Tribe ceded their land, including Waushara County, to the U.S. Government. In 1848, Isaac and William Warwick, the first white settlers to the area, built a log cabin in the Town of Marion. During the winter of 1848 to 1849, Philip Green settled on the site of the former Village of Wautoma. Other settlers soon followed. By 1849 a crude dirt road was built between Berlin (Strong's Landing) and Wautoma (Shumway Town). The 1849 road roughly corresponds with present day CTH F. The community of Sacramento, located on the south side of the Fox River, was platted in either 1849 or 1850 and a post office

<sup>25</sup> <http://www.explorewisconsin.com/countypages/waushara.asp>

<sup>26</sup> Reetz, E. 1981. *Come Back in Time: Vol. 1.*

Stertz, N. 1996. *Auroraville, Wisconsin.*

[http://www.wisconsinhistory.org/turningpoints/tp-061/?action=more\\_essay](http://www.wisconsinhistory.org/turningpoints/tp-061/?action=more_essay)

<sup>27</sup> Fox, G., and E.C. Tagatz. *The Wisconsin Archeologist, Indian Remains in Waushara County, Volume 15, October 1916 No. 3.*

was established for the community in 1852. During 1849 and 1850, other settlers began gathering and making settlements in other parts of what is now Waushara County. On February 15, 1851, the Wisconsin Legislature established Waushara County and selected Sacramento as the county seat. The county originally consisted of a single town, the Town of Waushara. In 1852, Waushara County was organized for judicial purposes and in September 1854 the county seat was moved to Wautoma.

The first claim in the Town of Leon was made in 1849 by a bee-hunter named Worden. He did not remain in the town<sup>28</sup>. ***The Town of Pine River was created on November 12, 1854. On November 19<sup>th</sup> of the same year, the name was changed to Leon.***<sup>29</sup>

## Ethnic Origin

***In 2000, the most common ancestry identified by town and county residents was German (Table 5-19; Appendix D, Table D-2). Forty-four percent (43.9%) of Town of Leon and 38.0% of Waushara County residents claimed German ancestry.*** Several residents (16.5% Town of Leon, 20.0% Waushara County) could not identify or chose not to report their ancestry. The second most common ancestry identified by Town of Leon and Waushara County residents was Polish. Approximately five percent (5.2%) of Town residents and 7.3 percent of Waushara County residents claimed Polish ancestry.

**Table 5-19. Top 5 Ancestries**

	Ancestry	Total Population in Sample	Percent of Population
T. Leon	German	560	43.9%
	Unclassified or Not reported	211	16.5%
	Polish	66	5.2%
	Irish	64	5.0%
	United States or American	49	3.8%
	Total Population	1,275	100.0%
Waushara County	German	8,805	38.0%
	Unclassified or Not reported	4,629	20.0%
	Polish	1,681	7.3%
	Irish	1,101	4.8%
	United States or American	1,055	4.6%
	Total Population	23,154	100.0%

Note: Includes individuals who only reported one ancestry and the first response listed for those who reported multiple ancestries.

Source: U.S. Census, 2000 STF 3A

Research has shown that there is a high correlation between those communities with Pennsylvania German ancestry and those communities with concentrations of Amish population.<sup>30</sup> Within Waushara County, Amish settlements include 52 households, 291 people, and an average household size of 5.6 persons (Appendix D, Table D-3). Thirty-three percent are employed in farming, 23 percent in dairying and 51 percent in woodworking. ***There are***

<sup>28</sup> <http://wigenweb.org/waushara/cvtn/sh.htm>.

<sup>29</sup> <http://www.wisconsinhistory.org/dictionary/index>.

<sup>30</sup> UW Madison Applied Population Lab

***no Amish Settlements within the Town of Leon.*** According to a power point presentation given by UW-Extension<sup>31</sup> in 2000, there were between 0 and 20 Waushara County residents over the age of 5, who speak a Germanic language at home in the Town of Leon. It further states that “The Amish speak a Germanic language at home”.

## Key Findings

### Agricultural Resources

- Agricultural land cover, which includes row crops, forages and grassland, comprised over 43 percent of the total area in the Town of Leon (1999).
- In 1997, an estimated 21 farms existed within the Town of Leon. The total number of farms remained consistent from 1990.
- In 1990, there were 14 dairy farms in the Town of Leon and 232 in Waushara County; by 1997 the Town had lost six dairy farms, while the county lost 101 dairy farms.
- Between 1990 and 1997, 444 acres (4.9%) of farmland were lost in the Town of Leon.
- Prime farmland accounts for 16.1 percent of the land in the Town of Leon.

### Natural Resources

#### *Soils*

- Approximately sixty-seven percent of the area in the Town of Leon is suitable for conventional systems; while another 13.8 percent is suitable for at-grade, in-ground pressure and mound systems.
- Just over one-third of the area within the Town of Leon (35.7%, 8,283 acres) has soils that are considered to have a very high suitability for building site development.
- Almost one-third of the soils (30.9%, 7,173 acres) pose a slight risk to no limitations for septage spreading within the Town of Leon.

#### *Geography and Topography*

- Within the Town of Leon, land relief is approximately 260 feet, from a low of 770 feet above sea level along the Cedar Springs Creek corridor to a high of 1,030 east of CTH E and west of CTH EE.
- The Town of Leon classifies 14.1 percent (3,271 acres) of its land as having slopes in excess of 12 percent.

#### *Water Resources*

- Surface water drainage for the Town of Leon is located entirely within the Wolf River Basin.
- The Town of Leon falls within one sub-watershed; the Pine River and Willow Creek Sub-watershed.
- There are five lakes and/or impoundments found within the Town of Leon; Middle Lake, Pearl Lake, Pine River Millpond, Taylor Lake, and two unnamed lake/springs.

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<sup>31</sup> *Waushara County Demographic Overview, 2008*; as presented by UW-Extension Waushara County. Source data: Wisconsin Department of Administration.

- There are four named river/streams in the Town of Leon; Pine River, Carpenter Creek, Little Silver Creek, and Cedar Springs Creek.
- Approximately 6 percent (1,320 acres) of land within the Town of Leon lie in a floodplain.
- Approximately fourteen percent (3,223 acres) of the Town of Leon is classified as wetlands.
- A groundwater divide, located west and parallel to the topographic divide, cuts diagonally through Waushara County. It extends from Marquette County, through the towns of Hancock and Coloma, the Village of Hancock, and then east of the Village of Plainfield to the Portage County line. East of this divide, groundwater moves southeasterly toward the Wolf and Fox Rivers. West of this divide groundwater moves westerly toward the Wisconsin River.
- Five wells within the Town of Leon exceeded the 10 ppm threshold level for nitrate.
- The majority of homes within the Town of Leon are served by private wells.
- Groundwater depths of less than two feet are found in about twenty-four percent (5,504 acres) of the land area.
- The Town of Leon does not have lands within the atrazine prohibition areas.

### ***Wildlife Resources***

- The majority of the Town of Leon falls within the Central Sand Hills, while the southeastern portions and the northeast corner of the Town falls within the Southeast Glacial Plains ecological landscape.
- Woodlands comprise about 62 percent of the total land area in the Town of Leon.
- There are 11,026 acres of general woodlands and 3,282 acres of planted woodlands in the Town of Leon.
- In 2008, a total of 3,831 acres were actively managed under the MFL and a total of 161 acres were managed under FCL within the Town of Leon.

### ***Parks, Open Space and Recreational Resources***

- The WDNR owns approximately 946 acres within the Town of Leon.
- There are no State Wildlife Areas within the Town of Leon.
- Pine River Fishery Area is composed of the Pine River and seven tributaries: Lower Pine, Jones, Davis, Clayton, Upper Pine, Kaminski, and Little Silver Creeks.
- Willow Creek Fishery Area is composed of Willow Creek and three tributaries: Rattlesnake (within the Town of Mount Morris), Thorstad (Bruce), and Cedar Spring Creeks
- The State does not manage lands within the Town of Leon, other than the lands classified as State Fishery Areas.

### ***Mineral Resources***

- There is one active non-metallic mining site in the Town of Leon.
- There are no metallic mineral resource sites in the Town of Leon.

### ***Solid and Hazardous Waste***

- There are two (2) sites in the Town of Leon that are listed on the WDNR's registry of active, inactive and abandoned sites where solid waste or hazardous wastes were known or likely to have been disposed.

### ***Air Quality***

- There are no areas in Waushara County which exceeds the limits of the National Ambient Air Quality Standards (NAAQS) for ozone, particulates, or carbon monoxide.

### **Cultural Resources**

- At the present, the only property within the Town of Leon listed on the National Register is the Alanson M. Kimball House.
- A search of the DHP's on-line Architecture and History Inventory (AHI) indicates one property listed within the Town of Leon.
- There are no historical markers in the Town of Leon.
- There are no museums in the Town of Leon.
- Traces of Native American existence, in the form of a cemetery and campsites have been found in the Town of Leon.
- The Town of Pine River was created on November 12, 1854. On November 19<sup>th</sup> of the same year, the name was changed to Leon.<sup>32</sup>
- In 2000, the most common ancestry identified by town and county residents was German. Forty-four percent (43.9%) of Town of Leon and 38.0 percent of Waushara County residents claimed German ancestry.
- There are no Amish Settlements within the Town of Leon.

## **INTERRELATIONSHIPS WITH OTHER COMPREHENSIVE PLAN ELEMENTS**

Wisconsin's important agricultural base is strongly integrated with its natural resources. Complex agricultural patterns are mixed with the state's natural features to form a patchwork of different land uses. Natural resource issues and concerns are closely linked to activities taking place on agricultural lands, not only adjacent to one another, but in the area. Soil erosion from farm fields and surface water runoff of crop nutrients and agricultural chemicals can impact the quality of streams, rivers, and lakes. Leaching of pesticides and nutrients has the potential to impact underground aquifers and affect drinking water supplies. There is a growing concern, especially in areas where rural residential development is occurring, about the impact of livestock farming on air quality. However, it is important to note that individual farming operations differ in management practices and vary widely in their contribution to these environmental problems.

Although agricultural activities can have negative impacts on the environment, they can also provide positive benefits. People value the open agricultural landscape and the benefits of

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<sup>32</sup> <http://www.wisconsinhistory.org/dictionary/index>.

maintaining wildlife habitats. Other benefits include nutrient recycling and enhanced water recharge.

The long, rich history of farming in Wisconsin has led to the creation and exposure of many of the state's archaeological sites. In the County it is not uncommon to find evidence of native villages and burial mounds. Architecturally distinctive homes, barns, or entire farmsteads can reflect a significant time period, be associated with a notable person, reflect ethnic building types and construction practices, or represent an example of a once important agricultural specialty.

### **Economic Development**

Agriculture, natural and cultural resources should be considered when developing an economic development plan. It is important to remember that farming is still an important segment of Waushara County's rural economy. There may be specific economic development strategies that could help improve the well-being of local farmers; as long as financial conditions remain difficult, farmers will continue to find alternative uses for their land. Natural resources can provide a positive economic benefit to the area through recreational uses and overall aesthetics. However, protection and impact to the area's natural resources should be considered whenever a new business or development is proposed.

Cultural and natural elements provide opportunities for enhanced quality of life for current residents and can be a valuable tool to bring new workers and employers to the area. Historic preservation can be used to enhance unique qualities found in many of Waushara County's communities and towns.

### **Housing**

Agriculture and natural resources need to be considered when planning for the housing element. Most new residential construction is occurring on agricultural land or adjacent to significant natural resources such as a lake, stream, river, wetland, steep slope, or woods. Although these natural features provide aesthetically pleasing views for new homeowners, residential encroachment has detrimental impacts to the natural resource base. In many areas, housing development patterns have been rather haphazard. Scattered housing patterns have resulted in high costs to local communities in the form of lost farmland, increased demand for public services, and conflicts between homeowners, farmers, environmentalists, and recreationalists. Demand for home sites also drives land costs upward, reducing the ability of farmers to buy land to either begin farming or expand existing operations.

Existing older housing stock provides community character and reflects the historical development of the area. Older neighborhoods often offer the best opportunities for low income housing that can be rehabilitated using community improvement programs. Abandoned historic industrial buildings and old schools can be retrofitted and preserved to provide unique and attractive affordable housing for the community.

### **Transportation**

Transportation planning should consider the transportation needs of the area. Transportation is critical to the agricultural community because it provides access to suppliers, processors,

haulers, and other support industries. The transportation network also allows goods to be brought to local, regional, national, and international markets. An efficient transportation network can increase income levels for Wisconsin farmers. Additionally, when planning for transportation, it is important to consider how rural residential developments and expanding agricultural operations will affect the transportation infrastructure and safety of the local area. Development and subsequent transportation improvements may impact the County's natural resources, wetland areas, and farmland adjacent to existing highway corridors. To minimize this impact, Waushara County and its communities should monitor these situations and consider development techniques that offer greater environmental protection.

When transportation corridors are expanded or proposed, care should be taken to minimize the effects on historical and cultural resources. Sensitivity must be shown for historic buildings and markers as well as archaeological sites and objects. The integrity and identity of a community is dependent on the preservation of its historic character and distinctive natural features. For example, the identity and aesthetics of a historic neighborhood can easily be threatened by a street widening project that removes large trees and narrows street terraces.

### **Utilities and Community Facilities**

Planned development leads to an efficient use of public infrastructure and reduces the amount of sprawl, which leads to the consumption of the rural landscape and other natural resources. Educating local officials and citizens about how local land use decisions impact the agricultural industry is important if the ability to grow and raise food is to be preserved. Diminishing farmland also affects a community's ability to land spread bio-solids, a byproduct of the wastewater treatment process. As large areas of farmland in close proximity to suburban areas decrease, communities must travel longer distances to dispose of this waste, thereby increasing the cost of sewage disposal.

Similar to farmland, our natural resources are limited and are being consumed at an alarming rate. Fossil fuel emissions lead to persistent health and environmental problems; regional haze; acidification of surface waters and forests; mercury in fish and other wildlife; acidic damage and erosion to buildings and other materials; ozone damage to forests; and eutrophication of water bodies. Renewable energy, or an alternative energy source, is created from sustainable natural resources. Corn and other cellulose products can be used to produce ethanol for alternative fuel vehicles. Wind energy provides an alternative to coal and natural gas boilers.

To maintain our quality of life, it is essential that not only is growth accommodated but that it be done while protecting our natural environment. The quality of the region's surface and groundwater resources are linked to the proper siting, installation, and maintenance of individual on site wastewater systems. Improper treatment and discharge of human waste and bacteria can contaminate public and private water supplies. The impact of increased development and associated impervious area can adversely affect groundwater quality and quantity.

Public buildings such as city or town halls, county courthouses, schools, water treatment plants, water towers, libraries, and fire stations are often architecturally significant landmarks in a community and are an important element of the community's character. Even when these buildings have outgrown their original use, they are often converted into a community center, senior center, housing or another productive use due to the community's attachment to them.

## Land Use

Land use is an integral part of all the elements in the plan. County residents value the preservation of agricultural land and the natural resources. There is a need to protect the rural atmosphere while allowing for controlled orderly development. Opportunities for historical preservation should also be considered in all future planning, zoning, and development decisions.

## Intergovernmental Cooperation

Many agricultural and natural resource issues go beyond local boundaries. Watersheds and other ecosystems, economic conditions, transportation patterns, and housing can impact regions as a whole. Air and water pass over the landscape so that one jurisdiction's activities can affect other jurisdictions located downwind or downstream. Regional development patterns and neighboring municipal land use policies also affect land price, availability of land, and the economic performance of local farms in adjoining towns. Unless towns, cities, villages, and counties communicate and coordinate effectively, it will be difficult to control growth in agricultural areas that preserves farmland and protects natural resources.

Preserving a community's heritage allows people to connect with the past. Unfortunately, little has been done in Waushara County to establish a base of historically significant buildings and other features. The Wisconsin Historical Society's Division of Historic Preservation provides funding to local governments and non-profit organizations. These funds can be sought independently or collectively with neighboring communities to fund architectural and historical surveys. Communities should work together to utilize existing local expertise on not only the history of the area, but also on historic preservation issues.

## POLICIES AND PROGRAMS

### State, Regional, County, and Local Policies

**Wisconsin Administrative Code.** Comm 83, revised during the 1990s to add provisions for new wastewater treatment system technologies and land suitability criteria, came into effect on July 1, 2000. Unlike the code it replaced, the new rules prescribe end results – the purity of wastewater discharged from the system – instead of specific characteristics of the installation. This rule provides land owners with more on-site wastewater treatment options, while at the same time protecting natural resources and groundwater. Within Waushara County, holding tanks are banned for new construction and are not allowed for replacement systems unless the property cannot support any other on-site sewage disposal systems.

NR-103, Water Quality Standards for Wetlands, establishes water quality standards for wetlands.

NR-115, Wisconsin's Shoreland Management Program, requires counties to adopt zoning and subdivision regulations for the protection of all shorelands in unincorporated areas.

NR-116, Wisconsin's Floodplain Management Program, requires municipalities to adopt reasonable and effective floodplain zoning ordinances.

NR-117, Wisconsin's City and Village Shoreland-Wetland Protection Program, establishes minimum standards for city and village shoreland-wetland zoning ordinances.

NR-135 was established to ensure that nonmetallic mining sites are properly abandoned. This law promotes the removal or reuse of nonmetallic mining refuse, removal of roads no longer in use, grading of the nonmetallic mining site, replacement of topsoil, stabilization of soil conditions, establishment of vegetative groundcover, control of surface water flow and groundwater withdrawal, prevention of environmental pollution, development and reclamation of existing nonmetallic mining sites, and development and restoration of plant, fish and wildlife habitat if needed to comply with an approved reclamation plan.

NR-243, Animal Feeding Operations, purpose of this chapter is to implement design standards and accepted manure management practices for concentrated animal feeding operations. This chapter also establishes the criteria under which the department may issue a notice of discharge or a permit to other animal feeding operations which discharge pollutants to waters of the state or fail to comply with applicable performance standards and prohibitions in ch. NR 151.

### **Wisconsin State Statutes.**

Wis. Stats. S. 93.90 and rule ATCP 51, Livestock Facility Siting Law regulates the siting of new and expanded livestock operations. The statute limits the exclusion of livestock facilities from agricultural zoning districts. It establishes procedures local governments must follow if they decide to issue conditional use or other local permits for siting livestock facilities. It also creates the Livestock Facility Siting Review Board to hear appeals concerning local decisions on permits.

Wis. Stats. S. 823.08, Actions against agricultural uses. The "Right to Farm" law protects farmers from nuisance law suits related to odor and noise in normal agricultural operations provided that public health and safety are not endangered.

### ***Regional***

**East Central Wisconsin Regional Planning Commission.** East Central has adopted a regional comprehensive plan. As a part of this Plan, East Central has adopted several core policies and/or goals for agricultural, natural, and cultural resources.

### **Agricultural Resources**

- Encourage appropriate and practical conservation oriented land and wildlife management practices.
- Promote management of renewable resources in ways compatible with sustained yield.
- Support land use patterns which are consistent with soil suitability and other environmental considerations.
- Encourage development on lands not suitable for farming and community recreation.
- Maintain employment and increased income in the agricultural sector.
- Encourage contiguous planned development to eliminate the intermingling of farms and urban land uses.
- Preserve land suitable for the production of food and fiber to meet present and future needs.

- Promote adoption of exclusive agricultural zoning districts to ensure that valuable farming lands are not lost or disrupted by urban land uses.

### **Natural Resources**

- Improve and protect surface and groundwater quality.
- Improve and/or maintain high air quality.
- Preserve and protect environmentally sensitive areas and promote the linking of these areas into environmental corridors.
- Manage wildlife and wildlife habitat in a manner that maintains ecological stability and diversity while considering the social and economic impacts.
- Protect nonmetallic mineral deposit sites.
- Ensure sufficient natural public open space is provided to meet the active and passive recreational needs of all residents while preserving and protecting the region's natural and cultural resources.
- Promote the consideration of design and aesthetics as a means of ensuring that communities and the region as a whole remain attractive as places to live, work, and play.

### **Cultural Resources**

- Establish a regional cultural resource implementation committee to work on pursuing implementation of the regional cultural resources plan.
- Hold an annual Cultural Resources Summit where local organizations, preservation professionals, HP commissioners, and the general public could hear speakers, exchange ideas and interact with each other, raise and address current issues and needs, and encourage support for cultural resource appreciation, enhancement, and protection.
- Create a web-based clearinghouse to serve the region, offering a variety of resources to support preservation of our prehistoric and historic, archeological, and cultural heritage.
- Ensure that decision makers have an understanding of, and an appreciation for, cultural resource protection.
- Make the public better aware of the tax benefits and protections which are available to local landmarks, state and national register site properties, as well as associated responsibilities.
- Work with the Wisconsin Historical Society to increase access to the WHS WHPD database and expand its usefulness to a broader user base.
- Develop an easy, reliable way to alert local government officials conducting permit reviews, and prospective buyers making land/home purchase decisions, as to the location of culturally significant properties by including these cultural resource status designations in all title transfer records.
- Work with local and regional groups to update the State's list of archaeological and historical inventories.
- Revise the Wisconsin State Statutes (709.02) to expand and include "archaeological sites" as well as historic buildings and sites, in the items which realtors must make known to potential buyers.
- Prevent generational loss of cultural heritage by encouraging the use of more cultural resource programming in the history and social studies curriculum of K-12 and higher education institutions in the region.
- Establish a Cultural Resource Center for the ECWRPC region.

- Encourage greater interaction and sharing of ideas, resource materials, etc. between the private sector and the public sector, volunteers and professionals.

## ***County***

**Waushara County Zoning Ordinance.** The Waushara County Zoning Ordinance regulates zoning in the Town of Leon. The following Chapters contain relevant information.

Chapter 22: Article IVs, Manure Waste Storage Ordinance regulates the location, design, construction, installation, alteration, closure, and use of manure storage facilities in order to prevent water pollution and the spread of disease. The county does not currently regulate large animal farming operations (CAFOs); however, regulation of these operations is being investigated and may be included under the Manure Waste Storage Ordinance.

Chapter 58, Zoning defines the different zoning categories and identifies what land uses are permitted in a given zone). Exclusive agricultural zoning is not practiced within the county. The A-G zone is designed primarily for large-scale agricultural uses of land related to growing of crops and the raising of livestock. However, single family residential homes are permitted. The A-R zoning provides a semi-rural type of environment, allowing for general agricultural use. According to the Waushara County Zoning Ordinance, all unincorporated areas within 1,000 feet of the ordinary high water mark of navigable lakes, ponds or flowages within 300 feet of the ordinary high water mark of a navigable river or stream fall under Shoreland Jurisdictional Area. Restrictions meant to protect these areas address lot size, setbacks, building, permitted uses, vegetative shore cover, grading and filling.

**Waushara County Farmland Preservation Plan.** Waushara County adopted a Farmland Preservation Plan on June 9, 1981. The goal of program is to preserve productive and potentially productive agricultural land, forest land, and environmentally sensitive areas while providing other areas for well planned growth in other appropriate areas of the county. Adoption of this plan allows farmers in preservation areas (existing farms with a minimum of 35 acres of productive cropland that are mapped as preservation areas) to sign a voluntary agreement under the State's Farmland Preservation Act for tax credits. Even though existing cropland is enrolled in this program, farmland in the County continues to be lost as more people seek homesites in rural areas.

## **Federal and State Programs**

### ***Federal***

#### **United States Department of Agriculture**

**Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP).** These programs protect sensitive land by reducing erosion, increasing wildlife habitat, improving water quality, and increasing forestland. CREP, a partnership between federal and state agencies and county land conservation departments, allows a landowner to enroll agricultural lands into various land conservation management practices. To be eligible under this program, farmland needs to be highly prone to erosion and must have been planted for 4 to 6 years before the enactment of the 2002 law. Marginal pastureland is also eligible. Producers need to develop and follow a plan for the conversion of cropland to less

intensive use and to assist with the cost, establishment, and maintenance of conservation practices. More information can be found at <http://www.nrcs.usda.gov/Programs/crp/> and <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=cep>.

**Grassland Reserve Program (GRP).** This program is used to protect private grasslands, shrublands, and pasturelands. Agricultural areas which were formerly one of these ecosystems are also eligible for enrollment. The program helps to restore native grasslands and forbs by banning any agricultural practice which requires breaking the ground. Landowners must place their land into an easement for a period of between 10 and 30 years. An accompanying restoration plan delineates how best to return the area to a natural state. Program participants must share in installation costs. More information can be found at <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=grp>.

**Wildlife Habitat Incentives Program (WHIP).** This voluntary program is used to develop or improve wildlife habitat on privately owned land. All private land is eligible for this program unless the land is enrolled in CRP, WRP, or other similar programs. Producers must design and implement a wildlife habitat development plan and assist in the implementation costs. More information can be found at <http://www.nrcs.usda.gov/Programs/whip/>.

**Grazing Lands Conservation Incentive.** This program provides cost sharing to improve grazing land management. More information can be found at <http://www.nrcs.usda.gov/Programs/glci/>.

**Environmental Quality Incentives Program (EQIP).** This voluntary conservation program promotes agricultural production and environmental quality and compatible goals. Financial assistance and technical help are offered to assist eligible participants in the installation and implementation of structural improvements and management practices which better protect agricultural land from environmental degradation. All private agricultural land is eligible for enrollment including cropland, grassland, pastureland, and non-industrial private forestland. Participants are required to develop and implement a EQIP plan that describes the conservation and environmental purposes to be achieved. Participants must share in the overall costs. More information can be found at <http://www.nrcs.usda.gov/Programs/eqip/>.

**Forest Land Enhancement Program (FLEP).** This program aids landowners in the application of sustainable forestry on private land. The program places a permanent easement on farmland. All non-industrial private forestlands are eligible for financial, technical, and educational assistance. Landowners must develop and implement a management plan to harvest timber while protecting the environmental quality of the forest. More information can be found at <http://www.fs.fed.us/spf/coop/programs/loa/flep.shtml>.

**USDA Farmland Protection Policy Act (FPPA).** The purpose of this program is to maintain prime farmland in agricultural use through agricultural conservation easements. This program provides funding for state, tribal, or local government to purchase development rights on prime agricultural land. More information can be found at <http://www.nrcs.usda.gov/programs/fppa/>.

**Wetland Reserve Program.** This program which provides financial and technical assistance to private landowners to restore, protect, and enhance wetlands. The management goals include restoring both the functional values of the wetlands and providing optimal wildlife habitat. Most private wetlands that were converted to agricultural uses prior to 1985 are eligible. Participants must develop and follow a plan for the restoration and maintenance of the

wetland and, if necessary, assist in the cost of restoration. More information can be found at <http://www.nrcs.usda.gov/PROGRAMS/wrp/>.

## **US Environmental Protection Agency**

**Clean Water Act (1977).** The Clean Water Act established the basic structure for regulating discharges of pollutants into the waters of the United States.

**National Pollution Discharge Elimination System (NPDES) Storm Water Program.** The NPDES program addressed the non-agricultural sources of storm water discharge and the Safe Drinking Water Act.

## ***State***

### **Wisconsin Department of Agriculture, Trade and Consumer Protection**

**Wisconsin Farmland Preservation Program.** The 1977 Wisconsin Farmland Preservation Program was developed to preserve farmland through local planning and zoning; promote soil and water conservation; and provide tax relief to participating landowners. Landowners qualify if their land is located in an exclusively agricultural zoning district or if they sign an agreement to use their land exclusively for agricultural purposes. Participating landowners must comply with soil and water conservation standards set by the state Land Conservation Board.

### **Wisconsin Department of Revenue**

**Farmland Tax Relief Credit Program.** The Farmland Tax Relief Credit Program provides tax relief to all farmland owners with 35 or more acres. The credit is computed as a percentage of the first \$10,000 in property taxes up to a maximum credit of \$1,500. The DOR determines the actual percentage based on the estimated number of claims and amount appropriated for the credit.<sup>33</sup>

### **Wisconsin Department of Natural Resources**

**Wisconsin Pollutant Discharge Elimination System Permits (WPDES).** The Wisconsin Pollutant Discharge Elimination System Permits (WPDES) was instituted as a complement to the NPDES program. WPDES regulates municipal, industrial, and agricultural operations which discharge (or have the potential to discharge) into local surface waters. Depending on the site-specific land use, the program regulates three different uses. Wastewater discharge permits regulate effluents discharged by industries and municipalities into surface and groundwater. Construction sites greater than one acre and industrial sites (non-metallic mining) are regulated through stormwater runoff permits.<sup>34</sup> Concentrated Animal Feeding Operations (CAFOs) with 1,000 animal units or more are regulated as a result of potential contamination from animal waste.<sup>35</sup> If an individual operation is found to be a significant contributor of pollutants, it may

<sup>33</sup> Wisconsin Department of Revenue. 2002. *Division of Research and Policy Farmland Preservation Credit Program and Farmland Tax Relief Credit Program.*

<sup>34</sup> Wisconsin State Statutes NR 135 and NR 216.

<sup>35</sup> Wisconsin State Statutes NR 243.

be considered a medium-sized CAFO; permits can be issued for medium-sized CAFOs which exceed 300 animal units.

In order to be defined a CAFO, the agricultural operation must first be defined as an animal feeding operation (AFO). AFOs are facilities which animals are stored, stabled, or fed for at least 45 days within a 12 month period and which vegetation or post-harvest residues are not sustained in the normal growing season over any portion of the facility.<sup>36</sup> Permits require CAFOs to provide runoff management plans for outdoor lots and feed storage areas; a manure storage facility plan/diagram, an annually updated comprehensive manure management plan; and routine monitoring and reporting of daily operations. Permits are issued for a maximum of five years. The permit system regulates land application, manure storage, and runoff management; it does not address noise, land values, traffic, odors, or other similar types of issues because there is no statutory authority to do so. These issues must be regulated by county and local ordinances.

**Forest Crop Law and Managed Forest Law.** In 1927, the Wisconsin Legislature enacted the Forest Crop Law (FCL), a voluntary forest practices program to encourage sound forestry on private lands. It has promoted and encouraged long-term investments as well as the proper management of woodlands. This law allowed landowners to pay taxes on timber only after harvesting, or when the contract is terminated. Since the program expired in 1986, participants are not allowed to re-enroll in the program. Since 1986, the Managed Forest Law has replaced the Forest Crop Law.

The Managed Forest Law (MFL), enacted in 1985, encourages the growth of future commercial crops through sound forestry practices. To be eligible, a landowner must own at least 10 contiguous acres of woodlands in a village or town. The landowner must implement a forestry management plan for future commercial harvests on the land. Contracts can be entered for a period of either 25 or 50 years. Portions of the land enrolled are open to public access for hunting, fishing, cross-country skiing, sight-seeing, and hiking. The program recognizes individual property owners' objectives while providing for society's need for compatible recreational activities, forest aesthetics, wildlife habitat, erosion control, and protection of endangered resources.

**Wisconsin Forest Landowner Grant Program.** The Wisconsin Forest Landowner Grant Program assists private landowners in protecting and enhancing their woodlands. Only private non-industrial forest owners of at least 10 acres but no more than 500 acres who have an approved or pending forest stewardship management plan are eligible for assistance. Qualified projects include reforestation; soil and water protection; wetland and riparian protection, restoration, and creation; fish and wildlife habitat enhancement; recreational, historic, and aesthetic forest enhancement; and endangered or threatened resources protection.

**Forest Land Enhancement Program (FLEP).** The purpose of this program is to assist private landowners in protecting and enhancing their forested lands and water by providing cost-share reimbursement for sustainable forestry practices.

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<sup>36</sup> U.S. Environmental Protection Agency and U.S. Department of Agriculture. 1999. *Unified National Strategy for Animal Feeding Operations*.

**Partners for Fish and Wildlife.** Partners for Fish and Wildlife is a program which provides financial and technical assistance to private landowners to restore, protect, and enhance wildlife habitats on their land. This is a voluntary incentive based program. State resource agencies and individual landowners work closely with the Service to help establish priorities and identify focus areas. The restoration of degraded wetlands, native grasslands, streams, riparian areas, and other habitats to conditions as close to natural is emphasized. The program's philosophy is to work proactively with private landowners for the mutual benefit of declining Federal trust species and the interests of the landowners involved. A 50 percent cost sharing is required from individual landowners. Landowners must sign an agreement to retain the restoration for a minimum of 10 years. During this time period, no other private property rights are lost.

### **Wisconsin Historical Society**

The Wisconsin Historical Society (WHS) Division of Historic Preservation (DHP) provides funds for conducting surveys to identify and evaluate historical, architectural, and archaeological resources, nominating properties and districts to the National Register, and carrying out a program of comprehensive historic preservation planning and education. These are available to local units of government and non-profit organizations. Although funding is limited, the DHP identified target communities during each funding cycle. In recent years the DHP has favored underrepresented communities: unincorporated communities or villages or fourth-tier cities with a population less than 5,000. A set of funds is also designated for use by Certified Local Government (CLG) status communities. In addition, many private funding sources specifically target smaller communities in the more rural parts of the state. Other specific programs are listed below.

**Federal Historic Preservation Credit.** This program returns 20 percent of the cost of rehabilitating historic buildings to owners as a direct reduction in the federal income taxes. To qualify, buildings must be income producing historic buildings, must be listed on the National Register of Historic Places, or contribute to the character of a National Register Historic District.

**Wisconsin Supplemental Historic Preservation Credit.** This program returns an additional 5 percent of the cost of rehabilitation to owners as a discount on their Wisconsin state income taxes. Owners that qualify for the Federal Historic Preservation Credit automatically qualify for the Wisconsin supplement if they get National Park Service approval before they begin any work.

**25-Percent State Income Tax Credits.** This program can be used for the repair and rehabilitation of historic homes in Wisconsin. To qualify, buildings must be either listed on the state or national register; contribute to a state or national register historic district; or be eligible for individual listing in the state register.