INTRODUCTION

Agricultural, natural, and cultural resources give definition to a community and strongly affect quality of life. Outside the urban areas of Winnebago County, a tapestry of working farms interwoven with stands of woodlands dot the landscape and shape the area’s identity and culture. While agricultural acreage and the number of farms have been on the decline in Winnebago County, it is still an important component of the area economy. Natural features such as topographic relief, lakes, streams, wetlands and soils also have significant bearing on historic and contemporary land use and development patterns. Understanding the relationship between environmental characteristics and their physical suitability to accommodate specific types of activities or development is a key ingredient in planning a community’s future land use.

Agricultural, Natural and Cultural Resources Vision

In 2040, Winneconne continues to plan for the future, while recognizing and celebrating its past. The Wolf River remains the backbone of the community. Its waters draw boaters and anglers to the Village bolstering its economy and maintaining its status as an “up north” community just outside the Fox Cities. Winneconne has protected its most important social and cultural landmarks through the development of its Historical and Cultural Resources Plan, which has become a model for small communities throughout the state. Winneconne’s numerous festivals and events, including Sovereign State Days, draw tourists from around the region to celebrate the community’s unique history and culture.
KEY SUMMARY POINTS

The following list summarizes key issues and opportunities identified in the element. The reader is encouraged to review the “Inventory and Analysis” portion of the element for more detail.

Agricultural Resource Inventory
   a) Overall, about 29% (348 acres) of the land within the Village is considered prime farmland with the majority classified as “All Areas Prime Farmland”.
   b) The Village does not have Community Gardens.

Natural Resources Inventory
   a) There are no areas of steep slopes (greater than 12%) in the Village.
   b) The bedrock geology of the Village and the extraterritorial area is made up of three distinct formations that divide the area.
   c) There are no active limestone quarry sites in the Village.

Water Resources
   a) Winneconne is bordered by Lake Winneconne.
   b) There is one named waterway in the Village.
   c) The Village is located within the Wolf River Basin.
   d) Overall, 35 percent (427 acres) of the Village is within a floodplain.
   e) The Village enforces floodplain ordinances (Chapter 546).
   f) The Village enforces a shoreland and wetland Zoning (Chapter 559).
   g) Nine percent (110 acres) of the Village’s total acreage are classified as wetlands.
   h) According to the Village’s 2017 Water Quality Report (Customer Confidence Report)¹, the Village is working with a consultant to determine corrective actions for one violation for gross alpha.
   i) Most areas (65.3%) within the Village fall within the high water recharge potential
   j) The Village lies to the west edge of the main band of highest concern, but smaller areas of the St. Peter Sandstone bedrock may fall within or within close proximity of the Village.
   k) Approximately 50 percent (601 acres) of the Village has groundwater present within two feet or less.

Wildlife Resources
   a) Wildlife is threatened by the negative effects of development and storm water runoff (both from urban and rural runoff sources).
   b) The tension zone has characteristics of both northern and southern Wisconsin climates, and therefore, species from both areas. The Village lies within this tension zone.
   c) There are no planted woodlands and approximately 47 acres of general woodlands in the Village.
   d) A review of the NHI Township Search Tool (for the Town of Winneconne) database revealed a number of species (Table 6-11) for the Village and areas surrounding the Village.

Parks, Open Space and Recreational Resources

a) The WDNR does not own land within the Village.
b) Important environmental corridors within the Village and surrounding area are associated with lake shorelines and the named and unnamed streams with natural vegetation scattered throughout the area.

Waste and Pollution

a) According to Solid and Hazardous Waste Information Management System (SHWIMS), there are 29 operating sites, five closed sites and eight listed as unknown for Winneconne.
b) The closest ozone air quality monitoring site is located at the Thrivent facility at 4432 Meade Street in Appleton (Outagamie County).
c) The 8-hour design values (ppb) were not exceeded at the Outagamie County site between 1997 and 2012.
d) Outagamie County did not exceed the primary and secondary National Ambient Air Quality Standard for particulate matter between 2001 and 2013.

Cultural Resources

a) At the present, three properties near the Village are listed on the National Register.
b) A search of the DHP’s online Architecture and History Inventory (AHI) reveals a total of 154 sites listed for Winneconne.
c) There are no historical markers located in the Village.
d) The Village is not a Certified Local Government (CLG).

INVENTORY AND ANALYSIS

Creating an inventory of existing agricultural, natural, and cultural resources is critical in providing the Village with information to base future decisions on. The goals, strategies and recommendations for this element were shaped with these resources, and the constraints and opportunities they provide, in mind. The following provides and inventory of these resources.

AGRICULTURAL RESOURCES

Farming and the processing of farm products is still an important source of income and employment in Winnebago County. Since agriculture is a necessary component of the county’s economy, the protection of farmland is critical. However, as is occurring elsewhere in rural Wisconsin, new developments are encroaching on productive farmland. This section will access agricultural lands in Winnebago County which has an impact on the Village.

Farm and Farmland Loss

Farm and farmland losses are the result of economic pressures within agriculture as well as competition for agricultural lands from residential, commercial, industrial, and other development.

In 2017, there were about 957 farms (defined as any place producing at least $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the
census year) in Winnebago County (Table 6-1). There was a net decrease of 160 farms or -14.3 percent countywide between 2007 and 2012. While the number of farms decreased from 2012 to 2017, the amount of land in farms and average size of farms increased when measured in acres. Land in farms increased 4.2% and average size of farms increased 21.6%.

<table>
<thead>
<tr>
<th>Item</th>
<th>2012</th>
<th>2017</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farms</td>
<td>1,117</td>
<td>957</td>
<td>-14.3%</td>
</tr>
<tr>
<td>Land in farms (acres)</td>
<td>155,520</td>
<td>162,052</td>
<td>4.2%</td>
</tr>
<tr>
<td>Average size of farm (acres)</td>
<td>139</td>
<td>169</td>
<td>21.6%</td>
</tr>
</tbody>
</table>

Source: USDA Census of Agriculture. Data accessed 6/3/19

Farmland Soils

Prime farmland are generally defined as “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods”. This includes the following classifications (1) All areas are prime farmland; (2) Prime Farmland, if drained; (3) Farmland of Statewide Importance; and (4) Not Prime Farmland if drained. Soil data from the NRCS-USDA Web Soil Survey (WSS), accessed in 2015, was used to determine prime farmland.

Overall, about 29% (348 acres) of the land within the Village is considered prime farmland with the majority classified as “All Areas Prime Farmland” (Map 6-1, Table 6-2). “All Areas Prime Farmland” soils are spread throughout the Village. “Prime farmland, if drained” comprises much of the remainder of the Village.

<table>
<thead>
<tr>
<th>Soil Classification</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Areas Prime Farmland</td>
<td>304.22</td>
<td>25.1%</td>
</tr>
<tr>
<td>Farmland of Statewide Importance</td>
<td>43.30</td>
<td>3.6%</td>
</tr>
<tr>
<td>Prime Farmland if Drained</td>
<td>513.68</td>
<td>42.3%</td>
</tr>
<tr>
<td>Not Prime or Statewide Importance</td>
<td>74.47</td>
<td>6.1%</td>
</tr>
<tr>
<td>Water</td>
<td>278.68</td>
<td>23.0%</td>
</tr>
<tr>
<td>Total</td>
<td>1,214.35</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: NRCS-USDA Soil Data, Accessed in 2017

Community Gardens

Community gardens provide access to local food. They allow people without access to land to grow their own food, and to share knowledge and skills. Some people find that gardening relieves stress, encourages social interaction, increases physical activity and encourages people to eat more vegetables and healthy foods. The Village does not have Community Gardens.

Bees and Poultry

Beekeeping and the raising of chickens in urban settings has become popular in recent years.
Bees’ aide in pollination of garden plants and backyard orchards and provide a source of locally produced honey. The village allows beekeeping as a conditional use and allows chickens with a permit.

NATURAL RESOURCES

Natural Resources act as the foundation upon which communities are formed. Identifying key natural resources in and within a close proximity of the Village, and learning how to utilize, conserve, and/or preserve them may determine the future environmental health of the Village. This section addresses land, water, wildlife, mineral, and recreational resources in the Village, and aims to provide a baseline upon which the Village can use to make future decisions that may impact these resources.

Land Resources

Soils

Soils support the physical base for development and agriculture within the Village. Knowledge of their limitations and potential difficulties is helpful in land use such as residential development, utility installation and other various projects. Three general soil associations, or groupings of individual soil types based on geographic proximity and other characteristics, are present within the Village2.

- **Kewaunee-Manawa-Hortonville**: This association consists is well to somewhat poorly drained and nearly level to sloping. This unit is used mainly for cultivated crops. Seasonal wetness, poor tilth, and erosion are the main farming concerns, while residential uses are limited due to poor conditions for septic tank absorption fields.

- **Zittau-Poy**: This association is very poorly drained and is located in areas of a glacial lake basins. Wetness due to high water tables limits the use of these areas for both agricultural and residential purposes.

- **Houghton-Willette**: These soils are nearly level and very poorly drained and may contain marshy areas with ponded water. Wetness and frequent flooding limit the uses of these areas for both agricultural and urban uses.

In general, the Village and the surrounding area are relatively flat. *There are no areas of steep slopes (greater than 12%) in the Village.*

Geology, Topography and Scenic Resources

The structure of the Village’s bedrock and historic glacial events is largely responsible for the Village’s landscape. After the recession of glaciers about 11,000 years ago, Winnebago County was left with its current topography shaped by mounds of glacial till with flatter areas where limestone and sandstone bedrock often lie not far from the surface.

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2 Soil Survey of Winnebago County, Wisconsin, 1980; United States Department of Agriculture Soil Conservation Service.
Elevations rise away from the shores of Lake Winneconne and Lake Butte des Morts, which the Village is situated along.

*The bedrock geology of the Village and the extraterritorial area is made up of three distinct formations that divide the area*. These bedrock formations are:

- The **Sinnippee Group** is comprised of dolomite with some limestone and shale formations. This group stretches west from the Lake Winnebago Shoreline.
- The **St. Peter Formation** is a thin layer that runs north and south through the area comprised of sandstone, some limestone shale and conglomerate.
- The **Prairie du Chien Group** is a layer running north and south through the area comprised of dolomite with some sandstone and shale.

A fourth bedrock formation lies west of the Village. This formation is a Cambrian formation comprised of sandstone and some dolomite and shale.

Mapped areas of high bedrock do not exist within the Village. A small amount of high bedrock is located northeast of the Village (Map 6-2). Areas of high bedrock are defined as being within 70 inches of the surface.

**Metallic and Non-Metallic Mining Resources**

Non-metallic mineral resources include other than those mined as a source of metal. Economically important non-metallic minerals include stone, sand, gravel and clay. **There are no active limestone quarry sites in the Village.**

**Soil Suitability for Sand and Gravel**

Soil suitability for sand and gravel is shown on Map 6-2. This information can be used as guidance to where to look for probable sources based on the probability that soils in a given area contain sizeable quantities of sand or gravel. These materials can be used as a source for roadfill and embankments.

**Water Resources**

**Lakes and Ponds**

Surface water resources are extremely valuable features because of their potential environmental and economic benefits. Water based recreational activities and appropriately designed residential development that capitalizes on surface water amenities can have lasting impact on the local economy. Appropriate location and management of residential activity near surface water features is extremely important because of potential threats to water quality. Residential development’s threats to surface water resources include lawn-applied chemicals, siltation and petroleum-based substances and salts from local road runoff. The Wisconsin DNR maintains the Wisconsin Lakes Directory. The directory provides a list of named and unnamed lakes, springs, and ponds. **Winneconne is bordered by Lake Winneconne** (Map 6-4). Lake Poygan is located upstream and Lake Butte des Morts is located downstream all part of the

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Winnebago Pool Lakes. The Winnebago Pool Lakes' water levels are controlled by the Army Corps of Engineers by a federal dam in Menasha and a private dam in Neenah. It has a maximum depth of 21 feet.

- **Lake Winneconne.** Lake Winneconne is a 4,553 acre lake located in Winnebago County. It has a maximum depth of 9 feet. Visitors have access to the lake from public boat landings. Fish include Musky, Panfish, Largemouth Bass, Smallmouth Bass, Northern Pike, Walleye, Sturgeon and Catfish. The lake's water clarity is low.\(^4\)

**Rivers and Streams**

*There is one named waterway in the Village*. In addition, a series of unnamed intermittent streams, ditches, and drainage ways primarily drain agricultural areas or undeveloped areas within the Village (Map 6-4).

- **The Wolf River.** The channel that connects Lake Winneconne and Lake Butte des Morts is part of the Wolf River. This portion of the Wolf River that splits the Village east and west is an extremely important asset to the Village. This stretch of river is very popular for both game fish and rough fish angling.

**Watersheds and Drainage**

*The Village is located within the Wolf River Basin*. The Wolf River Basin drains 3,690 square miles from Langlade County to Winnebago County and is part of the Lake Michigan Basin. The WDNR is currently developing a Upper Fox and Wolf Total Maximum Daily Load (TMDL). Once approved the TMDL will help to improve water quality of the Winnebago Pool Lakes, Bay of Green Bay and ultimately Lake Michigan. The Wolf River Basin is divided into twenty sub-watersheds, two of which encompasses the Village. Both sub-watersheds have major problems with excessive vegetation, dissolved oxygen standard violations, and soil loss.

- **The Pine River and Willow Creek watershed** is the southernmost watershed of the Wolf River Basin and encompasses the west portions of the Village.

- **The Arrowhead River and Daggets Creek Watershed** covers areas of the village east of the Wolf River. The Winnebago Comprehensive Management Plan (WCMP) rated an 8.2 mile priority strip along the Arrowhead River as high priority for NPS pollution abatement activities. Major problems in this watershed include excessive vegetation, dissolved oxygen standard violations, and critical levels of soil loss.

**Floodplains**

Areas susceptible to flooding are considered unsuitable for development due to potential health risks and property damage. Floodplains shown on Map 6-4 were obtained from FEMA 2017.

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\(^{5}\) WDNR, [Surface Water Viewer: https://dnrmaps.wi.gov/H5/?Viewer=SWDV](https://dnrmaps.wi.gov/H5/?Viewer=SWDV)

\(^{6}\) WDNR, [http://dnr.wi.gov/water/basin/wolf](http://dnr.wi.gov/water/basin/wolf)
Overall, 35 percent (427 acres) of the Village is within a floodplain. These areas can be seen in Map 6-4, and Table 6-3. The mapped floodplains are largely associated with Lake Winneconne and the Wolf River’s shorelines and their back water channels.

The Village enforces floodplain ordinances (Chapter 546). In addition, Winnebago County enforces a floodplain-wetland zoning ordinance for unincorporated areas of the county.

<table>
<thead>
<tr>
<th>MCD</th>
<th>Floodplains</th>
<th>Total acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Winneconne</td>
<td>426.08</td>
<td>1,214.4</td>
<td>35.1%</td>
</tr>
</tbody>
</table>

Wetlands

Wetlands act as a natural filtering system for nutrients such as phosphorus and nitrates and serve as a natural buffer protecting shorelines and stream banks. Wetlands are also essential in providing wildlife habitat, control, and groundwater recharge. Consequently, local, state, and federal regulations have been enacted that place limitations on the development and use of wetlands and shorelands.

The Village enforces a shoreland and wetland Zoning (Chapter 559). The Army Corps of Engineers has authority over the placement of fill materials in virtually all wetlands two acres or larger adjacent to navigable waterways. 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 for authorization.

The wetlands shown on Map 6-4 are based on the Wisconsin DNR Wetlands Inventory Map. They were identified using aerial photographs to interpret vegetation, visible hydrology, and geography based on the U.S. Fish and Wildlife Service’s “Classification of Wetland and Deepwater Habitats of the United States.” Nine percent (110 acres) of the Village’s total acreage are classified as wetlands. The majority of this acreage is located along unnamed lake tributaries, lake channels and the Lake Winneconne and Wolf River shorelines.

Groundwater

Safe, clean, and reliable groundwater plays a crucial role in maintaining the current quality of life and economic growth of the Village and surrounding areas. Precipitation in the form of rain and snow is the source of nearly all the Village’s groundwater. Recharge is generally greatest in the spring, when water from melting snow and heavy rains saturate the ground and percolate downward to the water table. If discharge (the drawing out and use of groundwater) is greater than recharge, then the elevation where the groundwater is found will fall, causing a depression to occur. Lower water levels cause the pumping lifts to increase and may reduce the yields of some of the wells. According to the Village’s 2017 Water Quality Report (Customer Confidence Report)⁷, the Village is working with a consultant to determine corrective actions for one violation for gross alpha.

Groundwater Recharge Potential. According to a report prepared by the Wisconsin Geological and Natural History Survey, areas within the Village and the surrounding areas have high (4-8 inches/year) and medium (2-4 inches/year) infiltration rates which are estimated to become stream base flows or continue down and eventually become groundwater recharge. *Most areas (65.3%) within the Village fall within the high water recharge potential* (Table 6-4). Protecting infiltration areas from impermeable development will help to safeguard the surrounding area’s drinking water supply and will help safeguard the quality and quantity of Lake Winnebago surface water in the long-term.

<table>
<thead>
<tr>
<th>Table 6-4: Groundwater Recharge Potential</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Water Recharge Potential (0&quot; - 2&quot;/year)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Medium Water Recharge Potential (2&quot; - 4&quot;/year)</td>
<td>122</td>
<td>10.0%</td>
</tr>
<tr>
<td>High Water Recharge Potential (4&quot; - 8&quot;/year)</td>
<td>793</td>
<td>65.3%</td>
</tr>
<tr>
<td>Very High Water Recharge Potential (&gt; 8&quot;/year)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>No Rating</td>
<td>299</td>
<td>24.7%</td>
</tr>
<tr>
<td>Total Acres</td>
<td>1,214.35</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Wisconsin Geological and Natural History Survey, 2014

It is important to recognize that, in addition to any efforts made within the Village and throughout the Village’s extraterritorial area to protect groundwater supply; this issue is more regional in scope. A groundwater divide, located in the central part of Wisconsin, determines the flow of groundwater. East of the divide, groundwater moves southeasterly toward the Wolf and Fox Rivers. Thus, efforts to preserve groundwater resources should be coordinated on a regional basis as a way to ensure that the region’s groundwater supply is protected.

Groundwater Contamination Susceptibility. The ease that pollutants can be transported from the land surface to the top of the groundwater or “water table” defines a groundwater’s susceptibility to pollutants. Materials that lie above the groundwater offer protection from contaminants. However, the amount of protection offered by the overlying materials varies, depending on the materials.

The WDNR, in cooperation with UW-Extension, the Wisconsin Geological and Natural History Survey and USGS, evaluated the physical resource characteristics that influence sensitivity in order to identify areas sensitive to contamination. Five resource characteristics were identified: depth to bedrock, type of bedrock, soil characteristics, depth to water table and characteristics and characteristics of surficial deposits. Each of the five resource characteristics was mapped, and a composite map was created. A numeric rating scale was developed and map scores were added together.

An index method was used to determine susceptibility; however this method of analysis is subjective and includes quantifiable or statistical information on uncertainty. This limits the use of the information for defensible decision making. Therefore, while groundwater contamination susceptibility maps can be useful, this level of uncertainty must be kept in mind.

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**Table 6-5: Groundwater Susceptibility**

<table>
<thead>
<tr>
<th>MCD</th>
<th>Very High</th>
<th>Somewhat High</th>
<th>Moderate</th>
<th>Somewhat Low</th>
<th>Very Low</th>
<th>Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Winneconne</td>
<td>35.5</td>
<td>2.9</td>
<td>0</td>
<td>0</td>
<td>226.2</td>
<td>18.6</td>
</tr>
</tbody>
</table>

Source: ECWRPC, 2019

**Arsenic Contamination.** Arsenic contamination of the groundwater supply has been an issue in northeastern Wisconsin since the 1980’s. The main area of arsenic contamination runs diagonally (southwest to northeast) across Winnebago and Outagamie Counties, and is closely associated with the St. Peter Sandstone bedrock. The Village lies to the west edge of the main band of highest concern, but smaller areas of the St. Peter Sandstone bedrock may fall within or within close proximity of the Village.

In 2001, the US EPA lowered the arsenic drinking water standard from 50 to 10 parts per billion (PPB), due to convincing data that found a relationship between consumption and deterioration in health.

The DNR replaced its Arsenic Advisory Area Map in 2004 with a more stringent set of regulations that apply to the Special Well Casing Depth Area (SWCDA). The regulations require new wells in Outagamie and Winnebago County to meet construction, grouting, and disinfection standards that have proven to lower arsenic levels to safe levels for human consumption. Required well construction specifications are determined by town quarter section.
Depth to Groundwater. Groundwater depth can impact building foundations, utility and street construction and other factors. Areas of high groundwater are generally found throughout the Village and the surrounding area (Map 6-2). Approximately 50 percent (601 acres) of the Village has groundwater present within two feet or less.
WILDLIFE RESOURCES

Wildlife Habitat

Numerous habitat types surrounding the Village have the potential to support varied and abundant wildlife and fish communities. These habitats consist of the Winnebago Pool Lakes and their tributaries, woods, open wet meadows, and farmland.

*Wildlife is threatened by the negative effects of development and storm water runoff (both from urban and rural runoff sources).* This has affected water quality and habitat health throughout the Winnebago Pool Lakes.

Woodlands

Woodlands covered much of Winnebago County before settlement. At one time, the area was primarily covered with deciduous hardwood forest. The Fox Valley’s reliance on the paper industry attests to the regions’ forested history.

The tension zone is a wide corridor running from northwestern to southeastern Wisconsin that marks the pre-settlement dividing line between northern and southern native plant species. *The tension zone has characteristics of both northern and southern Wisconsin climates, and therefore, species from both areas. The Village lies within this tension zone.* The United States Department of Agriculture has also divided the country into plant hardiness zones. Those zones contain characteristic plant species that are hardy in that region. Generally speaking, plants from any particular zone are hardy in that zone and those to the south, but not to the north unless they are protected from the severe climate of that zone.

The Village and the surrounding areas are at the juncture of two different plant communities. They are generally described as the boreal element and the prairie element. Characteristics typical of both the Conifer-Hardwood Forest and the Southern-Hardwood Forest can be seen locally.

Woodlands are limited in the Village and fragmented in the surrounding areas. Care must be taken in the selection of trees for use in the Village, including those used for landscaping, in preserved parks and open spaces, and along the street. Street trees in particular have the hardest time adapting to their particular microclimates. Normally they are subject to stress from soil compaction, heat, drought conditions, lack of root space, salt, road pollutants, and impacts from all sorts of vehicles. The typical street tree usually lives only a fraction of its potential life span. Street trees should be selected from a group of trees that adapt well to street conditions and are suitable for the local area. There should also be diversity in the species selected to reduce the spread of tree and shrub diseases.

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

<table>
<thead>
<tr>
<th>MCD</th>
<th>High Groundwater*</th>
<th>Total acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Winneconne</td>
<td>601.2</td>
<td>1,214.5</td>
</tr>
</tbody>
</table>

*Groundwater less than 2 feet.

Source: ECWRPC, 2019
hedgerows. Planted woodlands are tree plantations in which trees are found in rows. These areas include orchards, timber tracts, Christmas tree plantations and other general uses. **There are no planted woodlands and approximately 47 acres of general woodlands in the Village** (Table 6-9, Map 6-5).

<table>
<thead>
<tr>
<th>MCD</th>
<th>Planted Woodlands</th>
<th>General Woodlands</th>
<th>Total Woodlands</th>
<th>Total acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Winneconne</td>
<td>0</td>
<td>46.7</td>
<td>46.7</td>
<td>1,214.4</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

Source: ECWRPC, 2019

**Rare, Threatened and Endangered Species**

The Wisconsin Department of Natural Resources maintains a database of rare, threatened and endangered species and natural communities in Winnebago County. In order to protect these species and communities, the exact location is not available to the public; however, Winnebago County does have a copy of this database. Whenever a request comes into the county for development, this database is consulted prior to granting approval.

The Wisconsin DNR Natural Heritage Inventory (NHI) maintains an online database which provides statewide inventory of known locations and conditions of rare and endangered species, by town. **A review of the NHI Township Search Tool (for the Town of Winneconne) database revealed a number of species (Table 6-8) for the Village and areas surrounding the Village.** This database is incomplete since not all areas within the state have been inventoried. Thus, the absence of a species within this database does not mean that a particular species or community is not present. Nor does the presence of one element imply that other elements were surveyed for but not found. Despite these limitations, the NHI is the state’s most comprehensive database on biodiversity and is widely used. Generalized versions of the database are included on Map 6-5.

**Exotic and Invasive Species**

Non-native aquatic and terrestrial plants and animals, commonly referred to as exotic species, have been recognized in recent years as a major threat to the integrity of native habitats and the species that utilize those habitats. Some of these exotic species include purple loosestrife, buckthorn, garlic mustard, multi-colored Asian lady beetles, Eurasian water milfoil, emerald ash borer, and gypsy moths. They displace native species, disrupt ecosystems, and affect citizens’ livelihoods and quality of life. The invasive species rule (Wis. Adm. Code Ch. NR40) makes it illegal to possess, transport, transfer, or introduce certain invasive species in Wisconsin without a permit.
Table 6-8: WDNR Natural Heritage Inventory

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>WI Status</th>
<th>Federal Status</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acipenser fulvescens</td>
<td>Lake Sturgeon</td>
<td>SC/H</td>
<td></td>
<td>Fish</td>
</tr>
<tr>
<td>Ardea alba</td>
<td>Great Egret</td>
<td>THR</td>
<td></td>
<td>Bird</td>
</tr>
<tr>
<td>Bird Rookery</td>
<td>Bird Rookery</td>
<td>SC</td>
<td></td>
<td>Other</td>
</tr>
<tr>
<td>Erimyzon sucetta</td>
<td>Lake Chubsucker</td>
<td>SC/N</td>
<td></td>
<td>Fish</td>
</tr>
<tr>
<td>Luxillus chrysocephalus</td>
<td>Striped Shiner</td>
<td>END</td>
<td></td>
<td>Fish</td>
</tr>
<tr>
<td>Migratory Bird Concentration Site</td>
<td>Migratory Bird</td>
<td>SC</td>
<td></td>
<td>Other</td>
</tr>
<tr>
<td>Notropis anogenus</td>
<td>Pugnose Shiner</td>
<td>THR</td>
<td></td>
<td>Fish</td>
</tr>
<tr>
<td>Ruellia humilis</td>
<td>Hairy Wild Petunia</td>
<td>END</td>
<td></td>
<td>Plant</td>
</tr>
<tr>
<td>Sterna forsteri</td>
<td>Forster's Tern</td>
<td>END</td>
<td>SOC</td>
<td>Bird</td>
</tr>
<tr>
<td>Sterna hirundo</td>
<td>Common Tern</td>
<td>END</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbena simplex</td>
<td>Narrow-leaved Vervain</td>
<td>SC</td>
<td></td>
<td>Plant</td>
</tr>
<tr>
<td>Xanthocephalus xanthocephalus</td>
<td>Yellow-headed Blackbird</td>
<td>SC/M</td>
<td></td>
<td>Bird</td>
</tr>
</tbody>
</table>


PARKS, OPEN SPACE AND RECREATIONAL RESOURCES

WDNR and Public Lands

*The WDNR Does not own land within the Village.* The WDNR’s on-line Public Lands mapping application (at https://dnrmaps.wi.gov/H5/?Viewer=Public_Access_Lands) highlight the following Knowles-Nelson Stewardship Grant properties and state owned properties:

- Village of Winneconne Waterfront Park Land Acquisition.

Environmental Corridors

Environmental corridors are continuous systems of open space created by the natural linkages of environmentally sensitive lands such as woodlands, wetlands, and habitat areas. They provide important routes of travel for a variety of wildlife and bird species. Protecting these corridors from development protects habitat and keeps nonpoint source pollution to a minimum, thus ensuring that high quality groundwater and surface water is maintained and habitat is not impaired.

*Important environmental corridors within the Village and surrounding area are associated with lake shorelines and the named and unnamed streams with natural vegetation scattered throughout the area.* These areas should be protected from development by implementing buffer strips where land disturbing activities are limited within the established buffer area.
WASTE AND POLLUTION

Solid and Hazardous Waste Sites

The Solid and Hazardous Waste Information Management System (SHWIMS) provides access to information on sites, and facilities operating at sites, that are regulated by the Wisconsin Department of Natural Resources’ (WDNR) Waste and Materials Management (WMM) program. The SHWIS on-line database activity information, including:

- Engineered and licensed solid waste disposal facilities;
- Older unlicensed waste disposal sites (e.g. town dumps);
- Licensed waste transporters;
- Hazardous waste generators; and
- Composting sites, wood-burning sites, waste processing facilities and more.

According to SHWIMS, there are 29 operating sites, five closed sites and eight listed as unknown for Winneconne.

Air Quality

Air quality, especially 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, which in turn impacts air quality. Emissions from certain industries can also impact air quality. A development patterns become more spread out, the location of jobs and housing become more segregated and distant from one another.

Since alternative modes of transportation are, at present day, less viable or unavailable in some instances, people rely more on the automobile to get around. Changing lifestyles are also a major factor. Two income families are causing people to find housing that splits the difference between the two employment locations. Since vehicle travel generates air pollutant emissions, greenhouse gas emissions, and noise, local decisions about what types, where and how new development occurs can have an impact on air quality.

The closest ozone air quality monitoring site is located at the Thrivent facility at 4432 Meade Street in Appleton (Outagamie County). The primary and secondary National Ambient Air Quality standard for ozone is 0.075 ppm. Monitored values of ozone represent ground level ozone, which is not directly emitted into the air. Ozone concentrations typically reach higher levels on hot sunny days in urban environments; it can be transported long distances by wind. The 8-hour design values (ppb) were not exceeded at the Outagamie County site between 1997 and 2012. Particulate matter (PM) is a mixture of solid particles and liquid droplets. It includes acids, organic chemicals, metals, soil or dust, and allergens. According to the Wisconsin Air Quality Trends, 2014, Outagamie County did not exceed the primary and secondary National Ambient Air Quality Standard for particulate matter between 2001 and 2013.

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9 Primary standard limits are set to protect public health, while secondary standards are set to protect public welfare.
10 Wisconsin Department of Natural Resources, Wisconsin Air Quality Trends, April 2015.
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 based on the architectural, archaeological, cultural, or engineering significance. (For ease of discussion, “National Register” is used to refer to both programs. In Wisconsin, if a property is listed on one then it is typically listed on the other.

At the present, three properties near the Village are listed on the National Register. The properties listed in the National Register include:

Table 6-9: National Register and State Register of Historic Places near Village of Winneconne

<table>
<thead>
<tr>
<th>Reference #</th>
<th>Location</th>
<th>Historic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>79000120</td>
<td>Address Restricted</td>
<td>Lasley’s Point Site</td>
</tr>
<tr>
<td>75000085</td>
<td>Address Restricted</td>
<td>Kamrath Site</td>
</tr>
<tr>
<td>75000084</td>
<td>SE corner of Main and Washington Streets</td>
<td>Grignon, Augustin, Hotel</td>
</tr>
</tbody>
</table>


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) or by contacting the Wisconsin State Historical Society.

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 search of the DHP’s online Architecture and History Inventory (AHI) reveals a total of 154 sites listed for Winneconne.11

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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. 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).

Archaeological Sites Inventory

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 online. 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 the Village contact State Historic Preservation Officer at the Wisconsin State Historical Society.

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. There are no historical markers located in the Village.

Museums/Other Historic and Cultural Resources

Museums protect valuable historic resources for community enjoyment. Residents are welcome to learn from the exhibits and amenities they have to offer. There are two museums in the Village.

<table>
<thead>
<tr>
<th>Museum</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago, Milwaukee and St. Paul Depot</td>
<td>30 S 6th Street, Winneconne</td>
</tr>
<tr>
<td>St. Peter’s Congregation Schoolhouse</td>
<td>30 S 6th Street, Winneconne</td>
</tr>
</tbody>
</table>


Local Historic Preservation Commissions and Societies

The Certified Local Government (CLG) program was enacted as part of the National Historic Preservation Act Amendments of 1980. It has been established in Wisconsin to further encourage and assist historic preservation by local governments. In Wisconsin, a village, county, or town can be certified by Wisconsin’s State Historic Preservation Office and the Department of the Interior as a CLG if it meets basic criteria. The Village is not a Certified Local Government (CLG). The village has a Historic Preservation Committee. This five-member committee oversees historic activities for the village.
Local History

From the Winneconne Historical Society:

Winneconne's location has helped dictate its history. An 1849 Oshkosh newspaper article recognized the importance of the site as follows:

"Last week we were up to Winnekon, a new town just laid out a little above the junction of the Fox and Wolf rivers. Everything is entirely new. Evidences are that it will grow rapidly. It is a beautiful site. Several men of responsibility are taking hold. The country around it is rich and well settled, and the place must thrive."

The pioneers who settled the area included Yankees, Germans, Norwegians and the Irish. Census figures show a pattern of settlement. In 1855, there were 839 residents. The arrival of the railroad in 1868 was an impetus to growth; however, in 1920, Winneconne recorded its lowest population total as 745. Today's population is over 2,500.

Winneconne was in a unique position because of the narrows of the river. It also had a unique name. It was WINNECONNAH, WINNEKONA, WAU-NAU-KO and WINNIKNING. The Indian interpretations of the name ranged from land of dirty water to land of skull and bones, as well as feasting place from ween (marrow) and kaning (deer bones). In 1851, the town board officially named the village WINNECONNE.

Winneconne expanded settlement after The 1852 Treaty of Poygan with the Menominee Indians when land west of the river became available. This created a need for a means of crossing the river. The first crossing was provided by the Indians in canoes.

Four bridges have spanned the Wolf River (849 feet). A float bridge, was built by J.D. Rush in 1853. It provided an exciting crossing when it sometimes sat beneath the water on a windy day. Tolls were collected to pay for the bridge -- a forerunner to the Sovereign State toll bridge of today. The second one was built in 1871. It was a wooden draw bridge built by the Winneconne Village and Town at a cost of $20,000.

In early years sawmills, planing mills, shingle mills, and a sash and door factory lined the river. Commercial fishing was a thriving business. Several shipyards built and repaired boats. The "men of responsibility" who took hold also provided services needed by settlers and travelers. The river and lakes provided bountiful fishing and hunting, and Winneconne became known as a "Hunting and Fishing Paradise." Resorts and tourist services became an integral part of the village's economy -- as they are today.

POLICIES AND PROGRAMS

Policies and programs related to the Agricultural, Natural and Cultural resources element can be found in Appendix D.
GOALS, OBJECTIVES AND POLICIES

The following goals, objectives and policies represent the steps and resources needed to implement the desires identified in this element. Goals set direction, provide purpose and accountability and provide a roadmap. Objectives are specific activities to accomplish goals. Objectives should be clear, measurable and concise. Policies represent principles to guide decisions.

### GOALS AND OBJECTIVES

<table>
<thead>
<tr>
<th>Type</th>
<th>Reference</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>ANC1</td>
<td>Protect wetlands, streams, and lakes in the Village of Winneconne.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC1.1</td>
<td>Protect wetland areas adjacent to the Wolf River, Lakes Buttes Des Morts, Poygan, and Winneconne, and local streams through the development of a Village wetlands preservation ordinance.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC1.2</td>
<td>Protect areas immediately adjacent to and surrounding wetlands by using techniques to minimize effects on wetlands (e.g. buffers, setbacks, etc.).</td>
</tr>
<tr>
<td></td>
<td>ANC1.3</td>
<td>Develop a riparian buffer ordinance to establish permanent setbacks from the high water marks of lakes and streams when new development occurs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. Create, maintain, and enhance natural buffers along stream banks and lake shores.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Support the efforts of Winnebago County to enforce stream and lake setback requirements by enforcing local zoning requirements and policies established by the Winnebago County Land and Water Conservation Board (WCLWCB).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Work with WCLWCB, Winnebago County, WDNR and the Wisconsin Department of Agriculture Trade and Consumer Protection to promote and help fund riparian buffers along streams and lakeshores.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d. Educate residents about the importance of environmental corridors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Reference</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>ANC2</td>
<td>Preserve and enhance wildlife habitat.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC2.1</td>
<td>Coordinate with WDNR to better identify and protect wildlife habitats, particularly those unique to the community.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC2.2</td>
<td>Establish a network of green corridors through the community to act as wildlife corridors. This effort should begin with areas protected through shoreland wetland zoning, open areas preserved in conservation subdivisions and with the establishment of additional trails and greenways in accordance with the Future Land Use Maps.</td>
</tr>
</tbody>
</table>
### Chapter 6: Agricultural, Natural & Cultural Resources

<table>
<thead>
<tr>
<th>Type</th>
<th>Reference</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>ANC3</td>
<td><strong>Preserve the historic and cultural character of the community.</strong></td>
</tr>
<tr>
<td>Objective</td>
<td>ANC3.1</td>
<td>Work with residents, the Winneconne Historical Society, and other community groups to inventory historical cultural resources.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC3.2</td>
<td>Create a Historic Preservation Plan to identify significant structures within the community.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC3.3</td>
<td>Update the Historic Preservation Ordinance to set standards and rules for the protection and preservation of important community resources.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC3.4</td>
<td>Promote the historic resources of the community by supporting local preservation groups.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC3.5</td>
<td>Develop overlay zoning to protect historic districts.</td>
</tr>
<tr>
<td>Objective</td>
<td>ANC3.6</td>
<td>Once the previous five activities are approved, apply for Certified Local Government status through the State Historical Society and National Park Service to achieve eligibility for state and federal grants.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Reference</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
<td>1</td>
<td>Maintain the Village’s local character by preserving important buildings, structures, and places within Winneconne.</td>
</tr>
<tr>
<td>Policy</td>
<td>2</td>
<td>Preserve the natural resource base, water quality, and primary environmental corridors, which contribute to the maintenance of the ecological balance, natural beauty, and economic well-being of the Village.</td>
</tr>
<tr>
<td>Policy</td>
<td>3</td>
<td>Encourage the proper handling of wastes and chemicals so that they produce a minimum effect upon ground and surface water.</td>
</tr>
<tr>
<td>Policy</td>
<td>4</td>
<td>Regulate the type of commercial and industrial development in the Village to minimize the chances of groundwater contamination.</td>
</tr>
<tr>
<td>Policy</td>
<td>5</td>
<td>Discourage development that will interfere with important natural resources, including area lakes and rivers.</td>
</tr>
</tbody>
</table>
Map 6-2
Village of Winneconne
Soils

Source:
Soil data provided by NRCS-USDA Web Soil Survey (WSS), accessed 2013.
Floodplain data from FEMA 2017
Base data provided by Winnebago County 2018.

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PREPARED MARCH 2017 BY:
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Feet
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Map 6-3
Village of Winneconne
Groundwater Contamination Susceptibility

More Susceptible to Groundwater Contamination

Less Susceptible to Groundwater Contamination

Source:
Soil data provided by WDNR 2011.
Base data provided by Winnebago County 2015.

Prepared February 2018 by:

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Map 6-5
Village of Winneconne Conservation

Sources:
Base data provided by Winnebago County 2018.
Soil data provided by NRCS-USDA Web Soil Survey (WSS), accessed 2013.

PREPARED MARCH 2017 BY:

WDNR Managed Lands
Woodlands - General
Woodlands - Planted
Town of Fond du Lac
DNR Endangered Species Areas
Aquatic Habitat
Terrestrial Habitat
Wetland Habitat

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Map 6-6
Village of Winneconne
Soil Classifications

Bellevue silt loam
Briggsville loam
Carbondale muck
Hebron loam
Hortonville loam
Kewaunee loam
Kolberg loam
Landfill
Manawa silt loam
Oshkosh silt loam
Poygan loam
Undifferentiated
Winneconne silty clay loam
Water

Source:
Base data provided by Fond du Lac County 2015.
Soil data provided by NRCS-USDA Web Soil Survey (WSS), accessed 2013.

PREPARED MARCH 2017 BY:

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Map 6-7
Village of Winneconne
Soil Limitations For Septage Spreading

Not limited
Somewhat limited
Very limited

Source:
Soil data provided by USDA, 2003.
Base data provided by Winnebago County 2018.

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