

## **CHAPTER 5    Agricultural, Natural and Cultural Resources Element**

66.1001 (2)(e) Wis. Stat.:

**Agricultural, Natural and Cultural Resources element.** A compilation of objectives, policies, goals, maps, and programs of the conservation, and promotion of the effective management of natural resources such as groundwater, forests, productive agricultural area, environmentally sensitive areas, threatened and endangered species, stream corridors, surface water, floodplains, wetlands, wildlife habitat, metallic and non metallic mineral resources, parks, open spaces, historical and cultural resources, community design, recreational resources and other natural resources.

This element will discuss the agricultural landscape and the natural and cultural resources in and around the Village.

### **Section 5.1    Agricultural Resource Inventory**

#### **A.    Agricultural lands**

The Village of Amherst has approximately 175 acres of “agricultural and idle” land within the Village limits (see Table 8.1 and Map 8.1 Existing Land Use). It is assumed that the agricultural land within the Village limits will ultimately be converted to “Urban” uses, and therefore considered a holding area for future development.

#### **B.    Farm numbers, types, and size**

The Village of Amherst has one farm located within the Village limits (Borgen Farm) which is mainly used for crop production. Ostrowski, Wolters, and Justman fields are located within the Village as well.

#### **C.    Farm Economy and Infrastructure**

There are four businesses in the community directly related to the agricultural economy of the surrounding area they include:

1. Tomorrow Valley Coop Feed mill
2. Tomorrow Valley Coop Corn dryer
3. Amherst Veterinarian Clinic
4. Potato Warehouse

### **Section 5.2    Natural Resources Inventory**

This section will describe the existing conditions of natural resources in the Village of Amherst and surrounding area. Natural resources include: soils, watersheds, lakes, rivers, groundwater, shorelands, floodplains, wetlands, forests, vegetation and wildlife.

## A. Geology

The Village of Amherst is located in the central drift plain geographical province of Wisconsin. It is near a transition zone where the underlying bedrock changes from granite to sandstone at a depth of 100-200 feet beneath the surface.

The region's surface was shaped by the Green Bay lobe of the continental glacier more than 10,000 years ago. Till and outwash are the major glacial deposits in the area. Moraines consist of low hills and flat-topped terraces, while deltas are composed of stratified silt, sand, gravel and boulders deposited directly on the land by glaciers. Such land is limited to the hilly southwestern edge of the Village. In addition, areas of end moraine deposits are located further east and west of Amherst. Outwash deposits consist of stratified sand and gravel deposited by glacial meltwaters. The entire Village area and much of the surrounding lands consist of these deposits. The pitted outwash deposits have marginal potential for commercially valuable sand and gravel operations.

## B. Topography

The topography of the eastern half of Portage County has been shaped primarily by glacial action and by the Tomorrow River. The contour of the land is nearly level in the majority of the built up Village, sloping gently to the Tomorrow River (Map 5.1). The river divides the Village, with surface drainage on the east and west halves of the Village directed toward the river. The eastern portion of the Village is hilly with slopes ranging from 12 to 20 percent. The western part of the Village rises about 50 feet to a flat-to-rolling upland area that has 12 percent or greater slopes. Steep slopes become a development limitation since on-site sewage disposal systems are normally prohibited in such areas and because of the likelihood of soil erosion, increased water runoff, and scenic degradation. Development to this point in time has avoided these problems.

The lowest Village elevation is approximately 1,050 feet above sea level and is located along the Tomorrow River. The highest elevation is approximately 1,170 feet above sea level and is located in the southwest corner of the Village. Amherst's average elevation is approximately 1,060 feet.

## C. Soils

There are twenty-one soil types that occur in the Amherst area (Map 5.2). The most prevalent soil types include Billett sandy loam, Richford loamy sand and Rosholt sandy loam. Agricultural lands within the Village are composed of these three soil types. Other soils present in the Amherst area include; Alluvial wet, Coloma loamy sand, Osterle sandy loam, Plainfield and Kranski, Rosholt complex, Rosholt loam, Roscommon sandy loam and Wyocena sandy loam.

These soils and many of the smaller soil zones generally place no significant obstacle to community development, except that they are all characterized as permeable and may constitute a "moderate" limitation for on-site sewage disposal systems because of the danger of contaminating groundwater supplies. This limitation is reduced in areas served by municipal sewer and water. However, the possible pollution of groundwater from on-site sewage disposal systems or other sources could endanger the Village's public water supply and could affect the surface waters of the Tomorrow River by contributing nutrients. Added nutrients from runoff or groundwater could cause or exacerbate algae blooms and aquatic plant growth within the Tomorrow River. The suitability of soils for development in the Amherst area, illustrated in Map 5.2, was determined from detailed soil surveys on file at the Portage County Agriculture Stabilization and Conservation Service Office.

Map 5.1: Steep Slopes

Map 5.2: Soils

#### D. Groundwater

The Amherst area is on the southern fringe of the “drift” groundwater province of Wisconsin (Holt, 1964). Because bedrock slopes generally from northwest to southeast in Portage County, there is a difference of groundwater availability from the western to the eastern part of the County, where drift deposits are thicker and, therefore, contain more groundwater.

The Village of Amherst has access to a plentiful supply of groundwater. Groundwater is generally within 30 feet of the surface for most of the developed Village area. Groundwater levels may be closer to a 50 to 70 foot depth in the eastern and western fringes of the Village, due to higher land (Lippelt and Hennings, 1981).

The major users of groundwater in the Amherst area include the Village municipal water utility and agricultural irrigation wells for potato fields. Many farmers in the Amherst area use Best Management Practices. Groundwater quality is known to be affected by fertilizer applications and is most noticeable in areas of concentrated irrigation.

Currently Village well-head protection ordinances provide groundwater protection measures for lands within the Village limits. However, lands outside the Village limits that are within Amherst’s recharge area are not currently regulated by well-head protection ordinances (Map 5.3). Other unincorporated areas adjacent to municipal wells across Portage County are covered by the County well-head protection section of the zoning ordinance. To date the Village of Amherst has not requested this for their wells. The Village well-head protection ordinance is defined by three protection zones A, B, and C. Groundwater in protection zone A is classified as having a one year time of travel to the municipal well. These lands are subject to the most stringent land use and development restrictions because of their close proximity to the well field and the corresponding high threat of contamination. Groundwater within protection zone B is classified as having a five year time of travel to the well. Land use restrictions are less restrictive than in zone A because of longer flow times and a greater opportunity for remediation, dilution and attenuation. Groundwater in protection zone C is classified as having a ten year time of travel to the well. This zone has the least restrictions due to longer flow times and a greater opportunity for remediation, dilution and attenuation. For more information and regulations on these protection zones refer to the Village of Amherst Chapter 31 Wellhead Protection Ordinance.

#### E. Surface Water

The Village is located within the Fox/Wolf River drainage basin which drains to Lake Michigan.

The Municipal boundary for the Village of Amherst lies within the Tomorrow/Waupaca River Watershed (Map 5.4), a 291-square-mile drainage basin. Approximately 189 square miles (65%) of the watershed is located in Portage County. Over half of the watershed is internally drained, with surface waters flowing to potholes, small ponds, and kettle lakes. The majority of the drainage in the Amherst area flows into the Tomorrow/Waupaca River. Surface water features and natural forest land are important recreational and scenic resources for the Village of Amherst. Surface waters include the Mill Pond, Tomorrow River and Lake Emily, while natural forest land is located near the southwest and northeast edges of the Village.

## 1. Mill Pond

The Mill Pond is a 48 acre, shallow, hard water impoundment on the Tomorrow River. The pond has a generally uniform width of about 400 feet and is about 5 to 6 feet deep. The basic bottom material is sand covered with silt. Many stumps and snags protrude from the water. The Mill Pond, along with the Tomorrow River, was treated with fish toxicants in 1971 to remove rough fish. Preferred species were then restocked. Currently, the Mill Pond provides good fishing for warm water species and occasionally trout move into the Mill Pond from the Tomorrow River. Wildlife present includes eagles, hawks, shore birds, ducks, geese and a few deer.

A Village-owned stop log dam exists at the southern end of the Mill Pond. During 1987, the Village and Tomorrow Valley Cooperative made structural repairs to the dam. In 1996, the Village bought the dam and entered into an agreement to lease the dam to Roy Kleisch of Phlox Hydro for hydroelectric generation purposes. 22% per year of the Phlox Hydro gross income from the dam is paid to the Village, which results in about \$1,200 per year. Since the dam began being used to generate power, the water level of Mill Pond has not fluctuated, thereby maintaining the stability of ecosystems and environmental quality of the pond. The pond acts as a holding basin for nutrients which fertilize aquatic weed growth and algae blooms, which reduces the water recreation potential of the pond.

Major detractors from the Mill Pond include algal blooms, aquatic weed growth and siltation. Algal blooms and aquatic weed growth result from the shallow depth of the Mill Pond and nutrient loading from non-point pollution sources. Siltation is a natural result of stream bank erosion that carries silt into the Mill Pond and erosion along the shores. There is currently a Portage County lakes project underway that may provide more detailed information regarding the condition of the Mill Pond.

## 2. Tomorrow River

The Tomorrow River originates as an intermittent trickle from the marshes south of Twin Lakes in the Town of Sharon to become one of the most scenic and productive streams in Portage County. In Amherst, the River flows into the Mill Pond and returns to its natural state below the dam. The bottom consists of sand, silt, gravel and boulders, and ranges from 30 to 50 feet wide. Siltation and fluctuating water temperature are the major problems of the Tomorrow River. The major uses of the river in the Amherst area include canoeing and trout fishing. Use of the River is heavy at times.

The Tomorrow River bisects the Village from north to south and contains an 8 foot mill dam midway through the Village. A 48 acre Mill Pond is located above the dam, of which 23.8 acres lie within the Village. The river and pond are perceived as scenic assets to the community, and the Village will work to maintain them as active recreational resources.

Down stream from the dam, the river is in its natural state, has colder water and is rated a Class II trout stream. The bottom consists of sand, silt, gravel and boulders and ranges from 30 to 50 feet wide. This stretch of the river receives the outfall from the Village sewage treatment plant. The water elevation of the river and Mill Pond fluctuates very little. As such, the river in this stretch does not have a history of serious flooding.

Map 5.3: Surface & Groundwater Flow

Map 5.4: Wetlands

Map 5.5: Floodplain

### 3. Lake Emily

Lake Emily, located about 2 miles northwest of the Village, is a 95 acre, 35 foot deep lake and is a water resource of significant potential within Portage County. Seasonal cottage use, diversified park usage, swimming, and year-round fishing make up the major uses of this lake. The activities generated by this lake lead to spin-off tourism and recreational outlets for Village residents.

### F. Wetlands

Significant wetland areas in Amherst and the extraterritorial area include a very narrow strip of wetlands along the west shore of the Mill Pond which expands into a somewhat larger wetland zone about one-quarter mile north of the Village limits. The entire shoreland zone of the Tomorrow River is a valuable habitat for fish and wildlife.

Wetlands located in the Village of Amherst (Map 5.4) consist of one type:

1. Forested wetlands – include bogs and forested floodplain complexes that are characterized by trees 20 feet or more in height such as, tamarack, white cedar, black spruce, elm, black ash, and silver maple. These wetlands are located along the edges of the Tomorrow River.

While other types of wetlands which lie outside of the Village limits:

1. Emergent/wet meadow – consists of wetland areas that may have saturated soils more often than having standing water. Vegetation includes: sedges, grasses and reeds as dominant plants, but may also include: blue flag iris, milkweed, sneezeweed, mint and several species of goldenrod and aster.
2. Scrub/shrub wetlands – which include bogs and alder thickets, are characterized by wood shrubs and small trees such as: tag aster, bog birch, willow and dogwood.

Wetlands are an important part of the watershed, as they act as a filter system for pollutants, nutrients, and sediments, along with serving as buffers for shorelands and providing essential wildlife habitat, flood control and groundwater recharge.

### G. Shorelands

Shorelands in the Village of Amherst are located along the Tomorrow River and Mill Pond. As of 2004, the Shore land definition was lands within the following distances from the ordinary high water mark of navigable waters: 1,000 feet from a lake, pond, or flowage; and 300 feet from a river or stream or to the landward side of the floodplain, whichever is a greater distance.

### H. Floodplains

Map 5.5 depicts the floodplain boundary for the Village of Amherst. A floodplain is defined as that which has been or may be covered by floodwater during the regional flood. The flood plain includes the floodway and floodfringe areas. A 100-year Flood is defined as a flood event having a one percent chance of reaching the 100-year flood elevation in any given year. Contrary to popular belief, it is not a flood occurring once every 100 years. A 100-Year Floodplain then, is the area adjoining a river stream, or watercourse covered by water in the event of a 100-year flood.

Floodplains are areas adjacent to waterways that provide many benefits. These include: natural flood and erosion control, water quality maintenance, groundwater recharge, and fish and wildlife habitat. Some of these areas are also desirable for residential development due to aesthetic reasons and agricultural development due to the presence of nutrient rich soils. If development in these areas increase, the benefits listed above will decrease.

#### I. Vegetation/Forest Area

Amherst was originally part of an expansive oak savanna that covered the eastern portion of Portage County. Forest cover gave way to logging, farming and homesteading, resulting in little remaining forest cover within the Village. The remaining coverage is located in the northeastern and southeastern corner of the Village. Urban street trees and other domestic vegetation have since been introduced in the Village.

Two areas of forest cover exist in Amherst. One is located in the southwest corner of the Village and extends into the Town of Amherst. Although this area remains largely undeveloped at this time, development pressures are expected. Most of the surrounding area is used for intensive agriculture. The other area is located in the northeast part of the Village. This rolling, wooded area extends well north of the Village and has experienced low density development just south of the Tomorrow River State Trail.

#### J. Wildlife

The Tomorrow River corridor is the most obvious and continuous wildlife habitat zone. The river provides excellent habitat for trout and other cold water aquatic life downstream from the Mill Pond. The Mill Pond provides habitat for waterfowl, predatory birds, animals, and various species of game and rough fish. The entire shore land zone of the Tomorrow River is a valuable habitat for fish and wildlife.

#### **Endangered Species**

Known rare and endangered species identified by the Wisconsin Natural Heritage Inventory (NHI) are located within the Town of Amherst and Amherst area which include: Karner Blue Butterfly, Northern Dry-Mesic Forest, Calcareous Fen, Northern Wet Forest, Least Darter, and Banded Killfish. These elements should be taken into consideration when development and protection measures are considered. Below is a description of identified species:

##### **Karner Blue Butterfly**

The Karner Blue Butterfly prefers semi-open oak openings, pine barrens, and oak-pine barrens supporting wild Lupine, its only larval food plant. This butterfly has two flight periods: one beginning in late May through mid-June and a second from mid-to-late July through early August.

##### **Northern Dry-Mesic Forest**

In this forest community, mature stands are dominated by white and red pines, sometimes mixed with red oak and red maple. Common under-story shrubs are hazelnuts, blueberries, wintergreen, and partridge-berry; among the dominant herbs are wild sarsaparilla, Canada mayflower, and cow-wheat. Stands usually occur on sandy loams, sands or sometimes rocky soils

### **Calcareous Fen**

An open wetland found in southern Wisconsin, often underlain by a calcareous substrate, through which carbonate-rich groundwater percolates. The flora is typically diverse, with many calciphiles. Common species are several sedges, marsh fern, shrubby cinquefoil, shrubby St. John's-wort, Ohio goldenrod, grass-of-parnassus, twig-rush, brook lobelia, boneset, swamp thistle, and asters. Some fens have significant prairie or sedge meadow components, and intergrade with those communities.

### **Northern Wet Forest (revised from Curtis, w/ Black Spruce, Tamarack Swamps split out)**

These weakly minerotrophic conifer swamps, located in the North, are dominated by black spruce and tamarack. Jack pine may be a significant canopy component in certain parts of the range of this community complex. Understories are composed mostly of sphagnum mosses and ericaceous shrubs such as leatherleaf, Labrador-tea, and small cranberry and sedges. The Natural Heritage Inventory has split out two entities, identified (but not strictly defined) by the two dominant species (see Black Spruce Swamp and Tamarack Swamp).

### **Least Darter**

Least Darter fish have an olive-brown back and sides with scattered dark brown specks and zigzag markings. They also have a series of small dusky blotches on the sides and four short dusky bars radiating from the eye. This species prefers clear, warm, quiet waters of small streams, ponds, pools, and lakes over substrates of gravel, silt, or sand. Spawning occurs from mid-April through early July.

### **Banded Killfish**

Description not available

## **Section 5.3 Cultural Resource Inventory**

### **A. Historical and Archeological Resources**

There are areas just outside of the Village limits that contain Indian burial grounds. No such areas are identified within the Village boundaries.

### **B. Cultural Resources**

#### **1. Jensen Center**

The Lettie W. Jensen Community Center is located on Main Street, just north of the Tomorrow River Schools. Constructed in 1988 with funds donated as a memorial to Lettie W. Jensen, a former resident of Amherst, and is privately owned and operated by the Amherst Area foundation. Major facilities include a large community/meeting room, heat and serve kitchen, recreation room that is home to the Boys and Girls Club, a number of meeting rooms that are rented for multi-purpose activities and a recently completed 250 seat theater featuring state-of-the-art computer stage lighting and curtains available for theatrical/music performances, seminars and many other public gatherings. The Center is home to elderly meal site on Monday, Wednesday and Fridays, Yoga, Tai Chi, Weight Watchers, and other events are frequently offered. The Jensen Center has also been a location for wedding receptions, anniversary parties, fund raisers, baby and bridal showers. In March of 2003 the Jensen Center began publishing "Our Community Spirit" a community newsletter for the Villages of Amherst, Amherst Junction, and Nelsonville, Towns of Amherst, Lanark, Stockton, and New Hope in Portage County with a circulation of over 2,500 residents.

### C. Historical and Cultural Resources (identified by the Village of Amherst Plan Commission)

- The Iverson Building, 102 S. Main Street – originally the home of the Telephone Company; is now operated as a coffee house.
- The Opera House, 207 N Main Street – housed many entertainment performances as well as weddings, parties and roller skating.
- The Old Village Hall, 197 N. Main Street – served as the Village Hall, Jail, firehouse, and is currently an attorney’s office.
- The Webster House, 196 Wilson Street – was a bed-and-breakfast but is currently being used as a single family home.
- Scout Hall, 120 Washington Street (Lee Guyant Park) – was a blacksmith shop and also served as the polling place for voting purposes; now is being used by the VFW and the Scouts.
- The Amherst Inn Bed and Breakfast, 303 S. Main Street is identified on the National Register of Historical Places.
- St. Olaf’s Episcopal Church
- The Pomeroy House, 203 Laconia Street – was the home of the International Bank of Amherst’s primary owner. Served as a bed-and-breakfast, but is now currently being used as a single family home.

### D. Cultural Resource Programs

At the state level, the Wisconsin Historical Records Advisory Board (WHRAB) works in association with the Wisconsin Historical Society. The Board's activity falls primarily into three areas: it provides guidance and assistance to archives and records management programs in Wisconsin, promotes the value of historical records as keys to our cultural heritage and works through partnerships with statewide organizations whose purpose and goals support that end, and to bring federal grant funds to Wisconsin for improving access and preservation of historical records.

## **Section 5.4 Ag/Natural/Cultural Resources Conclusions**

### A. Agricultural Resources

1. Agricultural land within the Village should be maintained as agricultural (at the owners discretion), but will ultimately be converted to urban uses over time.
2. Agricultural-based industries and businesses are important to the existing and future Village economy.

### B. Natural Resources

1. The Mill Pond and Tomorrow River are valuable aesthetic and natural resources within the Village. The water and surrounding landscape should be preserved as much as possible.

2. The Village potable water system relies on municipal wells. Groundwater must be protected to assure safe water for Village residents.
3. Amherst has a history of valuing trees within the community (Tree City USA designation, Tree Board, Village forester, etc). The Village should educate and encourage land owners to care for and preserve trees on their properties.

### C. Cultural Resources

1. The Village of Amherst has traditionally been a diverse community, an interesting collection of eclectic individuals. As such, Amherst has the opportunity to attract and support diverse cultural offerings.

## **Section 5.5 Ag/Natural/Cultural Resources Goals, Objective and Policies**

### A. Agricultural Resources

1. Goal: Sustain an economically viable agricultural industry.
2. Objectives
  - a. Recognize and encourage the economic viability of the agricultural community.
  - b. Agricultural practices should be compatible with adjacent urban development.
3. Policies
  - a. Educate the public about the operations and activities of the agricultural community.
  - b. Promote the use of agricultural practices that are environmentally sensitive and protect air, soil, water, and wildlife resources.

### B. Natural Resources

As the Village of Amherst continues to grow, pressure to develop natural areas will increase. The Village should strive to protect environmental resources and maintain the ecological balance of the area.

1. Goal: To conserve, protect and improve the environmental resources of the Village and surrounding areas.
2. Objectives
  - a. Identify, manage, preserve and protect natural resources.
  - b. Ensure that the environmental and aesthetic qualities of the Village are considered when planning for future development.
  - c. Maintain and improve the quality of ground and surface water resources in the Amherst area.
  - d. Development or redevelopment should take into account the preservation of trees and natural features, where practical.

### 3. Policies

- a. The Village of Amherst should continue to use the zoning ordinance and floodplain/shore land –wetland ordinance as a means of protecting environmentally sensitive and unique areas from urban development.
- b. Promote the reduction or abatement of non-point source pollution of surface waters.
- c. Maintain and manage the Mill Pond as an environmental asset to the Village. Explore the potential for an aquatic nuisance control program for the Mill Pond.
- d. Continue to utilize the wellhead protection ordinance to protect groundwater. Work with Portage County to make sure the County Wellhead Protection Ordinance is in place in the unincorporated area to protect all Village wells.
- e. Local units of government work together to define and develop appropriate public access to natural resources.
- f. Develop partnership efforts that result in the preservation and restoration of natural resources.

### C. Cultural Resources

1. Goal: Encourage identification and protection of historic and cultural resources.
2. Objectives
  - a. Make the general public more aware that Historic and Cultural Arts are an integral part of our community.
3. Policies
  - a. Develop guidelines for identifying and protecting cultural and historic resources.
  - b. Assist property owners and organizations to maintain, preserve and promote historic and cultural resources.