General Overview

Farms and farmland represent valuable economic and natural resources. Besides contributing income to the local economy, agricultural lands also serve as open space, wildlife habitat, and ground water recharge areas among other functions.

Objective of this Element

The purpose of this element is to provide background information on a variety of agricultural, natural and cultural resources and features in the Town of Union. This information will help the Town recognize and identify important resources that need to be protected and/or effectively managed. It will also identify if there is anything that may limit the development potential within the Town (e.g. poor soils, floodplains, wetlands, bedrock, ground water pollution, etc.) This information will help the Town leaders make "smart growth" decisions about the future growth of the Township.

Basic Objectives of Agricultural, Natural and Cultural Resource Element

- To provide background information on a variety of agricultural, natural and cultural resources in and around the Town.
- To provide maps that document the location and extent of these resources.
- To identify areas for development with the least impact on important resources and features.
- To identify physical limitations, if any, that would restrict development.

Agricultural Characteristics

Agriculture has long been a significant economic factor in Wisconsin, Rock County and the Town of Union. Currently, Wisconsin accounts for about 45 percent of all butter and 30 percent of all cheese production in the U.S. Agriculture stimulates the economy, creates jobs and is an important factor in economic development. *(See Appendix B- Wisconsin Agriculture: Value and Economic Impact)* In recent years, it has been an increasingly smaller segment of the statewide economy accounting for just over 2 percent of the gross state product. *(Source: Wisconsin and the Agricultural Economy, Steven C. Deller, Dept. of Agricultural and Applied Economics, UW-Madison/Extension)*

In Rock County, agriculture provides jobs for 8,569 residents. It accounts for $1.1 billion in economic activity. It contributes $424 million to the county's total income. Agriculture pays $34.6 million in taxes. (not including the amount paid to local school districts.) *(Source: Rock County Agriculture: Value and Economic Impact, UW-Extension, 2004)*

For purposes of this chapter, agriculture is defined as, "the use of land for farming, dairying, pasturage, apiculture (bees), aquaculture (fish, mussels), horticulture, floriculture, viticulture (grapes), or animals and poultry husbandry. This includes the necessary accessory uses for packing, treating, or storing the produce from these activities." (*See also* ss. 30.40(1) and 91.01(1). *Wis. Stats)*

SURVEY RESULT

17% of households described their residence as a farm, but only 9% of households said that they had someone working on a farm.

Agriculture in the Township and Rock County is currently in a transition period. The following table compares the status of agriculture in 1997 to 2002.

Table ANC-1: Agricultural County Profile, 2002 compared to 1997; 2007 compared to 2002

Factor	1997	2002	Percent Change	2007	Percent Change
Number of Farms	1,630	1,529	-6%	1,556	2%
Land in Farms	370,178 acres	343,763 acres	-7%	344,361 acres	0%
Average size of Farm	227 acres	225 acres	-1%	221 acres	-2%
Market Value of Production	$133,438,000	$118,103,000	-11%	$195,621	66%
Market Value of Production, average per farm	$81,864	$77,242	-6%	$125,720	63%
Government Payments	$5,956,000	$6,849,000	+15%	$7,095	4%
Government Payments, average per farm receiving payments	$6,350	$8,261	+30%	$6,357	-23%

Source: U.S. Department of Agriculture, 2002 & 2007 Census of Agriculture, County Profile; updated 3.26.09

The size of farms is changing, but in a way unlike what is seen in much of Wisconsin. Statewide, the number of mid-sized farms is decreasing as the numbers of small and large farms are both increasing. There are a growing number of hobby-type farms as ex-urbanites move into more rural areas and as farm economics are forcing a relatively small proportion of full-time farmers to increase the size of their operations. Although the Town does see some increase in smaller farms, the agglomeration of farm units into mega farms is more limited. In Rock County from 1997 to 2002, the greatest percentage increase, 65.5 percent, was in farms averaging 10-49 acres. There was a decrease of 12.6 percent in those farms in the 180- 499 acre range while farms of 500 or more acres decreased 8.8 percent. The role of farmland that is being rented by individuals choosing not to farm it is not defined. It is important to note that agriculture plays a significant role in the Town.

Table ANC-2: Size of Farms - Rock County, 1997, 2002 & 2007

Size (Acres)	1997		2002		%	2007		%
	#	%	#	%	Change	#	%	Change
1 to 9	121	9.1	178	11.6	+47.1	159	10.2	-10.7
10 to 49	311	23.5	516	33.7	+65.5	549	35.3	6.4
50 to 179	419	31.6	415	27.1	-1.0	442	28.4	6.5
180 to 499	302	22.8	264	17.3	-12.6	256	16.5	-3.0
500 or More	171	12.9	156	10.2	-8.8	150	9.6	-3.8

Source: U.S. Census Bureau; updated 3.26.09

Typical crops grown in the Town include: corn, soybeans, hay and alfalfa which are the primary crops grown in the Town. Specialty crops, vegetables and potatoes are also grown.

Soils greatly impact the potential for both agricultural production and development. For example, some soils are excellent media for crop production, building construction and private sewage systems. Whereas, other soils are unsuitable because of steep slopes, high ground water table shallow depth of bedrock, and wet soil conditions. Decisions pertaining to the optimum use of land must consider these characteristics.

Table ANC-3: Agricultural Characteristics, Rock County, 1997, 2002 & 2007

Characteristics	1997	2002	% Change	2007	% Change
Land in Farms (Acres)	351,014	343,763	-2.1	344,361	0.2
Farms	1,324	1,529	15.5	1,556	1.8
Full-Time Farms	693	861	24.2	740	-14.1
Part-Time Farms	631	668	5.9	816	22.2
Market Value of Agricultural Products (1,000)	$129,628	$118,103	-8.9	$195,621	65.6
Market Value of Agricultural Products per Farm	$97,906	~~$63,586~~ $77,242	-35.1	$125,720	62.8
Farms with Milk Cows	240	164	-31.7	135	-17.7
Milk Cows	14,353	13,592	-5.3	11,862	-12.7

Source: U.S. Census Bureau; updated 3.26.09

Agricultural Profitability and Land Values

The extreme change in equalized value for agricultural land in the 1980's exemplifies the lack of control local governments have over this significant portion of their tax base. Local governments do not have control over inflation which affects investment patterns and in turn the market value of agricultural land. Nor do local governments or individuals have control over agricultural markets. An individual farmer can only increase profitability by increasing production or decreasing costs because the farmer cannot raise the price of the product to make more money. The price the farmer receives is dependent upon the agricultural market. However, some decisions local governments make do have an affect on the profitability of the individual farmer. Zoning and land planning decisions made by local governments are especially important to the farm operator because of the impact these decisions can have on farm profitability.

Certain land use patterns, such as widely dispersed development, are more expensive to service than others. Increased service costs increase the tax burden for all residents. Higher taxes decrease farm profits making it more difficult for farmers to invest in farm land or machinery.

The price of land continuing in agricultural use is less than that of land being diverted to other uses. Presumably, the land being diverted lies in areas prime for development by being located near arterial roadways and/or public infrastructure, thus commanding a higher asking price. From 1998 to 2003, the average dollar per acre for land that remained being used for agriculture was $2,751.32. The average dollar per acre for land diverted to other uses was $4,226.67. In the year 2000, the price paid for land diverted to other uses sharply spiked, while the price paid for land remaining in agricultural use continued a steady increase. (*Source: Rock County Agricultural Preservation Plan 2005 Update)*

The Town of Union has zoning and land planning authority. With this authority, the Town adopted the A-1 Agricultural District, one specific district within the Zoning Ordinance. This district, which was implemented in conjunction with the Farmland Preservation Program, seeks to improve farm profitability by reducing taxes, and separating uses from agricultural areas that may make farming more costly. A number of farmers in the Town have taken advantage of the Farmland Preservation Program.

While the majority of agricultural land sales in Rock County have resulted in the land continuing to be used for agricultural purposes, there is pressure from other factors to remove land from agricultural use. Some of these factors are:

- Existing or planned activities adjacent to the agricultural area are incompatible with agricultural use.
- Substantial urban growth in the area or planned urban expansion has created a public need to convert agricultural land use to other uses.

Table ANC-4: Agricultural Land Sales, Rock County

Year	Agricultural land continuing in agricultural use			Agricultural land being diverted to other uses			Total of all agricultural land		
	Number of Transactions	Acres Sold	Dollars per acre	Number of Transactions	Acres Sold	Dollars per acres	Number of Transactions	Acres Sold	Dollars per acres
2007	42	4,362	5,074	4	306	17,145	46	4,668	5,865
2006	25	2,017	4,567	7	389	8,248	32	2,406	5,162
2005	43	3,080	4,531	6	273	13,243	49	3,353	5,241
2004	49	4,619	3,703	7	342	7,348	56	4,961	3,954
2003	38	3,766	3,339	3	419	3,950	41	4,185	3,400
2002	29	3,379	2,796	16	1,027	3,587	45	4,406	2,980
2001	23	2,290	3,095	20	1,345	3,555	43	3,635	3,265
2000	31	3,446	2,670	15	937	7,721	46	4,383	3,750
1999	23	3,549	2,233	14	677	3,644	37	4,226	2,459
1998	32	3,341	2,375	18	847	2,903	50	4,188	2,482

Source: Wisconsin Department of Agriculture; updated 3.26.09

Goals, Objectives, and Actions

Goal: Protect the Town's open space and agricultural areas to maintain a rural character.

Objective: Preserve productive farmlands (Soil Capability Type I, II and III) in the Town for long-term farm use and maintain agriculture as a major economic activity and way of life. Agriculture has been and continues to be a primary component of the Town's economic base.

Actions:

- Continue to protect agricultural land through Exclusive Agricultural Zoning. This zoning district allows those eligible land owners to receive the income tax benefits available through the Farmland Preservation Program. The objectives of the Farmland Preservation Program are to preserve farm land, promote efficient growth patterns and to provide property tax relief to farmers. All of the residents of the State subsidize the farmers participating in the Farmland Preservation Program to keep their land in agricultural production because of the need for food production and because controlled growth that promotes the efficient provision of services and farm profitability is in the interest of all rural and urban residents.
- Establish a task force to investigate a Purchase of Development Rights (PDR) and Transfer of Development Rights (TDR) program to protect high quality farmland and large viable farm operations to create substantial clusters of agriculture land. The PDR program would be used to give farmers an alternative to splitting lots.

Maintaining large blocks of land dedicated to agricultural uses will help to eliminate land use conflicts that can hamper agricultural operations.

- Maintain agriculture operations, recognizing that type of crops could change (i.e., developing markets for biofuels and energy).
- Identify prime agricultural land by referring to the Soil Capability Map *(See Map #12)* and the Soil Productivity Map (*See Map #13)* using the graduated scale of Capability 1-5 with Category 1 being the most prime and Category 5 being the least prime.

Objective: Protect farm operations from incompatible adjacent land uses or activities that will adversely affect agriculture investments and improvements.

Actions:

- Require clustering of rural residential developments close to the City of Evansville or Village of Brooklyn and away from active farming operations in order to preserve prime farmland.
- Minimize amount of farmland rezoned when considering rezoning of agriculture land to non-agriculture uses. Areas considered for rezoning should be:
  - Land located such that there would be minimal conflict with the surrounding agricultural uses.
  - Land where development would not disturb or destroy any important natural features, such as significant woodland areas, wetlands or steep slopes.
  - Land that would not cut up a field or place the house in the middle of a field or other viewshed area.
  - Non-prime agricultural land. (Prime Agriculture Land defined as Soils Capability Type I; Productive Agricultural Land defined as Soils Capability Type II, III)
  - Land located near existing transportation routes suitable for increased commuter traffic so as to minimize conflicts between farm machinery and commuter use.
- Develop a farming operation disclaimer and require the Agriculture Use Information form be used for all real estate changes in the township. *(See Appendix A)*
- Establish a “Right-to-Farm” ordinance to protect farmers.

Natural Resources

Physical Features

Physical features greatly impact the development of a community. Physical conditions such as topography, soils, drainage, natural resources, etc. must be considered to continue to manage a successful community.

Topography and Drainage

Past glacial activity in the Town of Union formed three distinct glacial features:

1. Terminal moraine.
2. Outwash plain.
3. Morainal drift.

These features are responsible for the varying topography and drainage patterns in the area. (*See Map #14: Geologic Features)*

The terminal moraine, referred to as the Johnstown Moraine, includes the northeast 1/3 of the Town. This kettle moraine topography is represented by two relief forms: depressions and hills with local relief varying from 920 to 1,000 feet. Many depressions occur throughout the moraine, some of which may be filled with water to form small kettle lakes. The moraine is composed of consolidated and unstratified clay, silt, sand, gravel, and boulders.

The central one-third of the Town which forms a northwest to southeast belt of sand, gravel and finer materials is an outwash plain. The area is relatively flat with relief varying from 870 to 920.

The morainal drift feature located in the southwest one-third of the Town was not glaciated in the last glacier. The area is a result of differential erosion of the bedrock resulting in terrain with deep valleys cut into sandstone ridges.

The southwest two-thirds of the township is drained by Allen Creek which is part of the Sugar River watershed. The southeastern corner of the township is part of the Marsh Creek watershed. The northeastern one-third of the township is drained by Spring Creek which is a part of the Yahara River drainage basin. (*See Map #15: Drainage Basins)*

Soils

Soils greatly impact the potential for both agricultural production and development.
Union Township has an abundance of good agricultural land. Most of the land in the township is classified as “prime” for agricultural purposes according to the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service. The NRCS divides soils into eight different units according to agricultural capabilities. In Rock County, units I, II, and III are generally considered to be prime agricultural soils (*See Map #12: Soil Capability*)

Engineering Limitations of Soils

Frequently, soils which have severe limitation for onsite sewage disposal systems also have severe or moderate engineering limitations. Characteristics of soils have engineering limitations consist of the following:

- Soils which are unstable and highly compressible.
- Soils with high shrink/swell potential (the difference in the volume of a given weight of a soil when a soil is dry versus when it is moist.)
- Soils having low bearing capacity which may not be suitable to support the weight of construction.
- Bedrock near the surface which makes digging basements or locating sewage and water lines difficult, and increases the chance for ground water contamination.
- Wet soils which can cause frost heave and pipe floatation.

Approximately 20 percent of the township has severe engineering limitations. (SCS, 1974)

Erodibility and Slopes

Map #16: Environmentally Significant Areas indicates those areas which are considered highly erodible by the Soil Conservation Service. This classification is based primarily on the slope of the land and the type of the soil. The type of soil is important to consider because some soils may be highly erosive even on a gentle slope due to their physical properties. A designation of highly erodible generally indicates that soil conservation practices must be employed for crop production if the land owner wishes to participate in state and federal agricultural programs. (There are other soils that also require soil conservation practices that are not considered highly erodible.)

Highly erodible soils tend to be the least productive and the most expensive to farm because of the required conservation practices. From a land owner's perspective, these soils are least valuable and therefore most useful for a purpose other than agricultural production. It is expected that these soils would be the soils most likely to be developed. A comparison of the existing land divisions and the erodible soils reveals that this is the case: a large portion of the land divisions have occurred on the highly erodible soils.

In addition to erosion problems, steeply sloped land requires careful consideration and possibly special solutions for the installation of on-site septic systems.

Open Space and Environmentally Sensitive Areas

Open space areas, referred to as environmental corridors, include conservancy areas, scientific areas, and areas having slopes greater than 20 percent. (*See Map #16: Environmentally Significant Area)*

Environmental corridors generally represent areas along all navigable and intermittent streams, as well as, low land areas having wet soils. Much of the land included in the environmental corridors is not suitable for development due to onsite absorption and sewage disposal system limitations. In general,

the environmental corridors follow Spring Creek and Allen Creek. Land included in the floodplain falls within the areas of wet soils. Development in the floodplain is even more difficult due to physical constraints produced by flooding as well as regulations restricting development. (See Map #16: Environmentally Significant Areas)

SURVEY RESULT

Almost two-thirds of households said the Town should use tax dollars to preserve green space and environmental areas.

According to the State Statutes, wetlands are those

areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and, which has soils indicative of wet conditions. Map #16: Environmentally Significant Areas indicates the location of wetlands in the township as determined by the Department of Natural Resources**.** In general, these areas follow the environmental corridors. These areas are restricted by the Army Corps of Engineers from development and filling.

Two areas designated as scientific areas by an inventory compiled by the Scientific Areas Preservation Council are located in section 8 and 9. The list of scientific areas is intended as a guide for educator, naturalists, and people interests in native vegetation. Most of these areas are in private ownership. Map #16: Environmentally Significant Areas indicates the location of these scientific areas.

- The Brooklyn Prairie located in Section 8 along the Chicago and Northwestern Railroad right-of-way is a remnant of the vast prairie that once covered 95 percent of Union Township.
- The Union Bog located in Section 9 is one of three bogs in Rock County. A bog is formed when a floating mat of roots, mosses, and other organic materials forms over the surface of a standing body of water.

Groundwater

Groundwater is a valuable resource in the Town of Union as it provides the water supply for all domestic and business activities. Precipitation that infiltrates into the ground, moves downward through the soil column and reaches the water table recharges the groundwater system. Groundwater movement generally mimics the topography, moving from areas of higher elevation (high potential) where recharge occurs to areas of lower elevation (low potential) where groundwater is discharged to wetlands, lakes and streams. (*See Map #16: Environmentally Significant Areas)*

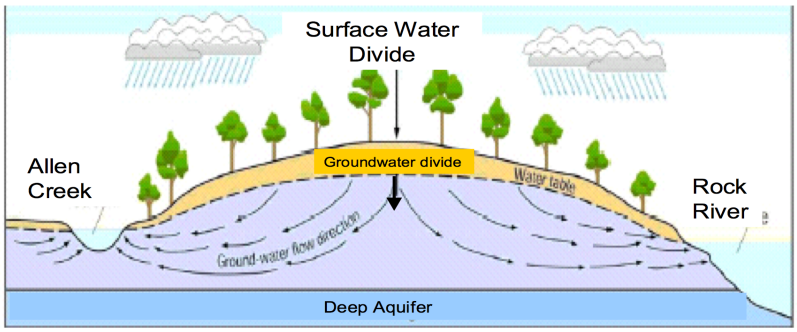
Groundwater moves within two systems separated by a groundwater divide, an imaginary line usually at a topographic high, which stretches from the northwest to the southeast (Figure from Zaporozek, 1982). To the east of the divide, groundwater flows toward the east and likely discharges to Spring Creek, Badfish Creek (Town of Porter), Yahara River (Town of Porter), or to the Rock River (Town of Fulton). To the west of the divide, groundwater likely discharges to Allen Creek which eventually discharges to the Sugar River. Groundwater elevations range from approximately 940 ft (northwest and west) to 880 ft ngvd (southeast).

Figure ANC-1: Groundwater Flow Systems

Figure ANC-2:

Groundwater Flow Systems

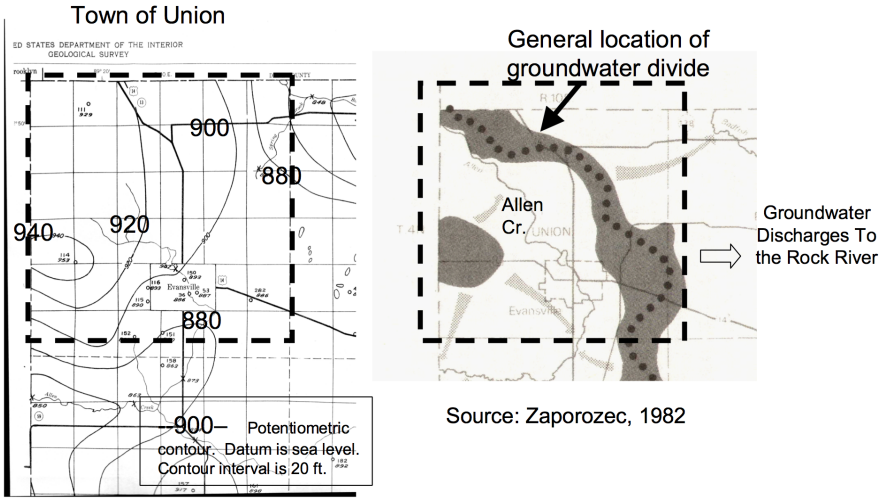
Source: adapted from United States Geological Survey, 2000



Potentiometric Surface Map

Potentiometric Surface Map, June-July, 1958

Source: LeRoux, 1963



Source: Zaporozec, 1982

There are three main aquifers that supply groundwater, 1) the Pleistocene sand and gravel, 2) the Platteville-Galena dolomite and St. Peter sandstone and 3) the Upper Cambrian sandstone. These units are hydraulically connected and act as one system. *(Source:Zaporozec, 1982)*

Figure ANC-3: Bedrock Stratigraphy for Rock County

Bedrock Stratigraphy for Rock County

Source: Adapted from Ostrom, 1967

Age	Group	Formation	Description
Ordovician	Sinnipee	Galena	Dolomite
		Decorah	
		Platteville	
	Ancell	Glenwood	Shale and sandstone
		St. Peter	Sandstone
	Prairie du Chien	Shakopee	Dolomite
		Oneota	
Cambrian	Trempealeau	Jordan	Sandstone
		St. Lawrence	Siltstone and dolomite
	Tunnel City	Lone Rock	Sandstone with fine layers
		Mazomanie	
	Elk Mound	Wonewoc	Sandstone
		Eau Claire	Sandstone and shale
		Mt. Simon	Sandstone
Precambrian			Undifferentiated crystalline rocks

According to the Rock County Health Department *(Source: Wietersen, personal communication January 17, 2006),* there have been 367 wells constructed in the Town of Union since 1988. These wells range in depth from 37 feet to 480 feet and have an average depth of 130 feet. A review of a random sample of well construction reports indicates that wells are typically constructed in the shallow dolomite and sandstone units, Galena – St. Peter aquifer. Wells in this area typically yield less than 100 gallons per minute. *(Source: Zaporozek, 1982)*

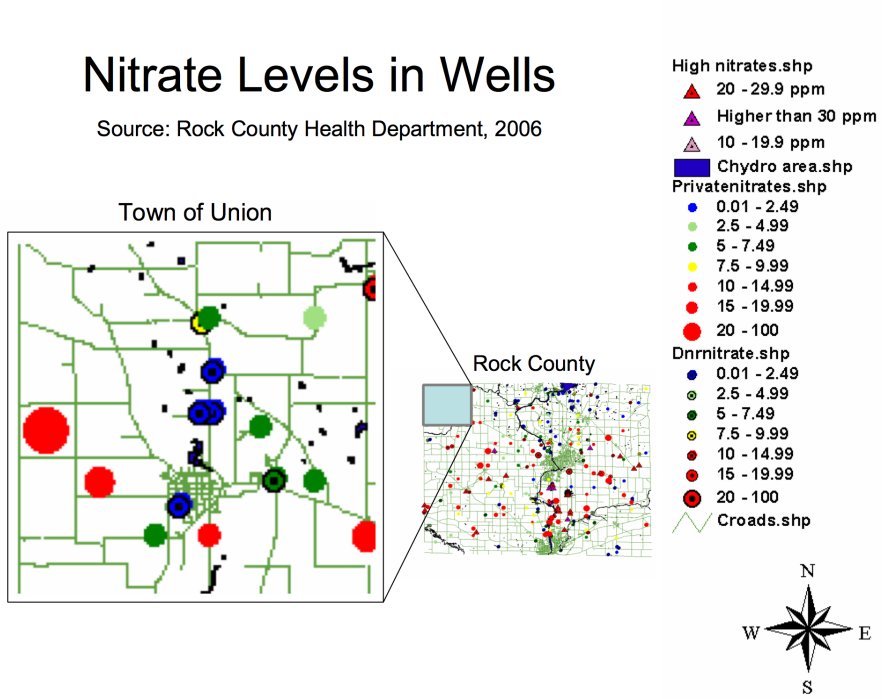
SURVEY RESULT

- 97% of households obtain their drinking water from their own private well.
- 24% expressed concerns about the quality of their water.
- 32% had their well water tested in 2004.

In general the quality of groundwater is good with the exception of some areas where elevated nitrate concentrations exceeding Wisconsin Administrative Code, ch. NR 140 Enforcement Standards of 10 mg/L have been reported *(Source: Rock County Health Department, 2002)* The sources of nitrate pollution include fertilizers, manure and septic systems. Nitrates are highly mobile in groundwater. In year 2000, groundwater samples for three out of seven private wells sampled in the Town of Union had high nitrate concentrations ranging from 20 to 100 mg/L. *(Source: Rock County Health Department, 2003)* Nitrate contamination of groundwater

may result in infantile methemoglobinemia or "blue baby syndrome" which affects infants up to six months of age and fetuses of expectant mothers.

Figure ANC-4: Nitrate Levels in Wells



Potential Groundwater Issues

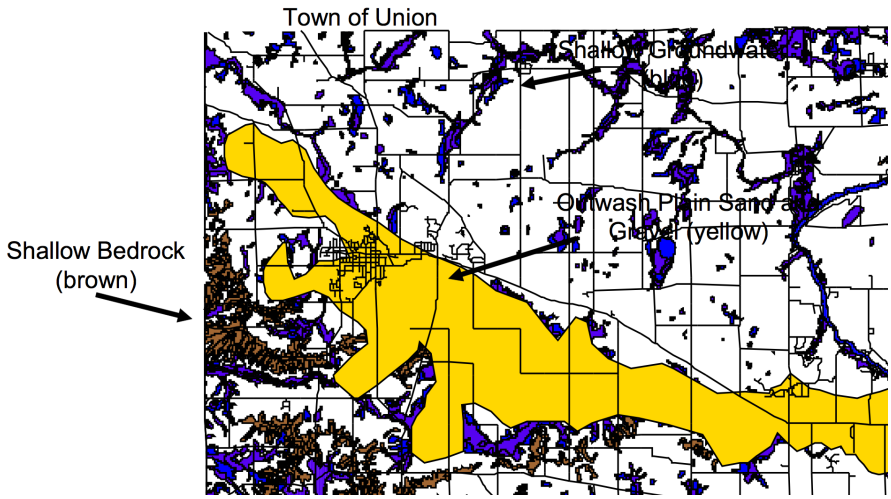
Because of the sparse population projected for the future and the existence of only a few high capacity wells (greater than 70 gallons per minute), groundwater supply will be adequate for the foreseeable future. For year 2020, population is estimated to increase to 2,439 persons. The estimated domestic water supply requirement is approximately 90 million gallons per year (100 gallons per day * 2,439 persons * 365 days) while the estimated recharge rate to the groundwater system is approximately 40 times as much (36 sq mi * 0.5 ft of recharge minus Evansville projected pumping rate of 71,230 cubic feet /day). This doesn't include the groundwater pumped from existing or future high capacity wells in the town but does take into consideration the Evansville well. Although groundwater supplies are expected to be adequate, any new wells that are constructed, especially high capacity wells, have the potential to impact water levels near the well.

Nitrate concentrations in groundwater in Rock County have been increasing. *(Source: Rock County Health Department, 2002)* Areas susceptible to groundwater contamination include those with: 1) shallow groundwater (near the land surface), 2) shallow bedrock, and 3) sand and gravel in the outwash plain. These are areas which have been linked to high nitrates in the groundwater.

Figure ANC-5: Areas Susceptible to Groundwater Contamination

Areas Susceptible to Groundwater Contamination

Source: Rock County Health Department, 2006



A majority of homeowners in Rock County do not regularly test their wells according to a 2001 survey conducted by the Rock County Health Department (2002). To insure that Town of Union residents are drinking clean groundwater, it is recommended that an educational program be developed to encourage residents to have their wells tested yearly for bacteria and nitrates. Additionally, if not previously done, groundwater testing for pesticides is also recommended especially for areas with high nitrates

Vegetation

Pre-settlement natural vegetation in the area consisted primarily of prairies and oak savannas characterized by open grasslands with scattered burr and white oaks. Frequent wildfires that occurred on an almost annual basis kept intolerant trees and shrubs from gaining a foothold, thus allowing for the development of largely prairie environment. To a lesser extent, sedge meadows existed in the wetter parts of the prairie region.

At the time of European settlement, Rock County consisted of gentle rolling and arable prairies and oak openings and heavily timbered tracts. Following the European settlement, much of the oak openings and savannas were either placed under plow or allowed to develop into fully stocked woodlands. Between 1830 and 1950, the landscape changed from an open prairie-forest mosaic to an agricultural dominated land use. Today the area remains primarily agricultural.

Rare, Threatened, and Endangered Species

Based on information contained in Wisconsin's Natural Heritage Inventory, there are 74 plant species, 23 natural communities and 43 animal species in Rock County that are considered rare threatened, endangered, or species of special concern.

Natural Resources Inventory

DNR Wildlife Preserve south of the City of Evansville along Allen Creek.

Allen Creek (See Evansville Smart Growth Plan, pg. 104): Allen Creek is the source water for Lake Leota. About 4.5 miles of the stream above Lake Leota are classified Class II and Class III trout waters (WDNR, 1980). Allen Creek below Evansville is on the State's antidegradation list (NR 102) as an exceptional resource water, a designation which provides a greater level of protection. The stream below Evansville is good for sport fishery and there is some public ownership along the stream south of Evansville.

History of water quality maintenance:

- In 1908, the Union Drainage District was formed to dredge and rechannel the stream to create more tillable land.
- In 1909 and 1910 dredging the stream from Butts Corners north to the Dane County line had deepened Allen Creek. During the first dredging of the creek, 77,000 cubic yards of material was removed. This allowed surrounding land to drain into the creek and what previously had been swampland to become tillable farmland.
- In 1951, the creek was dredged again and four laterals were constructed to extend the drainage ditch and drain more wetlands. An estimated 145,000 cubic yards of soil was removed.
- In 1972, DNR recommended improvements to Allen Creek to create a better Lake Leota environment. Intensive farming of land near the creek created erosion into the stream and increased the sediment carried into the lake. Improvements included riprapping the banks of the stream and placing retention ponds at the end of the draining ditch laterals to reduce the amount of silt carried by the stream, fencing along Allen Creek to prevent farm animals from getting into the stream, creating cattle crossings, and sloping/seeding the banks of the creek to prevent further erosion.

Spring Creek flows through the northeast corner of the Township, passing under the historic Leedle Mill Bridge.

Open Space & Environmentally Significant Areas - Open space areas, referred to as environmental corridors, include conservancy areas, scientific areas, and areas having slopes greater that 20%. (*See Figure #16: Environmentally Significant Areas)* Environmental corridors generally represent areas along all navigable and intermittent streams, as well as low land areas having wet soils. Much of the land included in the environmental corridors is not suitable for development due to on-site absorption sewage disposal system limitations. In general, the environmental corridors follow Spring and Allen Creeks. Land included in the floodplain falls within the areas of wet soils. Development in the floodplain is even more difficult due to physical constraints produced by flooding as well as regulation restricting development.

Environmental Corridors:

- Environmental Corridors include conservancy areas, scientific areas and areas with slopes greater than 20% (*See Map #16: Environmentally Significant Areas)*
- Environmental Corridors generally represent areas along navigable and intermittent streams and low land areas having wet soil. Much land in environmental corridors is undevelopable due to septic system limitations.
- Environmental Corridors in Town follow Spring Creek and Allen Creek. (*See Rock County Comprehensive Plan Environmentally Significant/Open Space Area Plan Map)*

Wetlands: See Map #16: Environmentally Significant Areas. Also see Wisconsin Department of Natural Resources Wetland Inventory for T4N, R10E.

Scientific Areas identified in the 1993 Plan include:

- Brooklyn Prairie in Sec. 8 along the railroad tracks is a remnant of vast prairie that once covered 95% of the Town.
- Union Bog in Sec. 9 is one of 3 bogs in the County. *See 1993 Comprehensive Plan, pg. 10-11*

Scenic Views: Rock County Comprehensive Development Plan identifies the largest scenic views in the Town along County C from Pleasant Prairie Road. to STH 104 and south to Milbrandt Road.

Watersheds: Badfish Creek Watershed in northeast corner of Township Spring Creek Watershed in the northeast corner of the Township

Goals, Objectives and Actions

Goal: To preserve and protect the Town's natural, scenic and historic resources for the enjoyment of current and future residents and visitors.

Objective: Protect open space and preserve environmental corridors.

Actions:

- Establish a Task Force to investigate the Purchase of Development Rights ("PDR") program to preserve environmental, archeological, scenic and historic resources, as well as open space.
- Encourage preservation and management of areas needed to support local wildlife.
- Coordinate with Evansville to ensure that important open space corridors and other important natural resource areas are protected.
- Require developers to set aside green space in the development.

Objective: Require strategies to address potential impacts of development on water quality and quantity in Town creeks, wetlands and groundwater aquifers such as buffers, setback and/or best management practices for erosion control and storm water management.

Action: Develop an educational program to encourage residents to have their private wells tested yearly for bacteria and nitrates and if not previously done, groundwater testing for pesticides.

Objective: Discourage development in areas that possess valuable natural resource characteristics such as floodplains, wetlands, view sheds and wildlife habitats.

Actions:

- Rezone important wetlands and lands unsuitable for development and buffer areas for conservation and protection.
- Discourage filling of floodplains and wetlands, including areas within 300' of floodplains and wetlands for development.

Objective: Provide for parks and park improvements.

Actions:

- Update the Town park plan to ensure eligibility for state recreation matching funds and to ensure available funds are being used in accordance with the wishes of the residents.
- Only accept land for parks that is adequate size and has characteristics that make it suitable for use as a park.
- During the park planning process, determine where and what type of additional park land should be accepted and what type of improvements are needed in parks.
- Require subdivisions to dedicate a minimum of 5% to parkland. (A-3 subdivisions have been considered to have enough open space and are not required to dedicate 5% to parkland. In lieu of parkland dedication, rural residential lots that are less than three acres have been calculated at $518/lot – as of 1/4/06 - the same cost per lot as used by the City of Evansville.) (*See Map #10: Community Facilities)*

Cultural Resources

A historic survey of significant buildings in Rock County was completed by the Rock County Historical Society in conjunction with the Rock County Planning and Development Agency in 1975. One of the purposes of the survey was to aid any local efforts at historic preservation. Map #17: Historical Sites locates the buildings and sites in the Town that are cataloged in this survey. The survey also provided the following brief summary. *(See Map #17: Historical Sites)*

Of the 57 sites surveyed, 22 were Greek Revival buildings. Four of these are orange brick (2,4,7, and 8.) The much altered frame of the Union Tavern (6), now vinyl-sided, is a former stage coach stop. The frame Nevels house (5) on the southern outskirts of Union is now painted blue. It retains a typical deep returned cornice and a simple three-bay front, but with two windows on the second story.

Of the four Italianate residential sites, the Bullard cream brick house of 1868 (2) located on the Bullard century farm, has an especially fine Renaissance cornice. The vernacular Italianate two-doored cream brick School #7 of 1872 (3) was restored with little alteration to the exterior.

Seven Late Picturesque houses were recorded, the larger number reflecting perhaps the unusual abundance of eclectic late 19th century in Evansville itself. The Robinson family farm (v5), called The Maples, contains a vernacular Greek revival house bought by the family as well as the 1900 house in which Mr. and Mrs. Hugh Robinson were married. He was the nephew of Theodore Robinson, the noted American Impressionist painter.

The Leedle Mill iron bridge is located near the site of the destroyed mill and in the area of the "forgotten" town of Van Buren. Van Buren was conceived by land speculators in 1836 but was never built. Sites of rural industry include the former Reese cheese factory (Parson v 1) and Rosa's sorghum mill, east of Union village.

Cultural Resources Inventory

Historic Properties:

Historic properties are defined as: "places, structures or objects with a special character, historic interest, aesthetic interest or other significant value, historic landmarks, historic districts and burial sites" Town historic properties contained in the Wisconsin State Historical Society's Architecture and History Inventory (AHI) and the Town's 1993 Plan include the following:

- Leedle Mill Bridge located near the site of a destroyed mill and forgotten town of Van Buren which was conceived by speculators in 1836 but never built.
- Union Tavern is a former stage coach stop.
- Nevels House (circa 1847) a blue house on the southern outskirts of Union retains a typical deep returned cornice and a simple three-bay front, but with two windows on the second story.
- Italianate residential sites such as the Bullard cream brick house built in 1872.
- Robinson Family Farm (a/k/a The Maples) contains a vernacular Greek Revival house and a 1900 house where Mr. & Mrs. Hugh Robinson were married – nephew of Theodore Robinson, the noted American Impressionist Painter.
- One-Room Schools such as the Pleasant Prairie School – District #7 on County C, a vernacular Italianate 2-door cream brick school built in 1872. Other one room schools are located on Holt Road, School #3 on Evansville-Brooklyn Road, Union School on E. Union Road built in 1877 and Franklin School on Hwy. 59.
- Sites of Rural Industry include the former Reese Cheese Factory on the corner of STH 104 and Croft Road and Rosa's Sorghum Mill east of Union.

History of Union:

- The Village of Union was settled in 1838.
- The Village of Union was the half-way point on the stage route from Janesville to Madison and soon became a thriving Village with a tavern, 5 general stores, the Union Hotel, a millinery shop, shoe shop, post office, schoolhouse, cabinet shop, 3 blacksmith shops, 2 grain warehouses and 3 churches. By 1851, the Village of Union was prosperous enough to support a brass band and orchestra. *(Source: Evansville Century of Progress, 1939, p. 63)*
- W.H. Van Hise, Union storekeeper and father of Charles Van Hise, President of the University of Wisconsin, was one of the leading businessmen in the community. (id, p. 41)
- The railroad was built through Evansville in 1864. It marked the beginning of a rapid decline of the larger Village of Union and many Unionites moved to Evansville.

Archeological Resources:

Archaeological sites include places where people lived, where they worked, and where they worshiped. These sites were made by the people who lived at the village, farm, or logging camp located just down the road. Archaeological sites occur figuratively and literally under our feet. Archaeology is well suited for providing important information about the lives of people who are not well represented in the written record. Archaeological sites are non-renewable resources and once a site is destroyed, either by natural or human related activities, it cannot be reclaimed.

Existing Information: The Wisconsin Historical Society maintains a list of archaeological sites and cemeteries referred to as the Archaeological Site Inventory (ASI).

Since only a small portion of the Town has been surveyed for the presence of archaeological sites and cemeteries, the sites listed in the inventory represent only a fraction of the sites that are actually present. Notably missing are sites related to the history of agriculture in the area; a way of life that started a 1000 years ago. Local residents and American Indian communities who have and do live and work in the area possess much additional information on other archaeological sites and cemeteries. Steps should be taken to have this information incorporated into the land use plan.

Up to this point in time, 18 archaeological sites and cemeteries has been reported for the Town. The following types of sites have been identified:

Cemeteries – including, unmarked graves
Cabins/homesteads
Campsite/villages
Mill

Clearly this sample of sites does not reflect the rich history of the area. Many more sites are present in the area. No sites are listed on the National and State Register of Historical Places, but many sites in the Town certainly may be eligible and important.

Where are archaeological sites going to be located? Using the results of archaeological surveys, relevant historical and environmental data, the following high priority areas were designated:

-- higher, dryer areas adjacent to rivers, streams, creeks, lakes, wetlands
-- higher, dryer areas adjacent to **older abandoned** rivers, streams, creeks, lakes, wetlands
-- areas adjacent to older historic features such as trails, early roads, rail corridors, and

earlier communities

Under Wisconsin law, Native American burial mounds, unmarked burials, and all marked and unmarked cemeteries are protected from intentional disturbance. If anyone suspects that a Native American burial mound or an unmarked or marked burial is present in an area, the Burial Sites Preservation Office should be notified. If human bone is unearthed during any phase of a project, **all work must cease**, and the Burial Sites Preservation Office **must be contacted** at 1-800-342-7834 to be in compliance with Wis. Stat. 157.70 which provides for the protection of all human burial sites. **Work cannot resume until the Burial Sites Preservation Office gives permission**. If you have any questions concerning the law, please contact the Coordinator of the Burial Sites Preservation Program at the Wisconsin Historical Society, Dr. Leslie Eisenberg, 608-264-6503.

At the present time, a total of 4 cemetery or burial sites have been identified in the Town. Since a systematic survey of the county has not been completed, additional cemeteries and burials may be present. As part of the planning process all cemeteries and burials in the Town should be cataloged under Wis. Stat. 157.70 to provide for the maximum protection of these important sites and to clearly define their boundaries.

How do we know which archaeological sites need preservation? Under Wisconsin law Native American burial mounds, unmarked burials, and all marked and unmarked cemeteries are protected. In addition to these, a wide variety of archaeological sites may be worthy of preservation. Through the use of the State and National Register of Historic Places a procedure for identifying important sites is available. The criteria include: a good local example of an architectural style and period; association with a person important in our past; represent an important period, movement or trend in local, state or national history; or have the potential to yield important information about our past through archaeological investigations.

Protecting Important Archaeological Sites. The wide variety of methods used to protect natural resources can also be used to protect archaeological sites. For example, land purchases, easement purchases, zoning, and the state operates a tax exemption program for property owners.

With the 1991 changes to Wis. Stats. 70.11 [see 70.11(13m)] it became possible to provide a property tax exemption for owners of archaeological sites listed in the National or State Register of Historic Places. To obtain the tax exemption, the landowner has to agree to place a permanent protective covenant for the site area in the deed for the property. The tax exemption program makes the landowner and subsequent owner's stewards of Wisconsin's past. The intent of the program is not to discourage all use of the property containing a site, but to encourage land use planning that protects sites.

Goals, Objectives, and Actions

Goal: To protect and preserve the Town's historical, archeological and cultural resources.

Objective: Preserve historic properties and farmsteads that contribute to the Town's history and aesthetic beauty.

Actions:

- Encourage use of state and federal preservation funding programs to assist Town residents with the costs to preserve historic homes, barns and commercial buildings.
- Consider use of any vacant or underutilized historic buildings to be preserved, restored and potentially be used as a Town Hall or other business. (State and federal preservation funding would be available to assist with the renovation costs.)
- Consider a historic preservation ordinance.
- Create signs identifying significant historic buildings within the Town.
- Review land use decisions from a preservation perspective, such as requiring historical buildings to be incorporated into a development.

Objective: Protect the Town's archeological resources

Actions:

- In known archeological sites or sites having high potential of being of archeological interest, require a developer/builder to conduct an archeological survey according to State regulations. Sections 1, 7, 10, 15, 22, 33-36 are identified as having archeological resources.
- Require the development plan to adequately protect the archeological resources in accordance with State regulations. (*See Section 44.47 (4) Wisconsin Statutes)*
- The development of a strong cultural resource component will allow the residents to identify valuable sites and locations and clarify the important role they play in the present and in planning for the future. This can provide a variety of rewards such as heritage tourism, economic development and other community enrichments.
- Local residents and American Indian communities who have or do live and work in the area possess much additional information on the history of the Town and steps should be taken to have this information incorporated into the land use plan.
- As part of the planning process, all cemeteries and burials in the Town should be cataloged under Wis. Stat. 157.70 to provide for the maximum protection of these important sites and to clearly define their boundaries.
- Archaeological investigations should be completed at the locations of known archaeological sites to assess the impacts of projects on these resources and archaeological investigations should be completed at high potential areas as identified through research.

Caution

- It is not uncommon to find evidence of American Indian villages and other earlier settlements in the form of houses, storage areas, burials, and other undisturbed deposits underneath the tilled layer in farm fields or in urban settings.

Goal: Preserve Town's Cultural Resources

Objective: Maintain rural culture and rural character of the Town.

Actions:

- Encourage the protection of scenic views. (*See Map #18: Rock County Scenic Drives and Views Plan)*
- Prohibit development in areas designated as natural resource areas and environmental corridors. (*See Map #16: Environmentally Significant Areas)*
- Limit development in areas identified as prime or productive agricultural land (*See Map #19: Future Land Use Map and Map # 12: Soil Capability)*
- Encourage landscaping/screening and setback requirements in order to preserve view sheds.
- Support local festivals, picnics, farm tours and other gatherings that celebrate the Town's farming heritage and rural culture.

Coordination with Other Comprehensive Plan Elements

Agricultural, natural and cultural resources impact all of the other elements addressed in this Comprehensive Land Use Plan. For example, the need to move agricultural equipment has impacts on Transportation and the need to house farm workers has impacts on Housing. The central role of Agriculture in the life of the Town means that other aspects need to be planned so that they support this role: Economic Development would best be done in agriculture-related areas; Housing should be located so that it does not disrupt farming operations. In addition, Housing and Transportation planning should be done in a way that preserves the Cultural Resource of the Town's landscape. Because of such impacts, it is important that these elements are consistent in their approach and support one another.

Related Maps

Map #12: Soil Capability
Map #13: Relative Corn Yields by Soil Type
Map #14: Geological Features
Map #15: Drainage Basins
Map #16: Environmentally Significant Areas
Map #17: Historical Sites
Map #18: Rock County Scenic Drives and Views Plan