

**CHAPTER 5**  
**Agriculture, Natural and Cultural Resources**

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**Section 5.1 Agricultural Resources**

The Village of Forreston has approximately 90 acres of agricultural land located within the Village limits, which accounts for approximately 16% of the total area of the Village. With the exception of a few scattered non-farm dwellings and other non-agricultural uses, over 98% of the Village's 1.5 mile extra-territorial planning area is in agricultural or agriculturally-related use.

Grain farming is the predominant agricultural activity in the Village of Forreston planning area. The mean farm size is approximately 53 acres in the Forreston planning area.

The economic activity of agriculture has some very specific land use requirements, depending on the type of farming. The growing of crops for profit necessitates relatively large, contiguous parcels, the slope of which should not be excessive and the soils, fertile and well drained. This is particularly true of grains and soybeans. Other types of agricultural pursuits, such as feed lots, garden farms, and dairies generally demand increased labor and less land to be profitable. Generally, agricultural units are limited to the physical characteristics of the land and are relatively flexible with respect to location. This is in marked contrast to other economic activities where the location of the activity with respect to others is a very important part of their economic framework.

Ogle County is one of the top agricultural producing counties in the State. In 2003, according to the Illinois Department of Agriculture, Ogle County ranked 17<sup>th</sup> in the State for crop cash receipts, and 14<sup>th</sup> in the state for livestock cash receipts. Ogle County's dominant crops are corn and soybeans; however, relatively significant amounts of hay and oats are also grown in the County, ranking 5<sup>th</sup> and 4<sup>th</sup>, respectively, in the state for production.

**Table 5.1**  
**Major Crop Production**  
**1999 - 2003**  
**Ogle County, Illinois**

	1998	1999	2000	2001	2002	2003
<b>Corn</b>						
Acres Harvested	170,000	190,000	192,700	189,400	191,100	202,500
Yield (Bu./acre)	159	159	154	150	152	158
Production (Bu.)	27030000	30,210,000	29,675,800	28,410,000	29,047,200	31,995,000
Prod. State Rank	n/a	9	13	12	12	n/a
<b>Soybeans</b>						
Acres Harvested	104900	119,500	120,500	125100	121,300	112,700
Yield (Bu./acre)	54.5	51	43	47	43	27
Production (Bu.)	5717050	6,094,500	5,181,500	5,879,700	5,215,900	3,042,900
Prod. State Rank	n/a	23	36	30	35	n/a

Source: Illinois Department of Agriculture

**Table 5.2  
Livestock Production  
1998 - 2002  
Ogle County, Illinois**

	1998	1999	2000	2001	2002
<b>Hogs &amp; Pigs*</b>					
No. Head	57,000	50,500	51,800	111,600	48,900
State Rank	n/a	27	17	10	32
<b>Cattle &amp; Calves**</b>					
No. Head	40,900	44,900	45,400	39,300	34,700
State Rank	6	5	6	7	8
<b>Beef Cows**</b>					
No. Head	5,900	7,900	8,800	6,200	6,800
State Rank	n/a	15	10	22	17

Source: Illinois Department of Agriculture

\* As of December 1 of the statistical year; \*\* As of January 1 of following statistical year

**Table 5.3  
Agricultural Cash Receipts  
1998 - 2002  
Ogle County, Illinois**

	1998	1999	2000	2001	2002
<b>Crops (State Rank)</b>	\$93,360,000 (n/a)	\$79,895,000 (17)	\$81,115 (18)	\$88,338 (17)	\$92,149,000 (17)
<b>Livestock (State Rank)</b>	\$33,330,000 (n/a)	\$32,477,000 (11)	\$42,773,000 (7)	\$49,415,000 (7)	\$30,632,000 (14)

Source: Illinois Department of Agriculture

Other agricultural items and trends of note (Ogle County):

The average age of farm operators has been increasing from 50.9 in 1992 to 53.4 in 1997, compared with statewide average farm operator age of 51.7 in 1992 and 53.4 in 1997. (1997 Census of Agriculture)

Farming as a principal occupation has been declining from 66.6% of farm operators claiming farming as their principal occupation in 1992, to 56.7% in 1997. This trend is typical of the entire state, which shows 61.7% of farm operators claiming farming as their principal occupation in 1992 and 57.0% in 1997. (1997 Census of Agriculture)

Men dominate the farming occupation in Ogle County, although female farm owners appear to be increasing. In 1992, 96.4% of farm operators were men, compared to 94.8% in 1997. Statewide, 95.3% of all farm operators were male in 1992, compared to 94.5% in 1997.

Farms are held in various types of ownership. Somewhat surprisingly, individual or family form of farm ownership has increased between 1992 and 1997. Not surprisingly, corporate forms of farm ownership have also increased slightly, while partnerships have declined.

**Table 5.4**  
**Types of Farm Ownership by % of Total Number of Farms**  
**1992 and 1997**  
**Ogle County, Illinois**

Type of Ownership	1992	1997
<b>Individual or Family (Sole Proprietorship)</b>	83.3	86.3
<b>Partnership</b>	13.0	9.3
<b>Corporation:</b>		
• Family Held	2.5	2.5
• Other than family held	0.3	0.5
• Other -cooperative, estate or trust, institutional, etc.	1.0	1.5

Source: 1997 Census of Agriculture

Farms have become larger, fewer and more mechanized. The trend is continuing. The following table shows that between 1950 and 1997 the number of farms has decreased by 1,482, from 2,581 farms in 1950 to 1,099 farms in 1997. In addition, the average farm size has increased during this period by 189 acres from 156 acres in 1950 to 345 acres in 1997.

**Table 5.5**  
**Number and Size of Farms**  
**1950 - 1997**  
**Ogle County, Illinois**

	1950	1960	1978	1982	1987	1992	1997
<b>Number of Farms</b>	2,581	1,868	1,536	1,406	1,312	1,141	1,099
<b>Ave. Size (Ac.)</b>	156	245	285	309	317	344	345

Source: U.S. Census Bureau, *1997 Census of Agriculture*

The increase in farm size is largely due to the advances in farming technology and the increased use of bigger and more efficient farm machinery. In addition, because farming is becoming more and more mechanized, smaller farms are being consolidated in order to realize the benefits associated with the economy of scale. These trends are likely to continue as technology continues to improve and the business of farming demands greater amounts of financial resources.

Although the "total number of farms" statistic is important in measuring agriculture's position in the economy of Ogle County, the total farm acreage figure is more indicative of economic trends. According to the U.S. Census Bureau, *1997 Census of Agriculture*, in 1997 the amount of land in farms for Ogle County was 379,419 acres, which amounts to 77.6% of the County's total land area. This figure is 55,035 acres less than that recorded in 1982, which amounts to 3,669 acres per year decrease over this fifteen-year period. While some of the losses may be characteristic of past trends, this decrease is substantial. Because the loss was so large, conversion of a portion of this acreage to urban and non-farm uses must be considered as a contributing cause of the reduction. However, the large loss is likely due to land being removed from production for various reasons, and may be due to the method(s) used in gathering the data, sampling method, or calculations. Therefore, the figures should not necessarily be used as the indicator of residential or other development within Ogle County.

## **Section 5.2 Natural Resources**

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

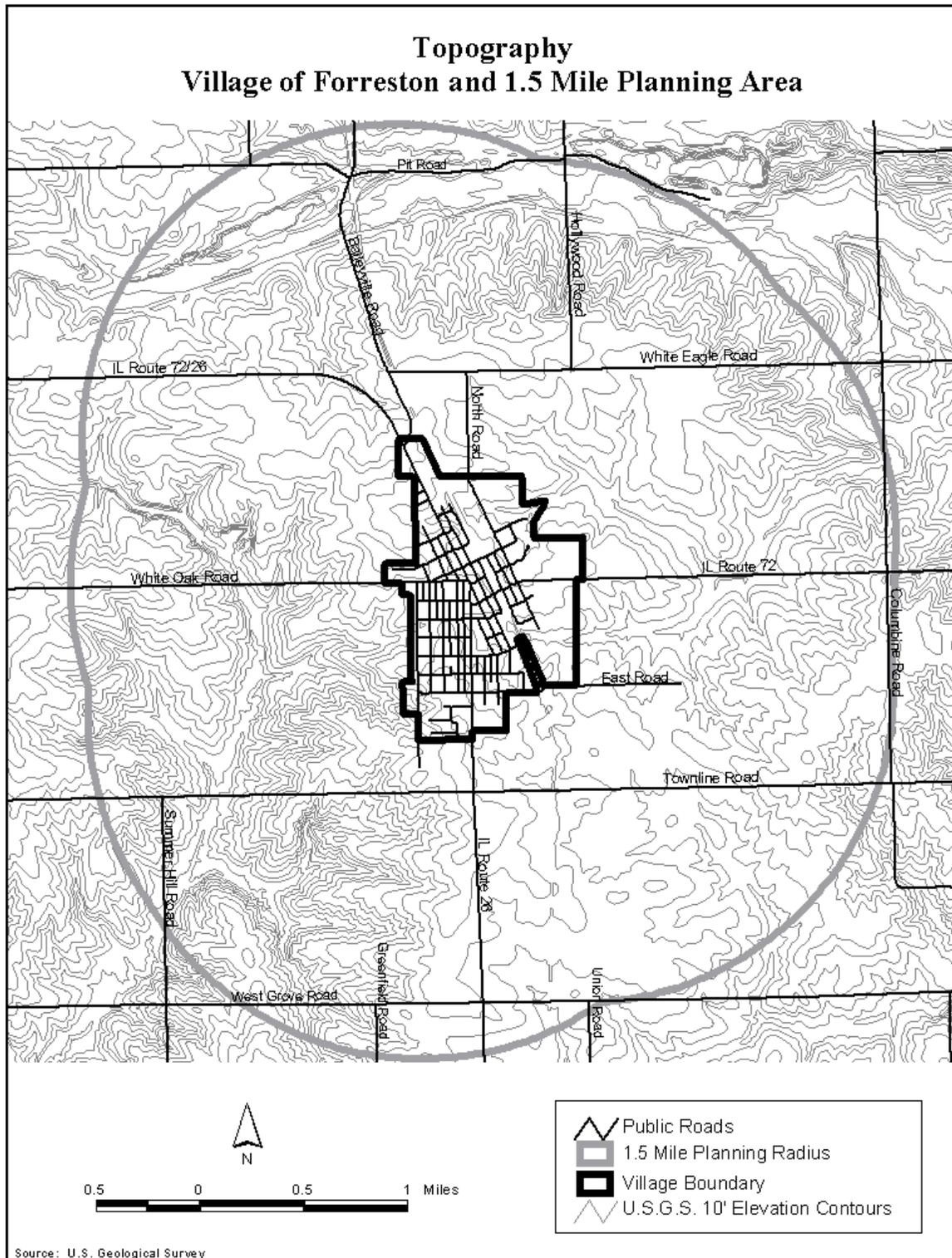
### A. Topography and Physiography

The topography of the Village of Forreston planning area is mostly flat to rolling, and is the result of both erosional processes and irregularities in the bedrock surface, which have influenced the total drift thickness, as well as the actions of several glacial advances that crossed the County during the Pleistocene Epoch. The two glacial ages of particular importance to the physiographic development of the planning area and the region in general were the Illinois Episode and the more recent Wisconsin Episode, which ended approximately 10,000 years ago.

Elevations in the Village of Forreston planning area range from 817' above mean sea level (MSL) to 965' MSL. The lowest elevations in the planning area (817') are in the southwest corner of the planning area in the Elkhorn Creek valley. The highest elevations in the planning area (965') are found in the extreme south central portion of the Village and approximately 3/4 mile north of the Village.

Physiographically, the Village of Forreston planning area is located in the Rock River Hill Country of the Till Plains Section of the Central Lowlands Province. The Central Lowlands Province is principally the State of Illinois. This area is characterized by its rolling hills, thin glacial drift and narrow valleys. The Rock River Hill Country Division is divided into two sections; Freeport and Oregon. Two distinct bedrock types are recognized in these section, dolomite and limestone under the Freeport Section and sandstone under the Oregon Section. These different bedrock types have a significant effect on the resultant flora and natural communities of the two sections.

Figure 5.1 Topography



## B. Soils

Soils in the Village of Forreston planning area are dominated by the Tama-Ogle-Muscatine soil association, which are silty soils that formed in loess or in loess over an older buried soil on uplands. These soils are dominantly nearly level to strongly sloping. The most extensive problem is soil erosion.

The Tama-Ogle-Muscatine series is more specifically characterized as nearly level to sloping, well drained and somewhat poorly drained soils that formed in loess in loess over an older buried soil. This soil association consists of soils on uplands. It is about 45 percent Tama soils, 11 percent Ogle soils, 6 percent Muscatine soils, and 38 percent soils of minor extent.

Tama soils are well drained. These soils formed in loess. They are on uplands, mainly on convex ridgetops, side slopes, and high stream benches.

Ogle soils are well drained. These nearly level to sloping soils are on uplands, mainly on ridgetops and side slopes. Muscatine soils are somewhat poorly drained. These nearly level soils are on uplands, mainly on divides and along drainage ways.

Of minor extent are Catlin, Radford, Assumption, Sable and Lawson soils. Catlin soils are moderately well drained and nearly level to sloping. These soils are on convex side slopes on uplands. The somewhat poorly drained, nearly level Radford soils are on foot slopes and bottom lands along smaller, intermittent streams. The moderately well drained Assumption soils are in sloping areas. The poorly drained, level and nearly level Sable soils are in drainage ways. Lawson soils are somewhat poorly drained and nearly level. These soils are on first and second bottoms near major streams and in old oxbows on outwash plains.

The soils in this association are primarily used for corn, soybeans, small grain, and hay. Dairy cattle are the main livestock enterprise. Erosion is the main concern of management. These soils are moderately suited to dwellings because they shrink and swell. Muscatine soils are also limited for this use by wetness. Tama and Ogle soils are well suited to septic tank absorption fields, but Muscatine soils are poorly suited because they are wet.

## C. Groundwater

Groundwater is generally plentiful in the Village of Forreston and the surrounding area. According to the Illinois Environmental Protection Agency's "Source Water Assessment Program Fact Sheet" for Forreston, the Village of Forreston has two public water supply wells. Well #2 and Well #3 produce 192,000 gallons per day to an estimated population of 1,469 through 600 service connections. Well #2 and Well #3 are 1,000 feet deep in bedrock and overlain by permeable bedrock and impermeable till. The aquifer utilized is considered confined by the Illinois Environmental Protection Agency.

## D. Surface Water

The Village of Forreston is located in the Rock River watershed, and the Leaf River and Elkhorn Creek watershed sub-basins.

The Illinois Environmental Protection Agency (IEPA) annually collects chemical, physical, biological, habitat and toxicity data on rivers and streams, inland lakes, Lake Michigan and groundwater to satisfy reporting requirements found in Section 305(b) of the Federal Clean Water Act (CWA). The primary purpose of the Section 305(b) process is to provide for an assessment of the overall water quality conditions of Illinois waters. The IEPA provides the following assessment of the Elkhorn Creek and the Leaf River:

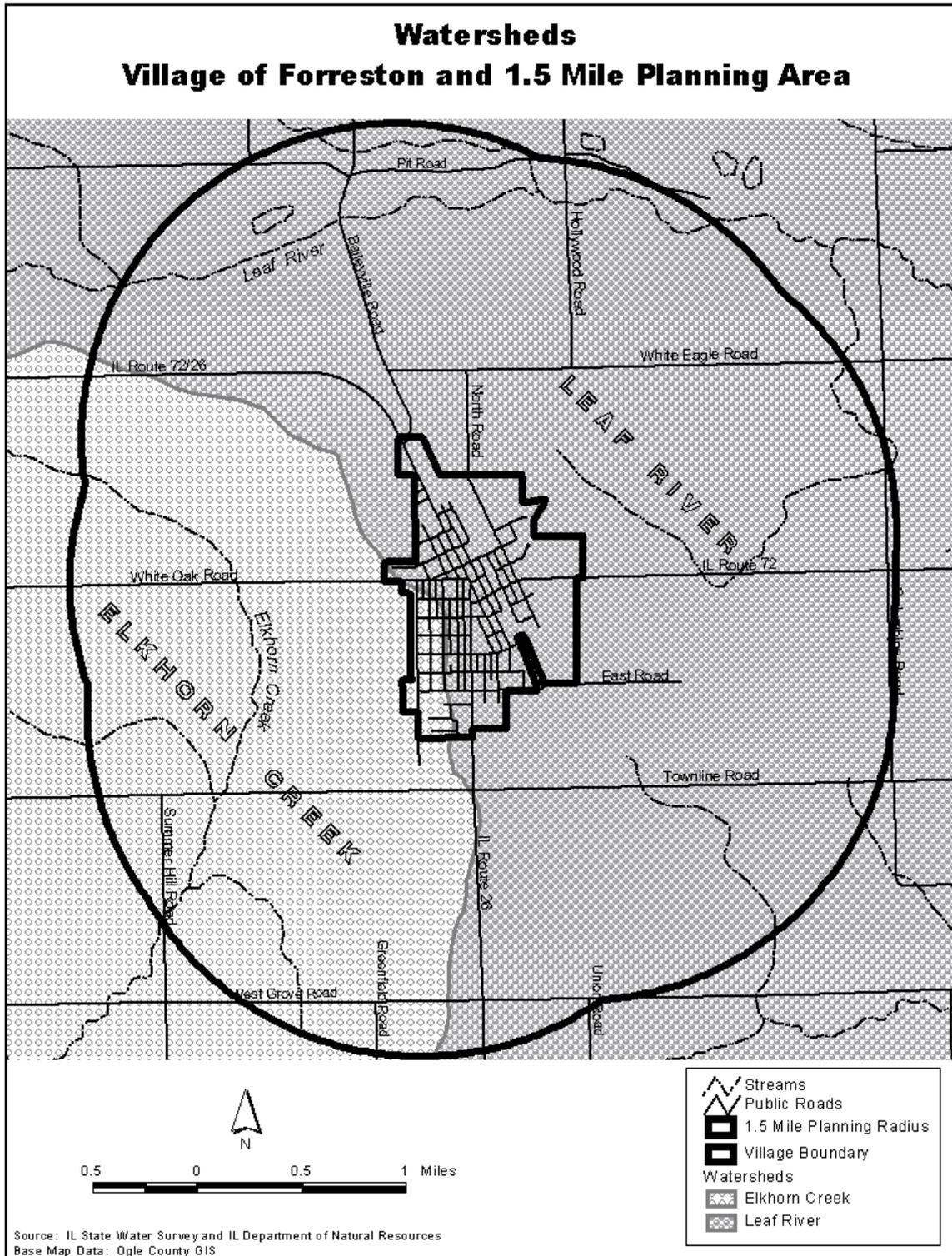
**Table 5.6**  
**Stream Quality Data**  
**Streams Within the Village of Forreston Planning Area**

<b>Stream Segment ID</b>	<b>Stream Segment Name</b>	<b>Segment Length (mi.)</b>	<b>Designate Uses</b>	<b>Potential Causes of Impairment</b>	<b>Potential Sources of Impairment</b>
PH 17	Elkhorn Cr.	20.64	Full fish consumption support, partial overall and aquatic life support.	Nutrients (nitrates), suspended solids.	Non-irrigated crop production, livestock grazing.
PN 01	Leaf R.	3.38	Full overall and aquatic life support.	No data.	No data.
PN 02	Leaf R.	3.72	Full overall and aquatic life support.	No data.	No data.
PN 03	Leaf R.	19.36	Full overall and aquatic life support.	No data.	No data.

Source: Illinois Water Quality Report 2002 (IL Environmental Protection Agency)

Note: Streams/stream segments are not entirely within the Village of Forreston planning area.

Figure 5.2 Watersheds



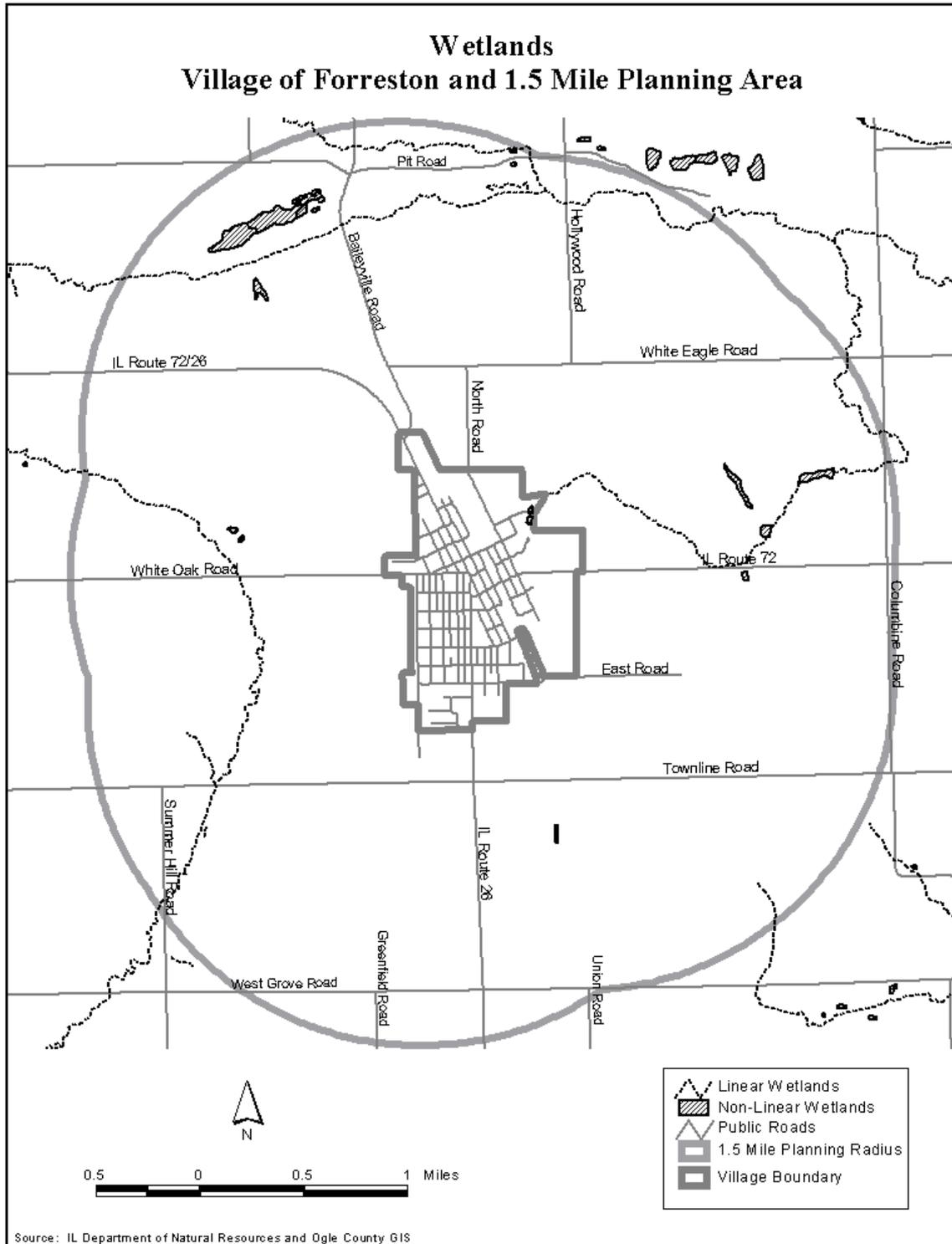
## E. Wetlands

In general terms, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single feature that most wetlands share is soil or substrate that is at least periodically saturated with or covered by water. The water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil. Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of the year. (*U.S. Fish & Wildlife Service*)

All wetlands found to occur within the Village of Forreton and the 1.5 mile planning area are classified by the U.S. Fish & Wildlife Service as “Palustrine” wetlands. The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, emergents, and mosses or lichens. The Palustrine System was developed to group the vegetated wetlands traditionally called by such names as marsh, swamp, fen, and prairie, which are found throughout the United States. It also includes the small, shallow, permanent or intermittent water bodies often called ponds. Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes. They may also occur as islands in lakes or rivers.

The only areas classified as wetlands within the Village are the sewage treatment ponds, classified as PUBKH under the U.S. Fish & Wildlife Service “Wetland and Deepwater Habitats Classification” system, which translated means, *Palustrine, unconsolidated bottom, artificially flooded, permanently flooded wetlands*. Wetlands outside the Village limits and within the 1.5 mile planning area are situated primarily within and along the banks of the Leaf River and Elkhorn Creek, within and adjacent to small bodies of water (ponds), as well as within and adjacent to poorly drained drainageways and swales in agricultural fields.

Figure 5.3 Wetlands



## F. Floodplains

Flood plain lands and adjacent waters combine to form a complex, dynamic physical and biological system found nowhere else. When portions of floodplains are preserved in (or restored to) their natural state, they provide many benefits to both human and natural systems. These benefits range from providing aesthetic pleasure to reducing the number and severity of floods, helping handle stormwater runoff and minimizing non-point water pollution. For example, by allowing floodwater to slow down, sediments settle out, thus maintaining water quality. The natural vegetation filters out impurities and uses excess nutrients. Such natural processes cost far less money than it would take to build facilities to correct flood, stormwater, water quality and other community problems. Natural resources of floodplains fall into three categories: water resources, living resources and societal resources. The following sections describe each category's natural and beneficial functions.

### **Natural flood and erosion control**

Over the centuries, floodplains develop their own ways to handle flooding and erosion with natural features that provide floodwater storage and conveyance, reduce flood velocities and flood peaks, and curb sedimentation. Natural controls on flooding and erosion help to maintain water quality by filtering nutrients and impurities from runoff, processing organic wastes and moderating temperature fluctuations. These natural controls also contribute to recharging groundwater by promoting infiltration and refreshing aquifers, and by reducing the frequency and duration of low surface flows.

### **Biologic resources and functions**

Floodplains enhance biological productivity by supporting a high rate of plant growth. This helps to maintain biodiversity and the integrity of ecosystems. Floodplains provide excellent habitats for fish and wildlife by serving as breeding and feeding grounds. They also create and enhance waterfowl habitats, and help to protect habitats for rare and endangered species.

### **Societal resources and functions**

People benefit from floodplains through the food they provide, the recreational opportunities they afford and the scientific knowledge gained in studying them. Wild and cultivated products are harvested in floodplains, which are enhanced agricultural land made rich by sediment deposits. They provide open space, which may be used to restore and enhance forest lands, or for recreational opportunities or simple enjoyment of their aesthetic beauty. Floodplains provide areas for scientific study and outdoor education. They contain cultural resources such as historic or archaeological sites, and thus provide opportunities for environmental and other kinds of studies. Floodplains can increase a community's overall quality of life, a role that often has been undervalued. By transforming floodplains from problem areas into value-added assets, the community can improve its quality of life. In Illinois, Chicago's lakefront, Peoria's riverfront, Naperville's Riverwalk, and Lockport's historic canal district are well-known examples. Parks, bike paths, open spaces, wildlife conservation areas and aesthetic features are important to citizens. Assets like these make the community more appealing to potential employers, investors, residents, property owners and tourists.

The Federal Emergency Management Agency (FEMA) has designated and mapped floodplains, or "Special Flood Hazard Areas" within the Village, as shown on Figure 5.4. Encroachment on flood plains by development, such as structures and fill, reduces the flood-carrying capacity, increases the flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. Development can occur in Special Flood Hazard Areas if structures are constructed above the elevation of the 100-year flood plain, but flood plain development should be discouraged.

In order to have common standards, the National Flood Insurance Program (NFIP) and the State of Illinois adopted a baseline flooding probability called the base flood. The base flood is the one percent chance

flood. The one percent chance flood is the flood that has a one percent (one out of 100) chance of occurring in any given year. The one percent chance was chosen as a compromise between excessive exposure to flood risk from using a lower standard (such as a 10 percent chance flood) and applying such a high standard (say, a 0.1 percent chance flood) that it would be considered excessive and unreasonable for the intended purposes of requiring the purchase of flood insurance and regulating new development. The one percent chance flood has also been called the 100-year flood. The term 100-year flood is often misconstrued. Commonly, people interpret the 100-year flood definition to mean “once every 100 years.” This is wrong. You could have a 100-year flood two times in the same year, two years in a row, or four times over the course of 100 years. You could also not have a 100-year flood over the course of 200 years. To avoid confusion (and because probabilities and statistics can be confusing), the NFIP uses the term base flood. A 100-year flood is defined as having a one-percent chance of being reached or exceeded in any single year. Thus, the 100-year flood also is called the “one-percent annual chance flood.” To restate, the 100-year flood, the base flood, refers to a flood that the one percent chance of occurring in any given year. The terms base flood, 100-year flood and one-percent annual chance flood are used interchangeably throughout the NFIP. Another term used is the “500-year flood.” This has a 0.2% chance of occurring in any given year. While the odds are more remote, it is the standard used for protecting critical facilities, such as hospitals and power plants.

Development within Special Flood Hazard Areas is regulated to the “Base Flood.” The land area covered by the floodwaters of the base flood is the base flood plain. On FEMA maps, the base flood plain is called the Special Flood Hazard Area (SFHA). The SFHA is the area where the NFIP’s flood plain management regulations must be enforced by the community and the area where the federal mandatory flood insurance purchase requirement applies. The computed elevation to which floodwater is anticipated to rise during the base flood is the base flood elevation (BFE).

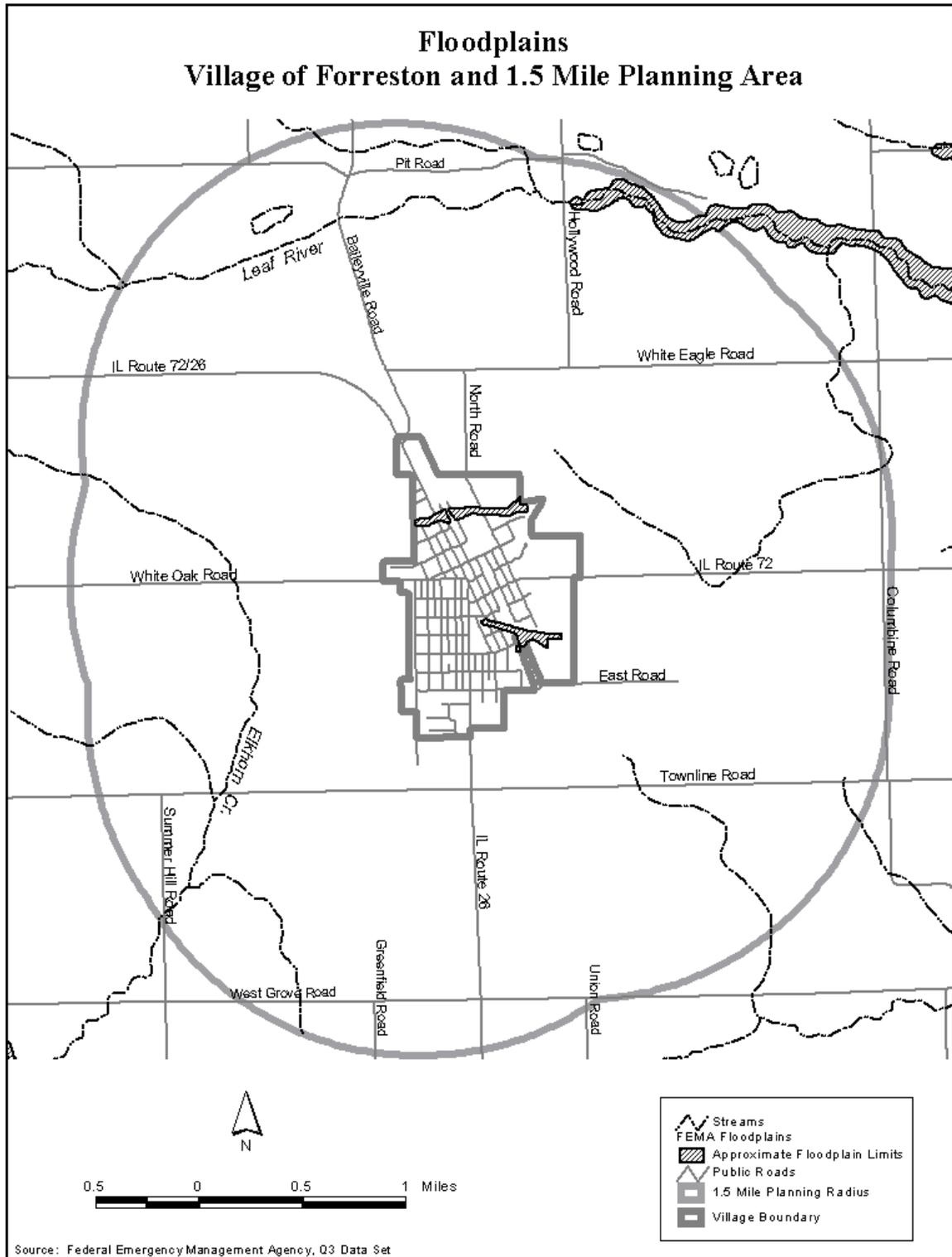
The term "100-year flood" has caused much confusion for people not familiar with statistics. Another way of looking at it is to think of the odds that a base flood will happen sometime during the life of a 30-year mortgage (26% chance).

**Table 5.7  
Chance of Flooding Over a Period of Years**

Flood Size				
Time Period	10-Year	25-Year	50-Year	100-Year
1 Year	10%	4%	2%	1%
10 Years	65%	34%	18%	10%
20 Years	88%	56%	33%	18%
30 Years	96%	71%	45%	26%
50 Years	99%	87%	64%	39%

Even these numbers do not convey the true flood risk because they focus on the larger, less frequent, floods. If a house is low enough, it may be subject to the 10- or 25-year flood. During the proverbial 30-year mortgage, it may have a 26% chance of being hit by the 100-year flood, but the odds are 96% (nearly guaranteed) that it will be hit by a 10-year flood. Compare those odds to the only 5% chance that the house will catch fire during the same 30-year mortgage. (Source: CFM Study Guide, IL Assoc. of Flood plain and Stormwater Managers).

Figure 5.4 Floodplains



### G. Natural Areas and Open Spaces

Natural areas and open space provide Forreston with recreational opportunities, resource protection and aesthetic beauty, and are an important part of the Village's identity. See the Utilities and Community Facilities Element for a complete listing of parks and open spaces within the Village of Forreston.

As stated earlier in this chapter, over 98% of the Village's 1.5 mile extra-territorial planning area (9,092 acres) is in agricultural or agriculturally-related use, which is open space. Much of this open space is natural area, particularly within riparian corridors.

There are no known unique natural areas within the Village or the 1.5 mile planning area.

### H. Wildlife

There is little area within the Village of Forreston considered suitable as wildlife habitat. Scattered woodlands exist throughout the Village of Forreston's 1.5 mile extraterritorial planning area, which provide habitat for various wildlife species, including white-tailed deer, wild turkeys, gray and fox squirrels, cotton tail rabbit, woodchucks, and possibly badgers. These woodland also serve as important islands of habitat for migratory birds. There are no known rare or endangered species within the Village or within the 1.5 mile planning area.

### **Section 5.3 Cultural Resources**

Cultural and historic resources often help link the past with the present and can give a community a sense of place or identity. These resources can include historic buildings and structures along with ancient, historic and archeological sites.

Many of Forreston's historic structures have been lost to time and the demolition crew, such as the IC Railroad Depot and the old brick water tower, although there are some fine examples of late-nineteenth century residential architecture, and the commercial downtown has historical and cultural value. The White Oak Cemetery, organized in 1861, and the Hewitt Cemetery, believed to have been platted in 1852, are important cultural and genealogical resources, serving as records of past inhabitants of the area.

There may be some remnants of one of the important early trails, the Boles Trail (blazed in 1826), west of the Village. The Boles Trail was a major trail between the major settlement in what is now northern Illinois, Peoria and Galena. The Boles Trail crossed the Rock River near the former Illinois Central Railroad bridge in Dixon, passed about one mile east of Polo, and then ran north to White Oak Grove (just west of the Village of Forreston) and then on to Galena.

The timber groves in the area are also important cultural and historic resources. The only named grove in the Village of Forreston's planning area is White Oak Grove. Other groves in the area are West Grove, North Grove, Chamber's Grove, and Crane's Grove. The groves served as important resting places for travelers and sources of raw materials and the necessities of life in the early settlement days, as they provided sources of shelter, lumber, fire wood, water, and game for food. The grove later became recreational areas for community, church and family festivals and picnics.

The true cultural resource in the Village of Forreston is the people. There is a rich German heritage in the Forreston area. The revival of Sauerkraut Days will hopefully draw attention to the German heritage and keep it alive for future generations.

## **Section 5.4 Issues Identified by the Planning Commission**

- A. Protection of groundwater, the source of Village drinking water, is very important.
- B. Park and open space areas within Forreston are extremely important to the lifestyles of the Village residents, but also to the image of the Village of Forreston projected to the region.

## **Section 5.5 Goals, Objectives, Policies**

### A. Goal

Preserve and protect those features that reflect the unique history, natural resources and character of the Village of Forreston.

### B. Objectives

1. Work with other state and local units of government to protect the Village's groundwater resources.
2. Work with surrounding municipalities to maintain Elkhorn Creek and Leaf River as environmental and recreational assets to the Village.
3. Ensure an adequate supply of open space within the Village.
4. Preserve historic sites and structures within the Village and the 1.5 mile planning area.
5. Highlight the German heritage of the Village and surrounding area.
6. Encourage and work toward the establishment of a Village museum or historical display area.

### C. Policies

1. Continually review and update the wellhead protection ordinance, as needed, to maintain the best protection possible.
2. Maintain and manage park and open spaces within the Village to retain their recreational and aesthetic qualities.
3. Identify and make public more aware of historic sites and structures within the Village and the 1.5 mile planning area.
4. Continue to support the Sauerkraut Days festival.