

Chapter 6: Agricultural, Natural, and Cultural Resources

Introduction

The Village of Spring Valley has a variety of natural resources; such as the Eau Galle Reservoir and River, natural landscapes, wildlife habitat, open space, parks, the Spring Valley Golf Course and Crystal Cave. These attributes make this area special to the people that live here and with only the future ahead; this natural setting needs to be sustained for future generations. As defined by Wisconsin State Law, the Natural Resources element is stated as,

A compilation of objectives, policies, goals, maps and programs for the conservation, and promotion of the effective management, of natural resources such as groundwater, forests, productive agricultural areas, environmentally sensitive areas, threatened and endangered species, stream corridors, surface water, floodplains, wetlands, wildlife habitat, metallic and nonmetallic mineral resources, parks, open spaces, historical and cultural resources, community design, recreational resources and other natural resources. Wis. Stat. Sec. 66.1001(2)(e).

Strengths, Weaknesses, Opportunities, and Threats

With all of these aspects for the protection of the Village of Spring Valley's natural resources in mind a Strengths/Weaknesses/Opportunities/Threats or SWOT analysis was performed to help assess the current and future uses and needs of the community.

Strengths:

- A small town atmosphere provided by a strong link to the natural landscapes of the valley.
- The Eau Galle Reservoir which provides beautiful scenery and many outdoor activities such as fishing, camping, hiking, swimming, horseback riding snowshoeing and cross country skiing.
- The Eau Galle River that provides a wonderful stream for trout fishing.
- Crystal Cave which attracts many tourists annually.
- Spring Valley Golf Course.
- High amount of wildlife.
- Scenic views all throughout the area.
- Walking/biking trails.
- Handy Andy Park.
- Ridges covered with vegetation increasing aesthetic appeal of the area.
- Natural beauty of the valley.

Weaknesses:

- Lack of parks close to downtown.
- Underutilization of natural resources.

Opportunities:

- The continued expansion of the current walking/biking trails.
- To connect the walking trails as well as build horseback riding trails
- Encourage the new building to be environmentally friendly or “green.”
- Attract tourists to the Eau Galle Reservoir and River.
- Continue to preserve the natural charm of the valley.
- Create more parks, especially utilizing the steep slope and ridges.
- Enhance recreational-based tourism.

Threats:

- Population size growing too fast.
- Erosion impacts on the river.
- The possibility of negative impacts on the reservoir.
- Loss of open space due to over development.
- The possible loss of species of plant, animals and other organisms from development, pollution or runoff.

Data and Trend Analysis

As the population increases in the Village of Spring Valley, a variety of impacts on the natural resources could occur. This was summarized in the threats portion of the SWOT analysis. Table 6-1 lists the endangered and concerned species specifically within Pierce and St. Croix Counties.

Agricultural Resources

Much of the agricultural land in and adjacent to Spring Valley is suitable for both future agricultural uses and residential or commercial development. Typically, agricultural practices are not compatible with densely developed areas. The Village would like to avoid potential conflicts with existing agricultural land and future development where feasible.

One concern related to the agricultural land in the area is the steep topography. It will be important to design for expansion that works with the lay of the land. Also, the steepness in some areas can cause more erosion and some consideration should be taken when developing around these areas.

Another primary concern is the runoff from agricultural lands can contain large amounts of sediment, phosphorus and nitrogen if untreated. Eventually, the overland flow reaches the surface waters degrading the water quality.

Productive Agricultural Statistics

Although specific agricultural data is not available for the Village of Spring Valley, it is available for Pierce County. Tables 6-1, 6-2, and 6-3 compare the Pierce County agricultural statistics between 1997 and 2007. As of 2002, a total of six people in the Village of Spring Valley were involved in the areas of agriculture, forestry, fishing, hunting and mining.

As shown in Table 6-1 the number of farms in Pierce County has increased and the land in farming has nearly stayed the same, but the average size of a farm has decreased. This may indicate that family farms are passing down to the next generation and creating more farmsteads, but continuing to farm the same land.

Table 6-1 – Pierce County Agricultural Statistics

	1997	2002	2007
Number of Farms	1,265	1,510	1,531
Land in Farms (acres)	267,586	267,311	271,178
Average size of Farm (acres)	212	177	177

Source: U.S. Department of Agriculture

The average value of farms as a whole more than doubled between 1997 and 2007, while the average value of farms per acre has more than doubled (*see Table 6-2*).

Table 6-2 - Pierce County Agricultural Statistics: Estimated Value of Farm, Land, and Buildings

	1997	2002	2007	% change 1997 - 2007
Average/farm	\$244,146.00	\$439,725.00	\$591,718.00	142.4%
Average/acre	\$1,130.00	\$2,320.00	\$3,341.00	195.7%

Source: U.S. Department of Agriculture

Table 6-3 categorizes the size of farms in Pierce County over a ten year period. The majority of farms have been between 10 and 499 acres in size; in most cases, the size of farms has been decreasing.

Table 6-3 – Pierce County Agricultural Statistics

Farms by Size	1997	2002	2007
1 to 9 acres	51	73	55
10 to 49 acres	208	389	462
50 to 179 acres	486	609	606
180 to 499 acres	420	346	295
500 to 999 acres	72	60	73
1,000 acres or more	28	33	40

Source: U.S. Department of Agriculture

Pierce County has been experiencing a large amount of development pressure in the recent past, the loss of farmland and decrease in the size of farms could be attributed to those development pressures. Map 6-1 shows the areas of Spring Valley that have soil classifications as prime agricultural.

Soil Attenuation

Soil attenuation is defined as the soil’s ability to absorb contaminants. Soils have the ability to attenuate contaminants through a series of complex physical, chemical, and biological processes. Attenuation allows the soil to store needed plant nutrients, restrict the movement of metals, and remove harmful bacteria. Soils that have a high attenuation potential are better at protecting the groundwater from possible contaminants. The attenuation rating was developed by the

University of Wisconsin-Extension. In order to protect groundwater, development should be limited in areas where soils have poor attenuation.

Soil Suitability for Dwellings with Basements

Soil properties and characteristics are a major influence in the land use activities that can occur on a given soil type. Soils are grouped into classifications based on their respective properties. It is important to assess the various types of properties that occur within the soils of the Village of Spring Valley so optimum locations for development and preservation can be identified.

The Natural Resource Conservation Service (NRCS) has developed a limitations rating system for the various soil characteristics discussed in this chapter. Below are the descriptions of those limitations based on the Pierce County Land and Water Resource Management Plan:

No to Slight Limitations: Soil properties and site features generally are favorable for the indicated use and the limitations are easy to overcome.

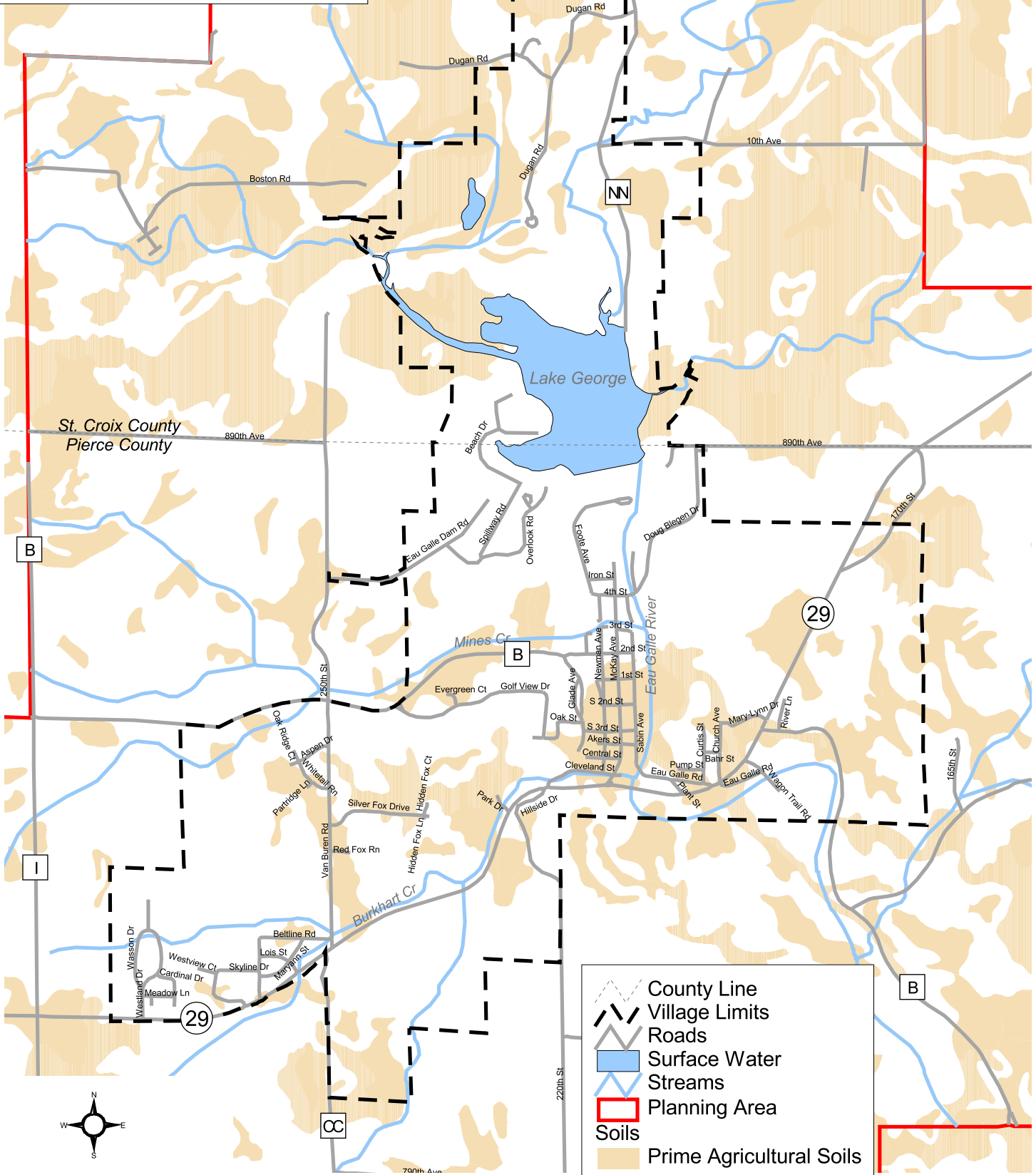
Somewhat to Moderate Limitations: Soil properties are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations.

Severe Limitations: Soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance is required. In the case of severe limitations, questions regarding the economic and environmental feasibility of such development should be seriously considered.

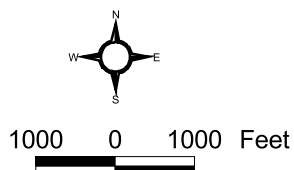
An important element of soils is their suitability to support dwellings with basements. The soil properties that affect a soil's suitability are slope, depth to bedrock, moisture, and the content of rocks. These characteristics, when factored together, illustrate which areas will have limitations as well as the degree of limitations. A soil limitation on a person's property does not necessarily mean a basement cannot be built, but rather there may be an increased cost of construction.

The soils that can support dwellings with basements vary greatly throughout the Village of Spring Valley. Those areas with severe limitations are located in the Village's downtown area, which was once prone to flooding; the slopes along the eastern edge of the Village, and in the area of the Crystal Cave. Those areas of the Village that can support dwellings with basements with little or no limitations are located along Golf View Drive and County Trunk Highway B and south to State Highway 29. Map 6-2 portrays the limitations for the entire Village.

Prime Agricultural Soils
Village of Spring Valley
 Pierce County, Wisconsin
 Map 6-1



	County Line
	Village Limits
	Roads
	Surface Water
	Streams
	Planning Area
	Soils
	Prime Agricultural Soils



Source: Pierce County Soil Survey, and Cedar Corporation



Soil Suitability for Septic Tank Absorption Fields

Although the Village of Spring Valley has a municipal water and sanitary district, some of the rural areas still require septic systems. Drainage or absorption fields are connected to the end of the septic tank and allow for the septic effluent to be distributed to the soil over a large area. Soil acts as the filter for the septic systems and if the soils are not suitable for absorption fields, they could contaminate the groundwater. The main properties of soil that affect the soil's suitability for absorption are soil permeability, soil depth to bedrock, soil depth to the water table, and susceptibility to flooding.

The NRCS interpret the various soil types and determine their ability to act as functioning absorption fields by looking at soils ability to maintain a properly functioning septic system but also the soils attenuation ability.

The majority of Pierce County has severe limitations for septic tank absorption fields. The Village's limitations vary greatly (*see Map 6-3*). The majority of severe limitations are located in the Village's downtown area and along portions of the Village's western limits. Having severe limitations does not mean septic tanks cannot be built on however; residents should be aware of those areas and make sure their septic systems are designed and maintained properly to protect the areas wells and groundwater. Modern technology can still be used so that septic systems function properly in soils with severe limitations without adversely affecting the groundwater.

Wildlife Habitat & Threatened or Endangered Species

The Eau Galle River provides a great habitat for wildlife, there are multiple endangered or rare species located within the Spring Valley area. There are six environmentally sensitive plants or animal species, and four environmentally sensitive natural communities or habitats in the Spring Valley area. Education and management practices can help protect these species and habitats from extinction.

According to the U.S. Fish and Wildlife Service, an "endangered" species is one that is in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one that is likely to become endangered in the foreseeable future. These species are protected because of their scientific, educational, aesthetic, and ecological importance. A "special concern" species is one which has some problem of abundance or distribution is suspected but not yet proved. The main purpose of this category is to focus attention on certain species before they become threatened or endangered.

The Wisconsin Natural Heritage Inventory Program maintains data on the location and status of natural features, rare species, and natural communities in Wisconsin. These sites are broad in nature and provide a general location for rare, threatened, or endangered species as well as high-quality natural communities.

Table 6-4 – Environmentally Sensitive Species: Village of Spring Valley area

Scientific Name	Common Name	Group	* Concern	Location
				Pierce County
<i>Bat Hiernaculum</i>	Bat Hiernaculum	Other	SC	T 27N R 15W
<i>Clemmys insculpta</i>	Wood Turtle	Turtle	THR	T 27N R 15W
<i>Clinostomus elongatus</i>	Redside Dace	Fish	SC	T 27N R 15W
<i>Pipistrellus subflavus</i>	Eastern Pipistrelle	Mammal	SC	T 27N R 15W
<i>Silene nivea</i>	Snowy Campion	Plant	THR	T 27N R 15W
				St. Croix County
<i>Clemmys insculpta</i>	Wood Turtle	Turtle	THR	T 28N R 15W
<i>Dry cliff</i>	Dry Cliff	Community		T 28N R 15W
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Bird	SC	T 28N R 15W
<i>Moist Cliff</i>	Moist Cliff	Community		T 28N R 15W
<i>Southern dry-mesic forest</i>	Southern Dry-mesic Forest	Community		T 28N R 15W
<i>Southern mesic forest</i>	Southern Mesic Forest	Community		T 28N R 15W

Source: Wisconsin Department of Natural Resources * Endangered (END), Threatened (THR), Special Concern (SC)

Invasive or Non-native Species

With the loss of natural resources and an increasing number of endangered, threatened, and special concern species, it is important to address the importance of native plant species and invasive and/or non-native plant species that are affecting the natural resources.

Native species can be defined as a species that originated in the area, and is naturally occurring. Non-native species can generally be defined as species that have been introduced to the area, and is not naturally occurring. An invasive species can be defined as any species, native or non-native, that can quickly displace another species and adversely affect the habitats or environments in which they invade.

Additionally, non-native plants, animals, and pathogens displace native species, disrupt ecosystems, and harm recreational activities such as fishing, boating, and hiking. Because they lack the predators and competitors they faced in their homelands, invasive species can spread rapidly and aggressively. Controlling invasive species is difficult, and getting rid of them is often impossible. Further information on local native, non-native, and invasive species can be obtained through the Wisconsin Department of Natural Resources.

There is a Reed Canary Grass infestation along portions of Lohn Creek, Eau Galle River, and Lake George within the Village of Spring Valley.

Forests & Environmentally Sensitive Areas

Forests provide valuable wildlife habitat and are the homes for less visible threatened and endangered plants and wildlife. These areas also offer erosion control for river banks and steep slopes. A contiguous forest is extremely important as fragmented forests can result in the disruption of habitat and can lead to problems between wildlife and humans.

The steep slopes throughout the Village are primarily heavily covered by forested lands. Contiguous forested lands extend south of the Village along the Eau Galle River and also extend

north of the Village along Lake George and the many streams and creeks flowing into the Lake (see Map 6-4).

Topography and Slope

The Village of Spring Valley has an unusual topography compared to other communities in the area. Steep sloping lands surround the Village creating a variety of limitations for growth and development. Steep sloping lands can present challenges or pose barriers to development. Steepness of topography is commonly expressed as percent slope. As a rule, slopes in excess of 20 percent are of greatest concern for any land disturbing activity (see Map 6-5). Steep slopes do not necessarily preclude all forms of development; although, costly engineering and site preparation measures are required in order to minimize potential adverse impacts. Potential problems associated with development of excessively sloping lands include erosion and slope stability. Naturally occurring vegetation stabilizes the slopes, preventing severe erosion or landslides.

Additionally, steep slopes often serve as natural boundaries and buffers between land uses or districts in a community. Changing the character of a slope can thus bring adjacent incompatible land uses into conflict that is more direct.

The elevation is at its peak in the north and southwest portions of the Village and is at its lowest in the southeastern portion of the Village along the Eau Galle River. Surface elevation ranges from approximately 900 to 1,160 feet.

Groundwater

Groundwater is a significant and abundant natural resource in the planning area. The primary source for all water used for domestic, industrial, and agricultural purpose within the planning area is groundwater. The need for clean, reliable water supplies grows as a community expands. Groundwater is recovered from underground aquifers through a water supply well. These water supplies are recharged by rainfall and melt water, which seeps through the porous soil under the force of gravity, to a point where it collects on at an impervious layer such as granite bedrock. Recharge areas are typically located in the upland areas, with the low-lying areas such as rivers and streams being described as discharge zones. Besides the two municipal wells, there are also a few private wells in the outskirts of the Village.

Soils in the Spring Valley area have moderate to slow permeability, consisting primarily of Santiago, Otterholt, and Arland soil types.

Stormwater Management

Stormwater management is a primary focus on protecting the Village's surface water resources. Overland flow from rain events (stormwater) causes erosion and picks up sediments and pollutants and carries them to the surface waters. Proper stormwater management can reduce the energy from the stormwater runoff, limiting erosion and capturing sediments and pollutants.

Stream Corridors, Surface Water & Watersheds

Stream corridors and surface waters provide habitats for a wide variety of animals and plants. Protection of these water resources is critical to maintaining the water quality and diversity of wildlife. Threats to these water resources are typically sedimentation and pollution, both point and non point, which can be related to the disturbance of the land cover due to urban/rural development and agricultural practices.

Development within the watersheds that directs runoff into local rivers or their tributaries should be completed in a way that minimizes the impact on the natural system, and addresses potential pollution problems through the use of best management practices. Best Management Practices (BMP) designed to control storm water runoff rates, volumes, and discharge quality can be used to protect water resources in developed areas and include shore land buffers, erosion control, and the preservation of natural environmental corridors.

Multiple streams flow into the Spring Valley area, the primary water body is the Eau Galle River, which flows through the center of the Village (*see Map 6-6*). To prevent flooding in the Village, the Eau Galle River was dammed by an earthen embankment (dam) which was constructed between 1965 and 1968. This dam created Lake George, a popular tourist destination in the area. The Eau Galle River is also a popular trout stream which feeds into the Chippewa River. Some of the other streams that flow into the Eau Galle River are the Lousy Creek, Lohn Creek, Mines Creek, and Burkhart Creek. All of these water bodies are part of the Lower Chippewa Watershed.

Unfortunately, Lake George and the Eau Galle River are listed as impaired waters by the ‘Wisconsin’s 2006 Impaired Water List’ developed by the WDNR. Impaired waters are those waters that are not meeting state water quality standards as defined by Section 303(d) of the Federal Clean Water Act. These water bodies are impaired due to sedimentation, degraded habitat, elevated water temperature, and eutrophication due to increased levels of phosphorus. Eutrophication is described as “Excess nutrient input from the watershed stimulates the growth of aquatic plants, but stimulates algal growth even more, and can create nuisance algal blooms, which consume large amounts of oxygen when they die and decompose.” (Source: *Effectiveness of Shore land Zoning Standards to Meet Statutory Objectives: A Literature Review with Policy Implications*, Wisconsin DNR, Shore land Management Program, Bureau of Watershed Management)

Floodplains

A floodplain exists around the entire Eau Galle waterway, floodplains are areas, which have been, or may become inundated with water during a regional flood (*see Map 6-6*). A regional flood is often referred to as a 100-year flood or having a 1% chance of occurring in any given year. Because of dangers posed during a flood event, most structural development within a floodway is not allowed. Development within the flood fringe is generally accepted, provided adequate flood proofing measures are taken.

The Village of Spring Valley was once prone to flooding. In 1958, the US Army Corp of Engineers constructed the Eau Galle Dam to help prevent the frequent flooding in the Village. The Federal Emergency Management Agency (FEMA) is currently working on the map modernization for Pierce County updating the floodplain maps.

Wetlands

Wetlands act as natural filters, removing sediments and contaminants from water. Wetlands regulate water levels by containing water during periods of excessive rain or snow melt. These unique environments are host to a wide variety of plant and animal communities, including some threatened and endangered species. Wetlands serve as rest areas for migratory waterfowl during the fall and spring months, and serve as sources of groundwater recharge and flood control. In the past decade, strict regulation on disturbing wetlands has slowed the loss of habitat and made conversion to other uses too expensive and impractical. Wetlands, particularly disturbance of wetlands, are regulated by the Army Corp of Engineers, Wisconsin Department of Natural Resources, and Pierce and St. Croix Counties.

You can find wetlands throughout the Village of Spring Valley (*see Map 6-6*). The majority of wetlands are found along the Eau Galle River and Lake George and along the various creeks within the Village.

Metallic/Non-metallic Mineral Resources

Metallic and Non-metallic mineral resources are naturally occurring sources of metal-bearing ore and non-metallic (rock or sand and gravel) materials, respectively. When economically viable, these materials may be removed through mining to process the raw materials into commercial or industrial products. Spring Valley was partly established due to the iron ore and other industrial metals found in the area. Mining in Pierce County is limited to sand and gravel pits, there are no permitted sand and/or gravel pits/mines in the Village of Spring Valley.

Historical/Cultural Resources

The Architecture and History Inventory (AHI) was a project started in mid-1970. It was started to collect information on historic buildings, sites, and structures. Beginning in 1980, surveys that are more intensive were conducted by professional historic preservation consultants and funded through grants.

Table 6-5 – Architecture and History Inventory

AHI #	County	Village	Location	Resources Type & Name
25410	Pierce	Spring Valley	Ed's St., W Side, N. of Oak St.	House
25411	Pierce	Spring Valley	1st St., S. side, near Newman Ave.	Church, Congregational Church
25412	Pierce	Spring Valley	Foote St., W side, 300 Block	House
25413	Pierce	Spring Valley	McKay Ave., E. side, just S. of 2nd St.	Garage, Raasch
25414	Pierce	Spring Valley	McKay Ave., E. side, between 1st and 2nd St.	Automobile Showroom
25415	Pierce	Spring Valley	McKay Ave., E. side, at 1st St., 100 block	Meeting Hall, Senior Citizens Center
25416	Pierce	Spring Valley	McKay Ave., E. side, between 1st and 2nd St.	Theater
25418	Pierce	Spring Valley	McKay Ave, E. side, 2nd House or 4th St.	House
25419	Pierce	Spring Valley	McKay Ave, E. side, 3rd House or 4th St.	House
25420	Pierce	Spring Valley	McKay Ave., 600	House
25421	Pierce	Spring Valley	Sabin Ave., E. side, at 2nd St.	Elementary, Middle, Jr. High, or High School
25422	Pierce	Spring Valley	Spring Valley High School Grounds	Charging Tower
25423	Pierce	Spring Valley	STH 128, N. side, 0.2 miles E. of STH 29	House

Source: Wisconsin Historical Society

A search of the AHI database shows that there are multiple properties in the Village of Spring Valley (*see Table 6-5*). The Village may want to inventory buildings it believes are worth noting for future consideration into the AHI database.

Community Design

Community Design Standards should represent the best qualities of the Village of Spring Valley or qualities the Village would like to encourage. The design standards should be determined by looking at and evaluating photos of the Village and other communities.

The standards should be used to evaluate future development or redevelopment plans to recommend including these qualities to maintain and enhance the character of the Village.

Together, the Community Design Standards can create a greater sense of community, reduce the use of automobiles, improve pedestrian/bicyclist safety, and maintain the aesthetics of the community.

Other Resources

All parks, recreation, and open space resources are described in Chapter 5: Utilities and Communities Facilities of the Comprehensive Plan.

Goals, Objectives, Policies, Programs, & Actions

Goal 1: Maintain the quality of the area's natural resources.

Objectives

1. Protect the Village's water resources (groundwater, lakes, streams, wetlands, etc.).
2. Protect valuable habitat (floodplains, shorelands, forests, environmental corridors, etc.).
3. Protect air quality.
4. Promote and preserve unique natural areas.

Policies

1. Support the identification of and consider investigating ways of addressing point sources of pollution.
2. Consider an ordinance that requires post-development runoff to not exceed pre-development runoff.
3. Partner with the DNR, Land Trusts, Universities, etc. to identify and protect important natural resources.

Goal 2: Preserve the Village's Small Town Character

Objectives

1. Encourage efficient land uses to preserve open space.
2. Identify and maintain scenic views like ridge sides and riparian zones.

Policies

1. Identify areas with steep slopes of 12% to 20% or greater, to discourage development and protect against erosion.
2. Support the redevelopment of historical buildings/structures in the Village.
3. Continue to utilize the blighted Tax Incremental Finance District downtown to improve the facades of local businesses.
4. Develop more parks/community areas that are strategically located for current and future use.

Goal 3: Develop the Economic Benefits of the Surrounding Natural Resources

Objectives

1. Encourage the use of State Funds, Grants, and other funding sources for natural resource sustainability.
2. Make Spring Valley a destination location.

Policies

1. Continue to pursue Local, State, and Federal grants or other funding sources for future resource protection or development.
2. Promote, develop, and/or expand trail systems, sidewalks, parks, and other recreational resources.

3. Update the Village's website to include information on the local parks, trails, and other recreational opportunities in the Village of Spring Valley.
4. Pursue methods to attract recreation based businesses and tourists.
5. Work with and support private entities on the promotion of the area.

Goal 4: Promote and preserve cultural and historical resources in the Village of Spring Valley.

Objectives

1. Identify the Village's historical resources.
2. Provide opportunities for residents to learn about the Village's history.

Policies

1. Support residents who feel they may have an archeological site or historical structure on their land who want to contact the Wisconsin Historical Society to learn ways to preserve or register them.
2. Support the formation of a historical preservation committee that documents structures or items in the Village that they feel have historical importance. Photos can be taken and these locations mapped.
3. Support the local historical committees, associations, or other historical groups, and assist in efforts to document the history of Spring Valley.

Goal 5: Limit the potential conflicts between future agricultural practices and future development.

Objectives

1. Reduce conflicts between land uses.
2. Protect valuable farm land and soils from improper development.
3. Preserve open space.
4. Identify area that would be most suitable for development or other practices.

Policies

1. Distribute flyers about what to expect in agriculture areas with regards to smells, noise and other operations through real estate companies to reduce conflicts.
2. Encourage community supported agriculture practices, like farmers markets.
3. Maintain natural buffers through zoning.
4. Identify growth corridors and plan for future growth in a manner that limits conflicts with traditional farming practices and prime farmlands.
5. Communicate with adjacent property owners and surrounding towns regarding the size and location of future farming operations.