

# Agricultural, Natural and Cultural Resources

## AGRICULTURAL RESOURCES

### Introduction

An agricultural sub-committee was created to analyze the town's agricultural resources. This section of the plan is a direct result of the work performed by that committee. A complete Agricultural Narrative of their work can be found in [Appendix C](#).

The residents of the Town of Spring Brook are concerned about the livelihood of our agricultural neighbors. In general, the town has not experienced major conflicts with the non-farm residents. However, there is concern about how future growth will impact the agricultural community. To accommodate future agricultural growth the Town identified and inventoried large blocks of productive land. The town should encourage expansion of agriculture in these areas.

The Town recognizes the history of farming, the desire of current residents to maintain the rural character of the town, and the need to support diverse farming practices. Addressing and resolving these concerns offers a significant challenge since landowners in this unzoned town are free to quit farming and have their land divided into any number of parcels.

### Selected Survey Results

Citizen input via open houses, visioning sessions, and surveys recommends minimal restrictions on land use, but they also want farms to survive because "they like it the way it is." These two expectations could very well be contradictory, particularly when land has more value for rural residences and recreation use than for production agriculture. The following are selected survey questions from the first landowner survey with these results:

	Strongly Disagree	Disagree	Agree	Strongly Agree	No Response
1. The Town of Spring Brook should preserve as much farmland as possible.	19	58	163	141	38
3. There should be a limit as to how many farm animals can exist on a farm.	81	135	137	39	27
5. There is a conflict between farm and non-farm neighbors regarding dust, noise and odors.	51	158	146	31	33
6. Agricultural land should not be used for residential housing purposes.	43	170	118	63	25
18. Land use policies and regulations should emphasize preserving the rural and agricultural character of the Town of Spring Brook.	28	50	185	112	44

Question number five from the second landowner survey:

5. Our township is unique in that it has a large area of flat/open land ideal for raising agricultural crops. The land use map that has been developed by the agriculture subcommittee indicates 70% or more of the land in our township is currently used for agriculture. Would you like to see ordinances enacted to limit residential development of agricultural land in the Town of Spring Brook? Yes/No

Yes 141 (64%) No 66 (30%) No Response 13 (6%)

### Background and History

In the 1860s to the early 1900s, land ownership in the township was a combination of homestead and purchased railroad land. Families chose land near water, a spring fed pond, or a

creek or land that was swampy. This was needed to provide water for the livestock and family.

The Chippewa River was used to transport both goods and passengers into the area. One of the main river ports, Rumsey's Landing, was located in the township. It was the shipping point for the wheat produced in Spring Brook and the surrounding area. When the railroad was built, the river lost its popularity. Rumsey's Landing fell by the wayside and the City of Menomonie became the trading center.

The 1930s signaled a change in agriculture in the Town of Spring Brook. Horse drawn equipment was giving way to small tractors. Families that had been able to hold their farms together during the depression were feeling a bit more prosperous and were looking forward to adding mechanization to increase productivity by the end of the decade. The farms were diverse, and most included cows, hogs, chickens, or horses. Crops were produced to feed the livestock. The farm was sustainable in nature, the entire family was employed, and very little was purchased. The only cash the family had to pay real estate taxes and make outside purchases came from what little excess production the farm had.

In the 1940s, prices increased and prosperity returned to farms in Spring Brook as well as the rest of America. The increase in prosperity was a result of WWII combined with the exodus from horsepower to mechanization. That continued into the 1950s when the size of the equipment increased and stationary threshing machines were replaced by combines reducing the need for as much farm labor. It was also a time when farmers started using fertilizer.

Agricultural productivity continued to increase. The decade of the 1960s saw an increased use of crop inputs, better hybrid seeds, fertilizers and pesticides. Sprinkler irrigation came to the township in 1966. The previously unproductive sandy loam soil of the Fall City Prairie blossomed with water. In the mid-1960s, the Federal government formulated an Ag Policy that encouraged U.S. farmers to produce food to feed the world. Lenders were willing to make loans for capital improvements. A number of farmers with dairy operations in the township upgraded their facilities and added cows.

Residential homes started to appear in the 1970s. City people seeking cheap land to build homes on moved into the country. Agricultural technology helped land that previously had limited production increase outputs. Irrigation expanded, farms and equipment got bigger, and the value of prime farmland rose dramatically. Heavy soils were no longer the most prized. Irrigated, sandy, well-drained soils combined with technological improvements were more productive and were in higher demand as farm size grew. As cash crop farming grew in the township, animal production declined.

Dairy farms continued to decrease through the 1980s, 1990s and early into 2000. Few dairy farms were passed on to the next generation. As profit margins dwindled, dairy farmers either rented or sold their land and took jobs in town. Their life style improved. They worked less hours, had more money, and received fringe benefits. These were all things that a small dairy farm could not easily provide. Specialty crop farms producing kidney beans, potatoes and horseradish grew while rotating land with traditional grain crops such as corn and soybeans. City people, envisioning an idyllic life style, continued to move to the country. Homes were being built primarily on the land least suited for agricultural production.

Twenty years from now there will be less land farmed in the Town of Spring Brook. As farmers age, they will be more interested in selling their land for development rather than for production agriculture. It's not uncommon to hear a farmer say that their land is their 401K. The profits they made from farming were plowed back into the farm instead of into a retirement account. They intend to maximize the value of that investment as they reach retirement age. More residences will be built as city people want to live in the country and enjoy nature.

Highly productive, irrigated land will continue to be farmed. If current trends continue, farms will be larger in size and may have diversified into some type of processing that will add value to the crops they grow.

Productive farmland has been defined, identified and mapped (see [Appendix E](#)). The USDA-

Natural Resources Conservation Service (NRCS) and the Dunn County Land Conservation Office assisted in identifying important farmland by using the Dunn County Soil Survey. The program that was used to determine important farmland is called LESA, which stands for Land Evaluation and Site Assessment. The Land Evaluation and Site Assessment system was developed by the USDA-NRCS in collaboration with land use planners from Arizona State University and Oregon State University. It is a numeric rating system for scoring sites to help in formulating policy or making land-use decisions on farmlands. The system is designed to take into account both soil quality and other factors affecting a site's importance for agriculture. **LESA is an analytical tool, not a farmland protection program.** Its role is to provide systematic and objective procedures to rate and rank sites for agricultural importance in order to help officials make decisions.

Soil quality factors are grouped under Land Evaluation (LE). The other factors are grouped under Site Assessment (SA). The SA factors are of three types: non-soil factors related to agricultural use of a site, factors related to development pressures, and other public values of a site. Site assessment factors include: SA-1 factors other than soil-based qualities measuring limitations on agricultural productivity or farm practices; SA-2 factors measuring development pressure or land conversion; and, SA-3 factors measuring other public values such as historic or scenic values.

The Land Evaluation (LE) component of the Land Evaluation and Site Assessment (LESA) system rates the soil-based qualities for agricultural use. The four common kinds of classifications used for land evaluation are land capability classes, soil productivity ratings, soil potential ratings, and important farmland classes.

### High and Medium Production Soils

For purposes of comprehensive planning, soils are considered to be of high or medium production if they meet 3 criteria:

- 1) **Considered to be Prime Farmland:** This factor is defined in the USDA-NRCS-Wisconsin Technical Guide, Section 2, Dunn County Cropland Interpretations-Prime Farmland, Pages 1-2, Dated 11/22/95.

2) **Productivity for Corn:** This factor is from the USDA-NRCS-Wisconsin Technical Guide, Section 2, Dunn County Cropland Interpretations-Yields Per Acre, Pages 1-13, Dated 11/22/96.

- 3) **Capability Class:** Land capability classes are practical groupings of soil limitations based on such characteristics as erosion hazard, droughtiness, wetness, stoniness, and response to management. Classes range from I to VIII. These classes reflect the land's relative suitability for crops, grazing, forestry, and wildlife. Generally, soils with a Capability Class of I and II are considered to be of high agricultural importance. Soils with a Capability Class of III are considered to be of medium importance, and soils with a Class greater than IV are poorly suited for agriculture production. These factors are from the USDA-NRCS-Wisconsin Technical Guide, Section 2, Dunn County Soil Descriptions Non-Technical, Pages 1-26, Dated 11/22/95.

These 3 factors were combined in a mathematical formula with a maximum score of 100 points. Prime farmland represents 10% of the score. Production for corn represents 45% of the score, and Capability Class represents 45% of the score. See [Appendix E](#) Soil Productivity Map of soils of high and medium production.

### Recommendations

See Policies and Programs in the Implementation Section

## NATURAL RESOURCES

### Introduction

The Town of Spring Brook is representative of the prairie topography that borders the Chippewa River. Its topography, to a large extent, is responsible for its intense agricultural use. The large open prairies and irrigation make it highly desirable for row and specialty crops. The floodplain of the Chippewa River is also cropped. Because of this, there has been little residential development except along the Chippewa River and Elk Creek.

The Town has one of the two prairie lakes that are mapped in Dunn County. It also has several large prairie potholes. In addition, there is a large wetland complex associated with Muddy Creek. The western border of the Township has a rolling topography which consists of agricultural land that is interspersed with woodlands and wetlands. It is these unique natural resources that define the rural character for this Township.

The primary natural resources are soil, water and air. Other resources such as fish, forestry, and wildlife, although commonly thought of as primary, are in fact secondary resources. It is the interrelationships of these primary resources that determines what plant and animal life can be sustained and thrive. The other primary resource that is often ignored is the human resource because it dominates all others. The decisions that have been made in the past and the ones that are being made today ultimately determine the future of all other natural resources.

Primary and secondary resources serve as the community infrastructure and are often generalized in a term called rural character. These resources provide not only aesthetic and recreational opportunities for many of those who desire to live or own property in the town but the loss of the functional ability and value of these resources has the potential to negatively affect the well being of individual landowners, and the community as a whole.

Development patterns should take into consideration its impact on the community's resources. Development policies should be compatible with, and limit the degradation of, these resources.

This section discusses the influence of the town's natural resources as part of the decision making process. The significant resources of the Town of Spring Brook have been identified and, when possible, mapped. Mapped resources include productive soils, surface water, water quality management areas, steep slopes, wetlands, areas that are occasionally and frequently flooded, and woodlands that are greater than 10 acres.

### Selected Survey Results

	Strongly Disagree	Disagree	Agree	Strongly Agree	No Response
18. Land use policies and regulations should emphasize preserving the rural and agricultural character of the Town of Spring Brook.	28	50	185	112	44
19. There is a problem with contamination of ground-water in the Town of Spring Brook.	42	168	112	32	65
20. There is a problem with pollution of rivers and streams in the Town of Spring Brook.	47	182	107	32	51
21. Trees and open spaces are more important to me than neighboring houses.	17	38	179	148	37
22. It is important to preserve woodlands and environmentally sensitive areas in the Town of Spring Brook.	18	29	182	151	39
25. More parks, recreational areas and green spaces are	56	161	128	40	34

needed in the Town of Spring Brook.					
-------------------------------------	--	--	--	--	--

## PRIMARY RESOURCES

### Soil

Soil is the top layer of the earth suitable for the growth of plants. It is formed from rocks very slowly. When large sheets of ice (glaciers) moved over the land thousands of years ago, they ground rocks together, rubbing off tremendous quantities of rock particles of all sizes. Much of the north central United States is made up of soils that were formed by the action of these glaciers.

Changes in temperature also help make soil. Freezing water expands with tremendous force. Water that finds its way into cracks in the rocks freezes and breaks the rocks into smaller and smaller pieces. Most of the soils we see today developed from rock material that was moved by water or wind either after this weathering process or while it was going on. The dark, deep layer of topsoil is the product of centuries of weathering, accumulation of plant and animal remains, and the work of many living organisms. The less fertile subsoil, which is lighter in color, has little or no organic matter.

Soils in the town have been analyzed using information provided by the Natural Resource Conservation Service (NRCS) and Dunn County Land Conservation Department (LCD). Understanding the importance of the soils present within the town is important because of the limitations that soils can have on type and location of development.

Soil characteristics include slope of the land, depth to bedrock and depth to groundwater. These characteristics are interpreted to help identify areas with limited septic suitability and areas with steep slopes.

Failed or improperly constructed septic systems can raise nitrate levels and pollute groundwater. Currently septic system design and installation requirements are regulated locally through Dunn County via their zoning permit process.

Disturbing steep slopes through agricultural or development practices can cause soil loss through erosion. As soil erodes it depletes the productivity of the soil and the displaced soil is carried to streams, rivers and lakes where this sediment and the nutrients negatively affect water quality. The most important factors influencing erosion are the intensity and duration of rainfall, the erodibility of the soil, length of slope, slope angle, soil cover and erosion control practices.

Areas of steep slope are mapped in [Appendix E](#) and further described in the Land Use section.

### Soil Erosion

Much of the land on the Fall City Prairie is more susceptible to wind erosion than water erosion because of the lack of woodlands to provide shelter from the winds. See [Appendix](#) for NR151 (Wisconsin's Runoff Rules); ATCP 50 (A listing of conservation practices); and, Committee Recommendations.

Prevention and management of soil loss is easier and less costly than removal and reconstruction practices. The long term productivity of the soil can be protected by keeping soil loss below tolerable soil loss (T) levels. Tolerable soil loss is the quantity of soil that can be lost but is also being replaced by natural processes. Conservation of soil maintains water quality and provides a sustainable resource for the continued production of food and fiber. Additional information regarding water quality and controlling soil loss is listed in the Policies and Programs section of the Implementation element.

### Water

Water is the second primary resource. All life requires it for survival. It is also the most limiting factor affecting plant growth throughout much of the world. Water is best understood in what is referred to as the Hydrologic cycle. This term refers to the cycling of water from the atmosphere to the ground and back again. Water travels along one of many paths before returning to the

atmosphere through evaporation. It may remain on the earth's surface, infiltrate the soil, or run off into swamps, streams, lakes, or reservoirs. Water entering the soil may be stored in the soil, used by plants, or continue moving downward through the soil or rock to the groundwater. Groundwater moves laterally to lakes, springs, streams, and rivers where it eventually returns to the surface. Water at the surface of soil or water bodies evaporates and returns to the atmosphere where it forms clouds and eventually returns to the surface as precipitation.

Although hydrology refers to both surface and groundwater, for purposes of this plan and mapping, it refers to those lakes, rivers and streams which are designated on the 7.5 Minute USGS Topographic Maps.

The quality and quantity of both ground and surface water is essential to the well being of all living things. These primary resources should be protected and preserved for present and future residents. While not directly named as such many of the maps in [Appendix E](#) delineate these resources.

## Surface Water

Lakes and rivers are the primary components of surface waters in the town. Surface waters are all of the water features, standing still or flowing, navigable or intermittent, which collect and channel overland rainwater or snow-melt runoff.

The most obvious surface waters are rivers, streams and lakes. These are important to the environment and as recreational and scenic assets. The primary surface water bodies in the town are Elk Creek Lake and Old Elk Lake. Protecting and promoting water quality is a large issue which will never be solved without a good understanding of water as an important resource. Information regarding the quality of Spring Brook's surface waters can be found in the State of the Lower Chippewa River Basin Report which is available through the Wisconsin Department of Natural Resources and through LCD. It contains an inventory, analysis and goals and objectives of all surface waters in Dunn County.

## Groundwater

The main source of potable water in the town is from groundwater. This is important because the type and intensity of development can have a negative impact on groundwater quality. It is important to understand the connection between groundwater and other water resources. Groundwater moves by gravity from areas of recharge down the hydraulic gradient to areas of discharge. Recharge occurs over most of the County, and generally the hydraulic gradient is from topographically high to topographically low areas. Therefore, groundwater is moving through the water-bearing rocks from the water divides in the highland areas and discharges to the surface as lakes, rivers and streams.

Groundwater can also travel to and through geologic formations that store and transmit water called aquifers. The principle aquifer in the town is a sandstone aquifer. Since sandstones are porous, they are susceptible to contamination in areas where this fractured rock occurs at or near the surface, especially where there is little or no soil to attenuate the contaminants. Anything people spread, spill or dump on the ground can enter into and affect the quality of the groundwater. Contamination of water not only affects the quality of life but the survival of life.

Although no specific maps are available at the town or county level showing groundwater, other than soils attenuation maps or groundwater elevations based on USGS topographic maps, it is known that groundwater tends to be localized, often following the same watershed boundaries as surface water. [Appendix E](#) has a groundwater recharge map. This map indicates areas around the town where groundwater recharge is excellent to poor. In areas of high groundwater recharge special attention should be made with regards to contamination issues, since these areas are more susceptible to conveying contaminants into the groundwater.

## Air

The third primary resource is air.❖ This is what allows life on planet earth.❖ Because air is all around us it is often taken for granted and abused.❖ Air is not just an issue of quantity but more importantly quality.

Our air consists primarily of oxygen and nitrogen in addition to small amounts of other gases.❖ Clean air is essential to our health, because it provides the necessary oxygen to sustain life.

Air pollution is the presence of contaminants or substances in the air that are harmful to people, plants, animals, or can affect welfare.

Air pollution is a global health issue of growing concern.❖ It contributes to acid rain formation, ozone depletion, and climate change.❖ Air pollution not only harms buildings and plant life but it negatively impacts human health as well.❖ Though generally thought of as an urban issue, it poses a health threat in rural areas as well.

## **SECONDARY RESOURCES**

Resources such as fish, forestry and wildlife are considered secondary because they are dependent on the primary resources.❖ Other land and water features are considered environmentally sensitive because they are fragile areas that can be easily impacted by human activity.❖ These areas have been defined and mapped so they can be given careful consideration in the Comprehensive Plan.

### **Topography**

Topography is the shape or 3D characteristics of the land surface. Surface topography is controlled by the underlying geology. Dunn County is predominantly characterized by the topographical features of the western upland geographical province. It generally includes narrow, steep walled valleys and broad ridges. Much of the area has been in a driftless condition for at least 500,000 years. Topographic features in the town provide visual integrity, important wildlife habitat and are sensitive to development. Land use considerations should aim to preserve and protect these resources, possibly through low density developments and development design standards. Areas of significant topographic relief contribute to the town's rural character because they contain much of the undeveloped woodlands.

### **Important Agricultural Land**

Agriculture is a dominant land use activity in the town and throughout Dunn County, which is also a major contributory to the town's economy. This land is necessary for the continuation of the production of food and fiber.❖ Important agricultural land was defined strictly on the productivity of soils.❖ It did not reflect whether it is currently being cropped or has a history of cropping.❖ Three factors were considered:❖ whether it is considered to be prime farmland by the USDA-Natural Resources Conservation Service; its Capability Class, and productivity for corn in relationship to the most productive soil in the county.❖ Soils that were in Class I thru IV were considered tillable.❖ Classes V thru VIII are wet or steep and stony. Soils that could be irrigated were also included since they can be highly productive if they have adequate water. A complete description of important farmland is found in the Land Use section of the plan as well as being mapped in [Appendix E](#).

### **Wetlands❖**

Wetlands are a significant environmental resource and are regulated by a complex set of local, state and federal regulations. Counties are mandated to establish shoreland-wetland zoning districts. Dunn County Comprehensive Ordinances regulates use and development in all shoreland areas within 300 feet of a navigable stream and within 1000 feet of lakes including all wetlands designated on the

Wisconsin Wetland Inventory maps. In addition to county and WDNR regulations the U.S. Army Corps of Engineers has authority of placement of fill materials in wetlands.

Wetlands are a valuable resource because they store flood waters, filter sediment and nutrients, and serve as groundwater recharge areas. These are areas that have hydric soils (water at or near the surface through most of the growing season) and support hydrophytic vegetation (plants that thrive in wet conditions). Additional information regarding wetlands is found in the Land Use section of the plan as well as being mapped in Appendix E. Ultimately, development within a wetland should be avoided.

### **Floodplains**

Similar to wetlands, floodplains provide many ecological and social benefits and pose a severe constraint for development; therefore local, state and federal regulations have been established to limit uses and activities within floodplains. Development within a floodplain should be limited to those uses associated with the floodplain, such as recreation or wildlife applications. Additional verification to determine whether or not a given area is in the floodplain may be necessary before development is authorized or denied.

Floodplains are lands that are generally adjacent to creeks, rivers, lakes, and wetlands and that are susceptible to flood flow (floodway) or areas of slack water (flood fringe). For purposes of this plan, it includes areas which are subject to occasional or frequent flooding (based on soils). Additional information regarding floodplains is found in the Land Use section of the plan as well as being mapped in Appendix E.

### **Woodlands**

Woodland areas provide the majority of wildlife habitat in the town, and also is a visual component which helps define the town's rural character. Two different sizes of woodlands had special significance when preparing this plan. The first was woodlands that are 10 acres or greater in size. Ten acres is the minimum acreage that can be enrolled in the State's Managed Forest Program and loggers generally don't like to harvest acreages smaller than this unless they hold exceptionally high quality timber. The second significant acreage was 400 contiguous acres of woodland. Woodlands are attractive areas for development. However large tracts of woodlands should remain intact for their environmental significance.

Programs are available to private landowners to help preserve the town's woodland resources. These programs include; Wisconsin Managed Forest Law (MFL) and the Conservation Reserve Program (CRP). They encourage tree planting and the sustained management of woodland resources. Woodlands are mapped in Appendix E. Information regarding these programs is available through the Dunn County Soil Conservation Department and through the WDNR.

### **Wildlife Habitat**

All land and water, whether cropland, woodland, wetlands, rivers and streams, floodplains, and even residential yards, supports wildlife. Common types of wildlife found in the town are deer and black bear; small game such as rabbits and squirrels; upland birds such as turkeys and ruffed grouse; a large variety of songbirds and waterfowl; birds of prey such as owls, red-tailed hawks and eagles; and, fur bearing animals such as raccoon, opossum, beaver, mink, red and gray fox, badgers and coyote.

When habitat is lost or changes it affects the diversity and numbers of species. A diverse and plentiful wildlife population will continue in the town if it is managed at least to its current levels. However, if large tracts of land become developed, it could change the diversity of wildlife.

Loss of habitat is the primary reason species become threatened or endangered. When a species habitat is compromised it must move on to find suitable food, water and space or it will die. Protection of wildlife habitat should be an important consideration for future land use planning. While not directly named as such many of the maps in Appendix E are areas of wildlife habitat.

In addition to Agriculture, Natural and Cultural Resources being a required element of a Comprehensive Plan, every county in the State of Wisconsin is required to have a Land and Water Resource Management Plan which identifies its resource concerns and strategies for addressing and correcting the problems. The Towns Comprehensive Plans will be consolidated into Dunn County's Land and Water Resource Management Plan. The County plan will provide an educational strategy, a voluntary program to achieve compliance with applicable State and County standards, and a regulatory approach should the first two approaches fail.

### **Endangered Resources**

The Endangered Resources Program works to conserve Wisconsin's biodiversity for present and future generations. The State's goals are to identify, protect, and manage native plants, animals, and natural communities from the very common to the critically endangered. They desire to work with others to promote knowledge, appreciation, and stewardship of Wisconsin's native species and ecosystems. The town may want to work with local and state agencies or conservancy groups to identify important natural areas in need of protection. In addition the town can use this plan as a tool to prioritize a management strategy to direct development away from these areas. Additional verification to determine whether or not a given area contains threatened or endangered species may be necessary before development is authorized or denied. The importance of preserving these natural areas is the main element of the town's rural character.

### **Wisconsin's Endangered Species**

These are any species whose continued existence as a viable component of the State's wild animals or wild plants inventory is determined by the Department of Natural Resources to be in jeopardy on the basis of scientific evidence.

### **Wisconsin's Threatened Species**

These are any species which appears likely within the foreseeable future, on the basis of scientific evidence, to become endangered. No threatened or endangered species are known to exist within the Township. For additional information, contact local DNR representatives.

### **Nonmetallic Mining Deposits**

The town has sand and gravel deposits primarily along river and stream corridors and on outwash plains. Protecting sandy outwash soils for farmland because of the cropping potential (if it is irrigated) may be an important issue for future agricultural expansion in the town.

### **Recommendations**

See Policies and Programs in the Implementation Section

### **Summary**

The existence of natural barriers in the physical environment act as constraints on the type and location of development in the town. In a number of situations, some of these barriers can be overcome by development practices but may become extensive and costly. However, it may be wise to encourage development in areas where public utilities and facilities can be maximized and where limiting factors to development can be minimized or avoided. It is important to note that the materials contained in this section are generalized for planning purposes and do not replace the need for site specific evaluation. Many of the issues discussed in this section have become goals, objectives or policies and can be found in the Implementation section of the plan.

## **CULTURAL RESOURCES**

See Points of Interest Map in Appendix E.