

5. Agricultural, Natural, and Cultural Resources

This element provides an inventory of the agricultural, natural, and cultural resources of the Town of Delta. The elements analyzed in this section include soils, farmland, topography, geology, mineral resources, vegetation types, watersheds and drainage, wetlands, floodplains, surface water features, groundwater, environmentally sensitive areas, threatened and endangered species, wildlife habitat, historic and archaeological sites, and cultural resources. These features present opportunities for conservation and development and need to be considered when making decisions concerning the future of the town.

5.1 Soils

The use and management of soil has many impacts in the Town of Delta. Soil forms the foundation that all other ecosystems depend on – plant life, wildlife, streams, wetlands and lakes. Soils may also pose limitations to our use of the land in activities such as agricultural production, forestry, building development, and road construction.

Limited information on soils in Bayfield County is currently available. The *Bayfield County Soil Survey*, published in 1961 by the U.S. Department of Agriculture, Soil Conservation Service, is based on a 1939 reconnaissance survey. Information provided in this publication is very general, and techniques of mapping soils have changed in many ways since this survey was developed.

General soil conditions and limitations data should be reliable on a large scale, but the reconnaissance survey cannot be used for detailed planning. Soil associations are groups of related soil types, and 27 different soil associations were mapped in the Town of Delta. The following descriptions of the soils found in the town combine several of the mapped soil associations, and are helpful for general planning purposes:

Fine textured soils formed in glacial lake deposits, nearly level and undulating.

Found primarily in the eastern third of the Town of Delta, these soils are composed mainly of silt and clay. These soils include the Ontonagon-Pickford soil association which is considered the best suited soil for agriculture in Bayfield County. Erosion control is important in sloped areas of these soil types, and drainage is often a limitation to agriculture, forestry, and development in the low lying areas.

Soil associations included: Ontonagon-Pickford
 Pickford-Bergland

Course to medium textured soils formed in glacial lake deposits, nearly level and undulating.

Scattered throughout the eastern portion of the town, these soils are composed mainly of sandy and loamy material overlying clay at a depth ranging from 6 inches to 6 feet. The sandy and loamy textured soil over clay results in drainage and erosion hazards for many potential land uses.

Soil associations included: Orienta-Ogemaw
 Superior
 Superior-Ogemaw

Course to medium textured soils formed in glacial lake deposits, rolling.

Found in an isolated area in southwestern Delta, these soils are composed of sandy and loamy material underlain by clay at 3 to 6 feet in depth. Limitations due to poor drainage and erosion potential are common in these soils.

Soil associations included: Orienta

Moderately coarse and medium-textured formed in upland glacial drift, undulating.

Found throughout the Town of Delta, except in the extreme western portions, these soils are composed mainly of sandy and loamy material. Low fertility and moisture holding capacity limit their productivity for crops, and stones limit the use of many areas to forest and recreation.

Soil associations included: Cloquet-Gogebic
 Cloquet-Hiawatha
 Gogebic-Cloquet
 Munising

Moderately coarse and medium-textured formed in upland glacial drift, rolling.

Found throughout the town, these soils are primarily composed of sandy and loamy material. Glacial features known as moraines and pitted outwash result in the hilly landscape found in association with these soils. Fertility is low, but these soils are well suited for use as woodland.

Soil associations included: Cloquet-Hiawatha
 Gogebic-Cloquet

Coarse-textured soils of the uplands and outwash plains, nearly level and undulating.

Occupying most of the western third and scattered throughout the central portion of the Town of Delta, these soils are mainly composed of sandy material. The vast majority of this soil type within Delta is located in the Chequamegon National Forest and has been planted to red pine. Limitations of these soils include low fertility, low moisture holding capacity, and high acidity.

Soil associations included: Kinross
 Omega-Vilas
 Vilas-Omega

Coarse-textured soils of the uplands and outwash plains, nearly level and rolling.

Occupying most of central Delta and scattered throughout the rest of the town, these soils are primarily composed of sandy material. Glacial features known as moraines and pitted outwash result in the hilly landscape found in association with these soils. Limitations of these soils include low fertility, low moisture holding capacity, high acidity, and steep slopes. These areas are best suited as woodlands.

Soil associations included: Vilas-Omega

Coarse-textured soils of the uplands and outwash plains, hilly and steep.

Found mainly in northwestern Delta, these soils are primarily composed of sandy material. Similar to the Vilas-Omega rolling soil association, these soils are limited in use by low nutrients and moisture, high acidity, and steep slopes. The Vilas-Omega rolling and Vilas-Omega hilly and steep associations together underly most of the area known as the barrens of Bayfield County. The barrens are characterized by fairly open timber stands mixed with grasses.

Soil associations included: Vilas-Omega

Moderately coarse and medium-textured soils of the outwash plains and stream valleys, nearly level and undulating.

Found in one isolated location near Muskellunge and Twin Bear lakes, these soils are composed mainly of sandy and loamy material with underlying sand and gravel. Fertility and moisture holding capacity of these soils are fair, but erosion control is a concern due to moderately steep slopes.

Soil associations included: Pence

Organic soils.

Scattered throughout the eastern two thirds of the Town of Delta, these soils are found in wetlands. The soil is composed of decaying organic material known as peat. The majority of these soils abut the shoreline of the town's lakes, ponds, and bogs.

Soil associations included: Greenwood peat
Rifle peat
Spalding peat
Tahquamenon peat

Alluvial land.

These soils form in sediment deposits associated with major rivers and streams. Soil characteristics vary widely from one alluvial area to another. Alluvium is mapped along the White River in the Town of Delta.

Soil associations included: Alluvial land

5.2 Farmland

Agricultural production is a small but important part of Delta's resource base. Approximately 2% of the town can be considered farmland as classified on the 2002 Existing Land Use Map (Map 8-1). According to figures from the *Wisconsin Town Land Use Data Project*, as compiled by the Program on Agricultural Technology Studies at the University of Wisconsin-Madison, 8.6% of the town was in farmland use from 1991-1993. Information from the project also indicated that in 1990 there were three farms in the town, however by 1997 there were seven. None of the farms were indicated as dairy farms. The *Land Use* element of this plan further details trends and amount of land devoted to farming.

5.3 Forest

Forests are the most expansive land cover found in the Town of Delta and are some of the most significant features of the town's resource base, culture, and economy. Forest land serves many functions, adds value to both the local economy and quality of life, and contributes to the town's rural atmosphere. They provide wildlife habitat, recreational opportunities, timber and pulpwood, and educational opportunities. They are connected to many aspects of the local and regional economy. The health and management of these forests have many planning implications for the town.

According to Wisconsin Department of Natural Resources (WDNR) land cover maps (see Map 5-1), about 36,000 acres or 78% of the town is forested. The majority of the forested land found within Bayfield County and within the Town of Delta is located within the Chequamegon National Forest. Forest types found within Delta vary widely. According to WDNR land cover

maps, aspen, maple, and mixed coniferous/deciduous forests dominate the eastern half of the town. Jack pine, red pine, aspen, and other mixed coniferous/deciduous forests dominate the western half where sandy soils are most prevalent.

Historic State

Native forest types in the town were primarily northern conifers and hardwoods according to the WDNR's map: *Original Vegetative Cover of Wisconsin*. This map approximates forest types that were likely to be found in Wisconsin during the mid 1800s. Native forest communities included:

Boreal

- ◆ White spruce, balsam fir, tamarack, white cedar, white birch, aspen

Upland Mixed Conifer – Deciduous

- ◆ Sugar maple, yellow birch, white pine, red pine
- ◆ White pine, red pine
- ◆ Aspen, white birch, pine

Deciduous

- ◆ White oak, black oak, bur oak

Forested Wetland

- ◆ White cedar, black spruce, tamarack, hemlock

Forest Uses and Economics

Forests impacted the region of northwest Wisconsin by nearly 9 billion dollars (based on 1994 data) of forest related industry output according to *Forests and Regional Development* (Marcoullier & Mace, 2002). These related industries include wood processing, other manufacturing, construction, tourism, wholesale and retail trade, and a myriad of support services. These outputs are driven by both recreational and timber harvest uses of forest lands. Often viewed as being in conflict with one another, both forms of forest use must be balanced and managed in order to ensure continued benefits to the region and the Town of Delta.

Potential conflicts within the realm of recreational forest use must also be taken into consideration when managing forest land. Motorized uses such as snowmobiles and ATVs, use for hunting and trapping, and passive uses like hiking and cross-country skiing all take place on forest lands in the Town of Delta. Adequate separation between potentially conflicting uses must be maintained in order to ensure continued forest viability and quality into the future.

Chequamegon-Nicolet National Forest

The Chequamegon National Forest occupies nearly one half of the Town of Delta. This national forest was established by presidential proclamation in 1933. Since 1998, the Chequamegon National Forest and the Nicolet National Forest have been consolidated and managed as one administrative unit. The Chequamegon side of the forest includes 858,400 acres in six northern counties including approximately 21,000 acres in the Town of Delta. National Forest lands are managed by the United States Department of Agriculture – Forest Service (USDA-FS), which also develops and administers forest policy and planning.

Management of the Chequamegon National Forest is prescribed generally by the 1986 *Forest Plan* as amended. The overall forest management policy was last amended in 1992 to include a philosophy known as “ecosystem management.” The Forest Service defines ecosystem management as “an ecological approach to natural resource management to assure productive, healthy ecosystems by blending social, economic, physical, and biological needs and values.” General management prescriptions found within the Town of Delta fall into three categories:

Management Prescription 1

Desired land conditions include even-aged stands on short rotation. Hardwoods are harvested for fiber production, and consideration is given to motorized recreation and wildlife game species. Land under this prescription includes the area north of West Delta Road and Rocky Run Road.

Management Prescription 4

Desired land conditions include even-aged stands on long and short rotation. Softwoods are harvested for sawtimber and fiber production, and consideration is given to motorized recreation and both game and non-game wildlife. Land under this prescription includes the area south of West Delta Road and west of North Delta Road.

Management Prescription 5

Desired land conditions include Congressionally designated wilderness. These areas are reserved for the protection of the natural ecosystem, wilderness character, and recreational experience. These are also known as “roadless areas.” Land under this prescription includes the Rainbow Lake Wilderness Area.

The USDA-FS began the process of revising the Chequamegon-Nicolet National Forest Plan in 1996. This process was nearing completion at the time the Town of Delta Comprehensive Plan was being drafted, and changes to the management prescriptions within the town were pending.

Privately Owned Forest Land

Approximately 40% of the Town of Delta is privately owned resource land. This figure, derived from the 2002 Existing Land Use Map (Map 8-1), includes both forested and open privately owned undeveloped lands, but is predominantly forested. Public forest lands are often thought of as the primary source of forest related functions and values, but a significant amount of timber production, wildlife management, and forest recreation also take place on privately owned forest lands.

Map 5-1, Land Cover and USGS Quadrangle

Private forest lands in the Town of Delta are owned both by individuals and corporate entities. Corporately owned, or industrial forests, occupy about 1500 acres, or just over 3% of the town.

Industrial forests are important to note, as they are often managed more intensively for commodity production and often contain large contiguous blocks of forest land. Changes in the ownership and management of industrial forests can have a drastic and noticeable impact on the town.

The use of voluntary management programs on private forest lands is also significant in Delta. Lands enrolled in WDNR forest management programs like Managed Forest Law (MFL) and Forest Crop Law (FCL) included nearly 2,300 acres in 2002. Management programs on private forest lands are important to note for timber harvest and public access reasons. These programs require that a timber harvest takes place at some point on enrolled lands, and some of these private properties become open to public use for recreational purposes. Refer to *Land and Resource Protection/Management Programs* in the *Land Use* element for a description of the MFL and FCL programs. Demand for enrollment in these programs is expected to increase as property values and the resulting taxes continue to rise.

5.4 Topography

Topography in the Town of Delta can be described as nearly level to rolling and steep. Elevations in Delta range from a low of approximately 1,010 feet above sea level in the far northeast corner to a high of about 1,330 feet above sea level in the southern and western reaches of the town. This puts the Town of Delta in the middle to upper range of elevations found throughout Bayfield County.

The most variety in elevation is associated with a region of glacial lakebed that extends from the northwest to the southeast and contains the majority of the town's lakes. Steep slopes in excess of 15% are common in this area according to slope maps developed by the U.S. Forest Service.

More level areas of the town are associated with areas of glacial lake deposits in the northeast, the Pine Barrens in the southwest, and alluvial lands surrounding the White River. The sandy "Pine Barrens" is a flat plain extending in a belt 10 to 20 miles wide from Bayfield County across Douglas and northern Washburn into Burnett and Polk Counties.

5.5 Geology

Geological features directly influence topography, soils, surface water, and groundwater, and indirectly influence many other natural resources as well. Understanding the geology of the town is important in planning for the future. The geology of the Town of Delta is primarily influenced by bedrock, Lake Superior, and glacial activity.

The soils of Bayfield County are underlain by layers of ancient sandstone and igneous rocks. The bedrock below the Town of Delta is primarily composed of varying depths of sandstone. The sandstone bedrock was scoured by the rising waters of Lake Superior as well as the advance and retreat of glaciers. This scoured sandstone influenced many of the coarse textured soils found within the town.

During glaciation, the water level of Lake Superior was much higher than it is today. According to the *Bayfield County Soil Survey*, the glacial basin of Lake Superior ran through the Town of

Delta from the northwest corner to the southeast corner. Clay, silt, and sand were deposited by the lake, influencing the soils and surface waters of the town.

Other glacial features present in the town include end moraines and pitted outwash. Moraines formed where glaciers halted temporarily and deposited material in meltwater. End moraines in the northeast corner of Delta were further modified as they were submerged by the rising waters of Lake Superior. Outwash plains formed where rivers of meltwater deposited masses of sand and gravel. In the northeast and southwest corners of the town, pitted outwash plains contained blocks of ice that, when melted, formed depressions.

5.6 Metallic and Nonmetallic Mineral Resources

Non-metallic mineral resources found in the Town of Delta include sand and gravel deposits. No known deposits of metallic mineral resources are located in Delta.

Wisconsin Administrative Code NR 135 requires that all counties adopt and enforce a Non-Metallic Mining Reclamation Ordinance that establishes performance standards for the reclamation of active and future nonmetallic mining sites, but not abandoned sites. It is intended that NR 135 will contribute to environmental protection, stable non-eroding sites, productive end land use, and the potential to enhance habitat and increase land values and tax revenues. The Bayfield County Zoning Department administers this program in Bayfield County and currently has eight active sites licensed within the Town of Delta.

5.7 Watersheds and Drainage

1A watershed can be defined as an interconnected area of land draining from surrounding ridge tops to a common point such as a lake or stream confluence with a neighboring watershed. All lands and waterways can be found within one watershed or another. In Wisconsin, watersheds vary in scale from major river systems to small creek drainage areas and typically range in size from 100 to 300 square miles. River basins encompass several watersheds. There are 32 river basins in Wisconsin which range in size from 500 to over 5,000 square miles.

The vast majority of lands within the Town of Delta are located within the White River, Iron River, and Fish Creek Watersheds of the Lake Superior Basin. A very small segment of western Delta is located within the Upper St. Croix and Eau Claire Rivers Watershed of the St. Croix Basin. See Map 5-2, Water Features, for local watershed boundaries.

5.8 Wetlands

1According to the United States Environmental Protection Agency, wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Water saturation (hydrology) largely determines how the soil develops and the types of plant and animal communities living in and on the soil. Wetlands may support both aquatic and terrestrial species. The prolonged presence of water creates conditions that favor the growth of specially adapted plants (hydrophytes) and promotes the development of characteristic wetland (hydric) soils.

Wetlands may be seasonal or permanent and are commonly referred to as swamps, marshes, fens or bogs. Wetland plants and soils have the capacity to store and filter pollutants ranging from pesticides to animal wastes. Wetlands can make lakes, rivers and streams cleaner, and drinking water safer. Wetlands also provide valuable habitat for fish, plants, and animals. In addition, some wetlands can also replenish groundwater supplies. Groundwater discharge from wetlands is common and can be important in maintaining stream flows, especially during dry months.

Local, state, and federal regulations place limitations on the development and use of wetlands and shorelands. The Wisconsin Department of Natural Resources (WDNR) has inventory maps for each town that identify wetlands two acres and larger. The wetland inventory map should be consulted in conjunction with this document whenever the town reviews development proposals in order to identify wetlands and to ensure their protection from development. Wetlands located in Delta are shown on Map 5-2, Water Features and Map 5-3, Environmental Features.

The Bibon Marsh, located just east of Delta in the Town of Mason, is the largest wetland in Bayfield County and is afforded protection as the Bibon Swamp State Natural Area. Land use in the Town of Delta is important to this wetland, as a portion of the White River watershed is located within the town. This wetland occupies the basin of a glacial lake bed and displays a high level of ecological diversity. Several rare and state-listed threatened species are found within the marsh, and some forested portions contain trees that are more than 150 years old.

5.9 Floodplains

For planning and regulatory purposes, floodplain is normally defined as those areas, excluding the stream channel, that are subject to inundation by the 100-year recurrence interval flood event. This event has a 1% chance of occurring in any given year. Because of this chance of flooding, structural development in the floodplain should be discouraged. Floodplain includes the floodway and flood fringe. The floodway is the portion of the floodplain that carries rapidly flowing water, while the flood fringe is the portion of the floodplain outside the floodway, generally associated with standing water. Park and open space uses may be permitted in the flood fringe.

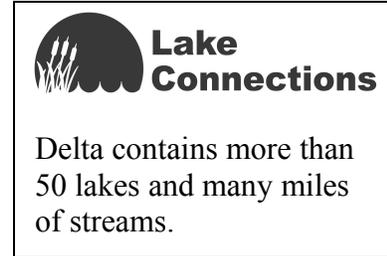
Wisconsin Statute 87.30 requires Counties, Cities, and Villages to implement floodplain zoning. The Bayfield County Zoning Department enforces a Floodplain Zoning Ordinance. This ordinance strictly regulates development within the floodplain. In addition, the Federal Emergency Management Agency (FEMA) has developed flood hazard data. Under the authority of the National Flood Insurance Act of 1968, FEMA conducted studies to determine the location and extent of floodlands and the monetary damage risks related to the insurance of urban development in floodland areas. The 100-year floodplain areas for the unincorporated areas of Bayfield County have been delineated by FEMA.

Floodplains are present in the Town of Delta in association with the White River and some of its tributaries and connected lakes. In addition to the main channel of the White River, the South and East Forks of the White River have floodplain identified on FEMA maps. Along the South Fork, Lake Two is also shown as having floodplain. In association with the East Fork, Bear, Delta, Everett, and Hay Lakes all have areas of floodplain along their shores. Floodplains within the town are relatively narrow and usually found in conjunction with wetland areas. Floodplains in Delta are shown on Map 5-2, Water Features.

The Town of Delta received FEMA disaster relief funds in 1999 and 2001 due to flooding situations. Early spring rains overwhelmed the still frozen road ditches, washing out several roads and culverts.

5.10 Surface Water Features

The Town of Delta is rich in surface water resources, and the vast majority of existing development is centered around the town's 50 plus lakes. The town's lakes are generally small to medium sized and occupy a total of approximately 1,800 acres. These lakes vary widely from wild 5 acre, 50 foot deep glacial potholes to 180 acre drainage lakes ringed with cottages and resorts. Table 5-1 displays a list of DNR identified lakes found in the Town of Delta. The public access information in this table has been updated by the Town Plan Commission. Map 5-2 displays lakes, rivers, and streams found in the town.



The surface waters of the Town of Delta include many unique and pristine resources. Several of the town's lakes form the headwaters of the White River – one of the primary sources of water for the Bibon Marsh State Wildlife Area. This wildlife area, as well as the Iron River watershed, are both considered critical to the integrity of the Lake Superior ecosystem. The Town of Delta is also home to Bollen Creek – an Exceptional Resource Water and class I trout stream. The *Lake Superior Basin Water Quality Management Plan* (1999) identifies the White River as an “aquatic priority site” exhibiting high species diversity. The *Bayfield County Critical Resource Information Booklet* (1975) identified the following “potentially critical resources” within the Town of Delta:

- ◆ The White River watershed
- ◆ Cold water environments
- ◆ Rainbow Lake
- ◆ Beaver Lake
- ◆ Bullhead Lake
- ◆ Steelhead Lake
- ◆ Trout Lake

Table 5-1: Lake Descriptions, Town of Delta, 2001

Lake Name	Surface area (acres)	Maximum depth (feet)	Public access	Water source	Abundent and common fish species
Bass Lake	76	43	boat ramp	seepage	panfish
Basswood Lake	119	9	trail	spring	N. pike, panfish
Bear Lake	32	18	trail	drainage	N. pike, panfish
Beaver Lake	19	39	trail	seepage	
Bell Lake	14	35		seepage	panfish
Bellevue Lake	65	45	boat ramp	seepage	N. pike, panfish
Bog Lake	12	13	roadside	spring	LM bass
Bullhead Lake	7	46		seepage	panfish
Camp One Lake	37	40	boat ramp	seepage	panfish
Camp Two Lake (46-7)	4	53		seepage	
Camp Two Lake (46-8)	23	39	trail	seepage	panfish
Canthook Lake	34	38		seepage	panfish
Carson Pond	5	12		spring	panfish
Deep Lake	13	61		seepage	panfish
Delta Lake	180	30	boat ramp	drainage	
Eagle Lake	170	52	navigable	drainage	muskie, LM bass
Echo Lake	no data				
Everett Lake	34	55		seepage	
Flynn Lake	29	9	navigable	drainage	
Frog Lake	8	8	wilderness	seepage	
Getsey Lake	19	20		seepage	panfish
Happles Lake	24	36	trail	seepage	
Hay Lake	59	21		drainage	N. pike, LM bass
Heart Lake	24	19		seepage	walley, panfish
Hilder Lake	67	66	roadside	drainage	
Hollibar Lake	7	20		seepage	
Inch Lake	31	41		seepage	
Kern Lake	91	21		seepage	panfish
Lemon Lake	6	40	roadside	seepage	
Lester Lake	24	44	trail	seepage	panfish
Line Lake	8	18	wilderness	seepage	LM bass, panfish
Little Phantom Lake	no data				
Mud Lake (46 -7)	8	8	wilderness	seepage	
Mud Lake (46-8)	no data				
Muskellunge Lake	44	33		seepage	N. pike
Mystery Lake	14	13		seepage	
Phantom Lake	44	35		seepage	panfish
Rainbow Lake	14	21	wilderness	seepage	
Ruth Lake	66	30	boat ramp	seepage	N. pike, LM bass, panfish
Sawmill Lake	12	45		seepage	
Silver Lake	26	51	trail	seepage	LM bass, panfish
Spirit Lake	35	30		seepage	panfish
Square Lake	3	9	wilderness	seepage	
Steelhead Lake	17	51		seepage	LM bass, panfish
Swede Lake	27	35	wilderness	seepage	
Toothpick Lake	7	20	trail	seepage	LM bass, panfish
Tower Lake	13	54	wilderness	seepage	LM bass
Trout Lake	14	39		seepage	LM bass, trout
Tub Lake	11	31	boat ramp	seepage	LM bass, panfish
Twin Bear Lake	172	59	boat ramp	seepage	N. pike, walleye
Two Lake	8	7	trail	drainage	trout
Unnamed lakes	23	7	various	various	
West Lake	11	17	wilderness	seepage	panfish
Wolf Lake	12	27		seepage	
	1822				

Source: Wisconsin Department of Natural Resources, 2001 Revision to Wisconsin Lakes Book. Town of Delta.

Map 5-2, Water Feature Data

5.11 Groundwater Quality

Groundwater is the source of all drinking water in the Town of Delta. Groundwater is a limited resource, and both its quality and quantity are important factors. These factors are primarily influenced by local geology and local land use. Precipitation percolates through the soil and bedrock where it eventually reaches a saturated zone known as an aquifer. It is from these aquifers that wells draw their water.

Groundwater in the Town of Delta is generally abundant and of good quality. Two primary aquifers are present in the town: the sand and gravel aquifer and the crystalline rock aquifer. The sand and gravel aquifer is present throughout the town at varying depths below the ground surface. This aquifer is easily accessible, but it is also the most easily contaminated. The crystalline rock aquifer is a deep aquifer and is also found throughout the town. The crystalline rock aquifer yields low to moderate amounts of water, but is generally less susceptible to contamination. The sand and gravel aquifer generally supplies adequate water in the town, but where this aquifer is not available, wells must draw from the deeper crystalline rock.

Groundwater contamination is most likely to occur where fractured bedrock is near the ground surface, or where only a thin layer of soil separates the ground surface from the water table. Soils are relatively deep in the Town of Delta, so shallow depth to the water table combined with highly permeable soil is the more likely scenario. Potential sources of groundwater contamination include:

- ◆ Chemical storage
- ◆ Landspreading of sewage treatment plant sludge
- ◆ Road salt usage and storage
- ◆ Animal feedlots
- ◆ Use and spillage of fertilizers and pesticides
- ◆ Accidental spills
- ◆ Septic tanks and drainfields
- ◆ Underground storage tanks
- ◆ Underground pipelines and sewers
- ◆ Landfills
- ◆ Mines, pits, and quarries

According to the map, *Groundwater Contamination Susceptibility in Wisconsin* (DNR/USGS/WGNHS, 1989), potential for groundwater contamination in the Town of Delta varies widely (see Map 5-3). In central Delta (shown in red hatch on Map 5.3), sandy, rapidly permeable soils and shallow depth to groundwater pose a very high risk for contamination. This portion of the town is comparable to the “Central Sands” region of Wisconsin (Portage, Waushara, Wood and Adams Counties) which is considered one of the highest risk areas for groundwater contamination in the state. To the other extreme, in the eastern portion of the town, where heavier silt loam and clay soils are present, there is very little risk of groundwater contamination. In the western and southern areas of Delta, the risk is moderately high.

5.12 Environmentally Sensitive Areas

Environmentally sensitive areas contain natural features that are unique, that serve special functions, or are easily impacted by intensive land uses. Such unique, functional, and sensitive features in the Town of Delta include:

- ◆ Small to medium sized lakes
- ◆ Large blocks of contiguous forest
- ◆ Trout streams
- ◆ Easily contaminated groundwater
- ◆ Rare, threatened, and endangered species
- ◆ Wetlands and floodplains
- ◆ State designated Natural Areas

These features are found throughout the landscape of the Town of Delta and are shown on Map 5-3, Environmental Features.

5.13 Threatened and Endangered Species

The Wisconsin Department of Natural Resources (WDNR) lists species as “endangered” when the continued existence of that species as a viable component of the state’s wild animals or wild plants is determined to be in jeopardy on the basis of scientific evidence. “Threatened” species are listed when it appears likely based on scientific evidence that the species may become endangered within the foreseeable future. The WDNR also lists species of “special concern” of which some problem of abundance or distribution is suspected but not yet proven; the intent of this classification is to focus attention on certain species before becoming endangered or threatened.

The WDNR maps threatened and endangered species occurrences on a general level for planning purposes. According to the Department, threatened and endangered species occurrences are abundant in the Town of Delta. Threatened and endangered aquatic species have been identified in association with the central lakes area and with the White River within the town. Threatened and endangered terrestrial species are found primarily in the forest lands of southwestern Delta within the National Forest. See Map 5-3 for general locations of threatened and endangered species.

5.14 Wildlife Habitat and State Natural Areas

Wildlife habitat is defined as the presence of enough food, cover, and water to sustain a species. The Delta landscape provides habitat for a variety of plants, birds, mammals, amphibians, reptiles, and fish including many rare, threatened, and endangered species. Unique and critical habitat communities present within the town include:

- ◆ Natural shorelines of lakes and streams
- ◆ Large, uninterrupted blocks of forest
- ◆ Wetlands and floodplains
- ◆ Jack pine savannas (pine barrens)

The WDNR also identifies State Natural Areas, which are defined as tracts of land in a natural or near natural state, which are managed to serve several purposes including scientific research, teaching of resource management, and preservation of rare native plants and ecological communities.

- The Sadjak Springs State Natural Area, designated in 1981, is located in the Town of Delta within the White River State Fishery Area. Sadjak Springs features soft water springs that feed a small trout stream, and eventually, the White River.
- Inch Lake State Natural Area covers 626 acres and features two undeveloped lakes surrounded by wetlands and rolling upland forest. The property abuts the Chequamegon-Nicolet National Forest to the south. Inch Lake is a 31-acre undeveloped, soft-water seepage lake containing largemouth bass, yellow perch, and panfish. The 41-foot deep lake is classified as a “wild lake”, an increasingly uncommon feature as development pressure intensifies in northern Wisconsin. No motors are allowed and only artificial lures may be used. These special regulations will provide important research opportunities related to fishing. Surrounding the southern portion of Inch Lake is a diverse northern mesic forest dominated by red pine, red oak, and aspen. Canopy associates include white spruce, white pine, and paper birch. The shrub layer contains abundant American hazelnut and sugar maple saplings. Understory species include Indian pipe, sweet fern, interrupted fern, and blueberries. North of the lake is a northern dry-mesic forest dominated by large red pine and red oak with a diverse ground flora. Species include bracken fern, wood betony, big-leaved aster, thimbleberry, American starflower, and wild sarsaparilla. The site also features scattered wetland depressions vegetated with wool grass, leather leaf, and sphagnum moss. Hildur Lake is a 66-acre hard-water drainage lake on the lower end of the Pike Lake chain. The lake and associated spring pond are the headwaters of the White River. The lake bottom is primarily gravel with a few scattered areas of sand and muck. Fish include northern pike, largemouth bass, muskie, yellow perch, bluegill, and crappie. Surrounding the lake is a narrow band of leatherleaf and alder with uplands comprised of mixed northern hardwoods. Rolling topography to the east supports a northern dry-mesic forest dominated by red pine with red oak and sugar maple. In addition, this area contains a diversity of other natural community types including a small wetland that supports nesting common loons. Bald eagles also occur here. Inch Lake was designated a State Natural Area in 2006.

5.15 Historic and Cultural Resources

Historic Places

The Wisconsin Architecture & History Inventory (AHI), provided by the Wisconsin Historical Society lists historical and architectural information on properties in Wisconsin. The AHI contains data on buildings, structures and objects that illustrate Wisconsin’s unique history. The majority of properties listed are privately owned. Listed properties convey no special status, rights or benefits.

The Town of Delta has 7 sites listed on the AHI, but only 4 of these remain standing. An historic rail bridge over the White River and County Road H has since been removed. The Delta and Sutherland Schools have deteriorated and collapsed. The four remaining properties include the Delta Town Hall, St. Paul’s United Church of Christ, the White Elephant and Delta Lodge. Delta Lodge is the town’s oldest building, and the White Elephant is what remains of a large structure built in the early 20th century to house an agricultural experiment. This building has been

converted to apartments. The structure that is now the Delta Town Hall was once the Pike River School and has since been structurally modified. The original school bell from this structure is now housed next to the town hall in its own shed. The intact sites may be candidates for inclusion in an official historic register

The National Register of Historic Places recognizes properties of local, state and national significance. Properties are listed in the National Register because of their associations with significant persons or events, because they contain important information about history or prehistory, or because of their architectural or engineering significance. The National Register also lists important groupings of properties as historic districts. In addition, the National Park Service highlights properties that have significance to the nation as a whole by conferring them the status of National Historic Landmark.

The Wisconsin State Register of Historic Places parallels the National Register. However, it is designed to enable state-level historic preservation protection and benefits. Most of the properties in Wisconsin listed in the National Register are also listed in the State Register. No historic places within the Town of Delta are currently listed on the National or State Register.

Additional information on the history of the Town of Delta is available in two books. *The History of Delta, Wisconsin, 50 Years, 1924-1974* is a booklet compiled by town residents, Shirlene Meyer and Carol Wuennecke, and a copy is included in this plan as Appendix A. The second book is *Growing Up in a Country Store, Memories and History of Delta and Ino, Wisconsin*, copyright 2006 by Pat Sykes Musil, Bill Meyer and Zoe von Ende Lappin.

Archeological Sites

The Wisconsin Archeological Site Index (ASI) is maintained by the Office of the State Archeologist. Similar to the AHI, these sites have no special status, rights or benefits. However, should a state or federally sponsored project potentially impact these sites, a complete archeological survey would need to be conducted before the project could proceed. It should also be noted that all burial sites are granted protection from disturbance by both public and private actions by Wis. Stats. Chapter 157.

The ASI lists 20 sites of archeological significance within the Town of Delta. Included are the Delta Cemetery, 2 sites of unknown origin, and many logging camps. One of the most significant sites is a logging camp known as the White River Camp. This site was later used to construct the Delta Civilian Conservation Corp camp which was operated from 1935 to 1942.

Cultural Resources

Bayfield County has a number of museums and historical sites, and although none are located in the town, some are within a relatively close distance and attract tourists and seasonal visitors to the area. The following sites are all open to the public:

- ◆ Apostle Island lighthouses and sites of historical significance
- ◆ Apostle Islands National Lakeshore Museum, Bayfield

- ◆ Bayfield Heritage Association Museum, Bayfield
- ◆ Bayfield Maritime Museum, Bayfield
- ◆ Cable Natural History Museum, Cable
- ◆ Drummond Historical Museum, Drummond
- ◆ Hokenson Brothers Fishery Museum, Town of Russell
- ◆ Lakeview School Museum, Madeline Island
- ◆ Madeline Island Historical Museum, Madeline Island
- ◆ Mason Historical Museum, Mason
- ◆ Northern Great Lakes Visitor Center, Town of Eileen
- ◆ Washburn Historical Museum & Cultural Center, Washburn
- ◆ Western Bayfield County Museum, Iron River

Map 5-3, Environmental Features

5.16 Agricultural, Natural, and Cultural Resources Goals and Objectives

Community goals are broad, value-based statements expressing public preferences for the long term (20 years or more). They specifically address key issues, opportunities, and problems that affect the community.

Objectives are more specific than goals and are measurable statements usually attainable through direct action and implementation of plan recommendations. The accomplishment of objectives contributes to fulfillment of the goal.

Goal 1) Preserve the pristine quality of surface water and groundwater resources for current and future generations in the Town of Delta.

Supporting Objectives:

- ◆ Evaluate the potential impact of development proposals on groundwater quality and quantity.
- ◆ Evaluate the potential impact of development proposals on surface water quality.
- ◆ Support efforts to identify features in the town that are critical to the quality of natural resources including: groundwater recharge areas, exceptional resource waters and their watersheds, trout streams and their watersheds, steep slopes, and areas that are highly susceptible to groundwater contamination.
- ◆ Encourage the development of comprehensive lake management plans which include surveys, assessment and monitoring, and recommendations for restoration and improvement.
- ◆ Encourage the formation of lake and river associations and support the activities of such associations whenever they are consistent with the *Town of Delta Year 2030 Comprehensive Plan*.
- ◆ Support data collection and monitoring of surface water quality in the town by lake organizations, citizen volunteers, and appropriate regulatory agencies.
- ◆ Consider coordinating town-wide efforts to identify and address ongoing water quality and water recreational use issues.
- ◆ Consider coordinating efforts to identify potential aquatic habitat areas for WDNR sensitive area designations.

Goal 2) Support further development of underutilized resources while minimizing potential negative impacts and maintaining consistency with the character of the Town of Delta.

Supporting Objectives:

- ◆ Support requests for properly located and responsibly operated non-metallic mines in the town.
- ◆ Support efforts to enhance recreational uses that are compatible with existing recreational uses on public and private lands within the Town of Delta.
- ◆ Encourage the continuation and expansion of the forest products industry in the local and regional economy.
- ◆ Support continued and expanded agricultural uses in the Town of Delta by preventing fragmentation of open space and maintaining agricultural zoning.

Goal 3) Maintain, preserve, and enhance the town's natural environment, forested lands, open spaces, and wild lands.

Supporting Objectives:

- ◆ Support forest management practices that ensure a balance between timber harvest and recreational uses.
- ◆ Maintain involvement with publicly owned forest lands and provide input to the WDNR and U.S. Forest Service regarding forest management decisions on public lands within the town.
- ◆ Work cooperatively with the WDNR and U.S. Forest Service in sponsoring workshops and educational materials regarding sound forest management practices and programs.

Goal 4) Maintain and enhance the town's remote and natural atmosphere which contributes to the quality of life.

Supporting Objectives:

- ◆ Identify and preserve those scenic views and vistas that characterize Delta.
- ◆ Encourage residential lots sizes to be greater than 4.5 acres in order to maintain the rural character in the town.
- ◆ Develop design guidelines that require commercial and industrial uses to address aesthetic impacts through attractive building style and materials, prevention of light trespass, landscaping, hidden parking, attractive signage, shared highway access points, and functional pedestrian access.

- ◆ Support Bayfield County regulations that apply to billboards and consider adopting local standards for signs that preserve the character of the town.

Goal 5) Preserve significant historic and cultural lands and structures that contribute to community identity and character.

Supporting Objectives:

- ◆ Work cooperatively with property owners, Bayfield County, local historical societies, and other appropriate organizations to identify, record, and protect lands, sites, rustic roads, and structures with historical or cultural significance.
- ◆ Promote the history of Delta and aspects of the town that have helped to define its culture and heritage.
- ◆ Encourage the adaptive re-use of historic structures and record their history.

5.17 Agricultural, Natural, and Cultural Resources Policies and Recommendations

Policies and recommendations build on goals and objectives by providing more focused responses to the issues that the town is concerned about. Policies and recommendations become the tools that the town can use to aid in making land use decisions.

Policies identify the way in which activities are conducted in order to fulfill the goals and objectives. Policies that direct action using the words “will” or “shall” are advised to be mandatory and regulatory aspects of the implementation of the *Town of Delta Year 2030 Comprehensive Plan*. In contrast, those policies that direct action using the word “should” are advisory and intended to serve as a guide.

Recommendations are specific actions or projects that the town should be prepared to complete. The completion of these actions and projects is consistent with the town’s policies, and therefore will help the town fulfill the comprehensive plan goals and objectives.

Policies

- ◆ The Town of Delta will direct future development to areas that minimize negative impacts to productive forests, farmland, unique historic and cultural features, and environmentally sensitive areas including wetlands, floodplains, and surface waters.
- ◆ The Town of Delta will work cooperatively with lake associations to resolve surface water use issues (watercraft regulations, balancing quiet uses with powered uses, etc.), as the ability of the town to address these issues directly is limited.

Recommendations

1. Host an informational meeting to provide area lake organizations with an opportunity to learn about available water quality programs such as Citizen Self-help Lake Monitoring, Sensitive Area Designations, and Lake Protection and Planning Grants.

5.18 Agricultural, Natural, and Cultural Resources Programs

The following programs could be utilized by the town to help advance agricultural, natural, and cultural resource goals and objectives. The following list is not all-inclusive. For specific information on a listed program the program sponsor should be contacted directly.

Bad River Watershed Association (BRWA)

The mission of the Bad River Watershed Association is to promote a healthy relationship between the people and natural communities of the Bad River watershed by involving all citizens in assessing, maintaining and improving watershed integrity for future generations. The White River watershed covers a large area in the westernmost reaches of the Bad River Watershed. Originating in a chain of lakes around Delta, Wisconsin the river flows through the Bibon Swamp State Wildlife Area. Bad River Watershed Association volunteers conduct water sampling that includes monthly chemistry and twice-annual macro-invertebrate surveys. Volunteers are processing a watershed-wide culvert inventory and in collaboration with local governments provide funding for replacement of culverts that block fish passage or create an erosion problem.

Chequamegon Community Supported Agriculture (CSA)

Community Supported Agriculture organizations provide small to medium sized farms with direct marketing opportunities in their local communities. The Chequamegon CSA is a group of farms located throughout the region that are committed to sustainable organic agriculture practices. Since 1995, the Chequamegon CSA has provided customers with weekly deliveries of locally grown fruits, vegetables, herbs, and flowers. The CSA has delivery sites in Ashland, Washburn, Bayfield, Cornucopia, Port Wing, La Pointe, Iron River, and Superior. For information on this program, contact Jenny Mahan at (715) 372-5762 or marshmeadows@cheqnet.net.

Non-Point Pollution Abatement Program

Funds are available to improve water quality by limiting or ending sources of non-point source (run-off) water pollution by providing financial and technical assistance to landowners, land operators, municipalities, and other governmental units. Governmental units within designated priority watersheds and priority lakes are eligible to apply. Eligible projects are watersheds and lakes where: 1) the water quality improvement or protection will be great in relation to funds expended; 2) the installation of best management practices is feasible to abate water pollution caused by non-point source pollution; and 3) the local governmental units and agencies involved are willing to carry out program responsibilities. Efforts are focused statewide in critical watersheds and lakes where non-point source related water quality problems are most severe and control is most feasible. A watershed or lake project normally has a 10-12 year time frame - two

years for planning and eight to ten years to implement best management practices. Contact the WDNR Regional Environmental Grant Specialist for further information.

Stewardship Grants for Nonprofit Conservation Organizations

Funds are available for the acquisition of land or easements for conservation purposes and restoration of wildlife habitat. Nonprofit conservation organizations are eligible to apply. Priorities include acquisition of wildlife habitat, acquisition of lands with special scientific or ecological value, rare and endangered habitats and species, acquisition of stream corridors, acquisition of land for state trails including the Ice Age Trail and North Country Trail, and restoration of wetlands and grasslands. Eligible types of projects include fee simple and easement acquisitions and habitat restoration projects. Contact the WDNR for further information.

Wetlands Reserve Program (WRP)

The purpose of WRP is to restore wetlands previously altered for agricultural use with the goal being to improve wildlife habitat. Land which has been owned for one year that can be restored to wetland conditions is eligible. Landowners may restore wetlands with permanent easements, 30-year easements, or 10-year contracts. Permanent easements pay 100% of the agricultural value of the land and 100% cost-sharing; 30-year easements pay 75% of the agricultural value and 75% cost sharing; 10-year contracts pay 75% cost share only. Public access is not required. Contact the USDA Natural Resources Conservation Service for additional information.

Wildlife Habitat Incentives Program (WHIP)

The purpose of WHIP is to develop or improve fish and wildlife habitat on privately owned land. Practices include seeding, fencing, instream structures, etc. Almost any type of land is eligible including agricultural and non-agricultural land, woodlots, pastures, and streambanks. Normally a 10 year contract is required to maintain the improved habitat. Up to 75% of restoration costs, to a maximum of \$10,000, may be awarded. Public access is not required. Contact the USDA Natural Resources Conservation Service for additional information.

Wisconsin's Historical Markers Program

For almost 50 years, Wisconsin's State Historical Markers program has been making known both important small incidents and monumental events that form the state's past. Placed on the very site where significant events occurred, markers evoke an immediacy of the past that no history book can provide. The Wisconsin State Historical Society's Division of Historic Preservation administers the Wisconsin Historical Markers Program. Applications are required for all official State of Wisconsin historical markers and plaques. Applications are available at www.wisconsinhistory.org/histbuild/markers/apply.



Lake Connections

The following are lakes related programs...

Self-Help Citizen Lake Monitoring

Self-Help Volunteer Lake Monitors have played an integral part of the Wisconsin lake-scape since 1986 by collecting vital information on water quality. Citizens who live on their lakes and know their lakes better than anyone else have volunteered on behalf of their lake and their communities in a partnership with the Department of Natural Resources. This concept was so successful that Self-Help Citizen Lake Monitoring was expanded to include volunteer opportunities for chemistry, dissolved oxygen monitoring, and aquatic plant surveys. Since its beginning, over 3200 volunteers have participated in the program, monitoring over 1000 different lakes.

Lake Management Planning Grants

Lake planning grants provide funding for the lake management planning process. Small scale lake planning grants of up to \$3,000 are available for use in obtaining and disseminating basic lake information, conducting education projects, and developing management goals. These grants are ideal for lake groups just beginning the planning process or for activities that supplement an existing plan.

Large scale lake planning grants up to \$10,000 per project are available for bigger projects. The intent of the large-scale program is to conduct technical studies to help develop elements of, or complete, comprehensive management plans. Depending on the condition and needs of the lake, the plan will specify activities, for example, related to minimizing the impact of future development, managing user conflicts, improving fishing, or improving water quality.

Lake Protection Grants

Lake protection grants provide funding for implementing the recommendations of a management plan. As one progresses from planning to implementation, the costs and the time involved increase. Because implementation is more expensive, protection grants are available for up to \$200,000 per project.

Sensitive Area Designations

Definition of a Sensitive Area as stated in Chapter NR 107.05(3)(i)(1.) is an area of aquatic vegetation identified by the WDNR as offering critical or unique fish and wildlife habitat, including seasonal or lifestage requirements, or offering water quality or erosion control benefits to the body of water. Sensitive areas have been designated under this rule on lakes in Vilas, Langlade, Lincoln, and Bayfield Counties.