Introduction to Natural, Cultural, and Agricultural Resources

The natural features in Suamico, including the bayshore, Suamico River, large stands of woodlands, varied terrain, and the estuaries of the West Shore wetlands, all combine to help create the rural character that the Village residents wish to maintain. These natural features also continue to attract increasing numbers of new residents and new development. In order for the Village to maintain the features that make Suamico desirable to both new and existing residents alike, the Village must strike a balance between development and the natural environment. This chapter will examine ways to build upon these resources to establish and promote a community identity, while at the same time preserving the land and the rural character that the residents enjoy.

Inventory and Analysis

1. Soils

Soil is one of the major building blocks of the environment. Soil is the interface between what lies above the ground and what lies underneath. The relationships between soil and agriculture are obvious. However, the relationships between soil and other land uses, while almost as important, are oftentimes less apparent. In Brown County, as elsewhere in North America, little attention is given to soils in regard to the location and type of future development. Among the reasons for this is the complacency by many that modern engineering technology can overcome problems associated with soils. While this is true, the financial and environmental costs associated with overcoming soil limitations can often be prohibitive.

Glaciation is responsible for the general soil conditions found in the area. Unlike areas unaffected by glaciations where soils are formed by the weathering of local bedrock, Suamico's soils are composed of glacially eroded rock material that was carried by ice sheets or from surface material that was pushed by the advance of the glacier. When the glacial advance stopped, the ice sheets melted and deposited the materials it had carried over the area. These deposited materials are called glacial till or outwash and, together with other soil forming factors, including vegetation, have formed the soil that covers the Village today. According to the Soil Survey of Brown County, Wisconsin, there are three major soil associations present in the Village of Suamico. A soil association is "a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils, at least one minor soil, and is named for the major soils." The major soil associations found in Suamico are Tedrow-Roscommon, Shawano-Tedrow- Roscommon, and Shawano-Boyer-Sisson.

Tedrow-Roscommon

The Tedrow-Roscommon association consists of deep, somewhat poorly drained and poorly drained nearly level soils that have sandy subsoil and are located on glacial lake and outwash plains. These soils typically have a very high water table during wet periods, are poorly suited for crops, and generally have severe limitations for home sites due to the high water table. This soil series is primarily located in the eastern one-third of the Village adjacent to the bay of Green Bay.

Shawano-Tedrow-Roscommon

The Shawano-Tedrow-Roscommon soil association covers the north-central part of the Village. This association consists of deep, excessively drained to poorly drained, nearly level to steep soils that have a sandy subsoil and are located on glacial lake and outwash plains and ridges. Due to the soils'

sandy nature, they are susceptible to wind erosion and are generally not very conducive to crops. However, they are among the best in the county for development purposes.

Shawano-Boyer-Sisson
The Shawano-Boyer-Sisson series are deep, excessively drained and well drained soils, are nearly level to steep soils that have a sandy and loamy subsoil and are located on glacial outwash plains and ridges and glacial lake plains. Use of these soils varies greatly in the County, ranging from cropland and woodland to residential and industrial development. The Shawano-Boyer-Sisson soil association is generally located in the southwestern one-third of the Village.

2. Prime Farmland

The Soil Survey of Brown County, Wisconsin, defines prime farmland as soils with capability classes of I and II. Class I soils have few limitations that restrict their use, while Class II soils have moderate limitations that reduce the choice of crops or that require moderate conservation practices. Based on the inventory of the soil survey, very little of Suamico is considered prime farmland. The few areas that are considered prime farmland, primarily southwest of the CTH B/USH 41/141 interchange, are already developed.

3. Productive Agricultural Lands

The Brown County Farmland Preservation Plan identifies Brown County's farmlands as irreplaceable resources that are necessary to the continued well-being of the County's economy. The plan further states that the protection of these farmlands and orderly rural and urban growth are deemed to be in the broad public interest.

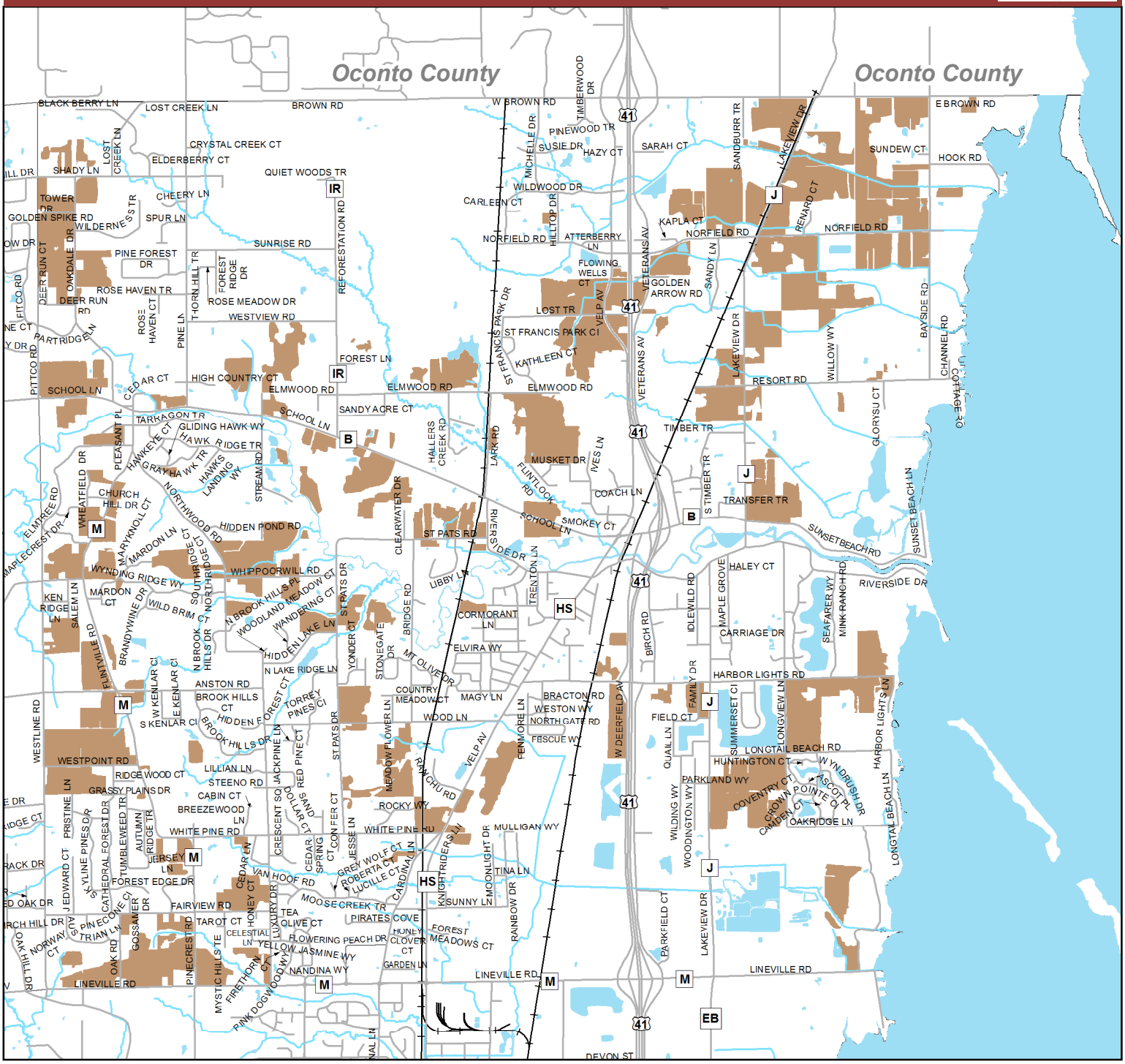
Although agricultural uses still account for over 3,807.1 acres of land in Suamico, this acreage has continued to decrease. Between 1980 and 2013, agricultural land decreased by 68.2 percent in the Village of Suamico, resulting in a loss of 8,159.9 acres. Much of the land taken out of production has been converted to residential development or is no longer being actively farmed and is lying fallow.

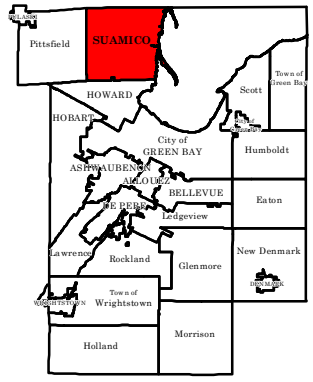
There are multiple factors that define productive agricultural lands. Soils are included if they are defined as being prime farmland without any limitations in the Soil Survey of Brown County, Wisconsin. If a soil is prime farmland but currently in a developed state, it is not included. Also included are those soils that are currently in a productive state, regardless of prime farmland classification. Suamico's remaining productive agricultural lands are mapped in Figure 7-1.

Figure 7-1

Productive Agricultural Lands

Village of Suamico, Brown County, WI





Legend

Agricultural

0 0.5 1 Miles

N W E S

Source: Brown County Land Use Inventory 2010
Updated 2013

This is a compliation of records and data located in various Brown County and City of Green Bay offices and is to be used for reference purposes only. The map is controlled by the field measurements between the corners of the Public Land Survey System and the parcels are mapped from available records which may not precisely fit field conditions. Brown County / City of Green Bay are not responsible for any inaccuracies or unauthorized use of the information contained within. No warranties are implied.

Map prepared by Brown County Planning Commission Staff
August 2013

4. Surface Water

Surface water is one of the most important natural resources available in a community. Surface waters provide recreational opportunities, as well as peace and solitude to anglers, boaters, hunters, water skiers, swimmers, and casual observers alike. Some surface waters provide an end source for drainage after heavy rains, provide habitat for countless plants, fish, and animals, and can be a source of drinking water for communities and a source of process water for industry and agriculture. Lands immediately adjacent to such waters have an abundance of cultural and archeological significance because they were often the location of Native American and early European settlements.

There are many miles of perennial streams in the Village of Suamico. These streams have many scenic and recreational values. Many of the ephemeral streams and wetlands in Suamico, which are some of our most important surface water resources, do not always show up on maps and are more difficult to protect by state and federal statutes. Yet, ephemeral (intermittent) waterways provide sites for infiltration of surface water into groundwater reservoirs and provide habitat for many plants and animals. Small intermittent waterways and wetlands are where most nutrients and many contaminants enter the waters that are used for drinking and recreation.

Sheetflow, which is simply water that flows across the land surface after a rainfall, can also be considered a surface water resource, and how it is managed is very important. As water flows across the surface of the land, it picks up nutrients and contaminants, and these dissolved substances are then carried into larger surface water bodies and into our groundwater. In many places in the Village of Suamico, groundwater is only a few feet below the surface of the land, and the soil (often Tedrow-Roscommon) is very sandy. As a result, anything applied to the land's surface almost immediately enters our groundwater.

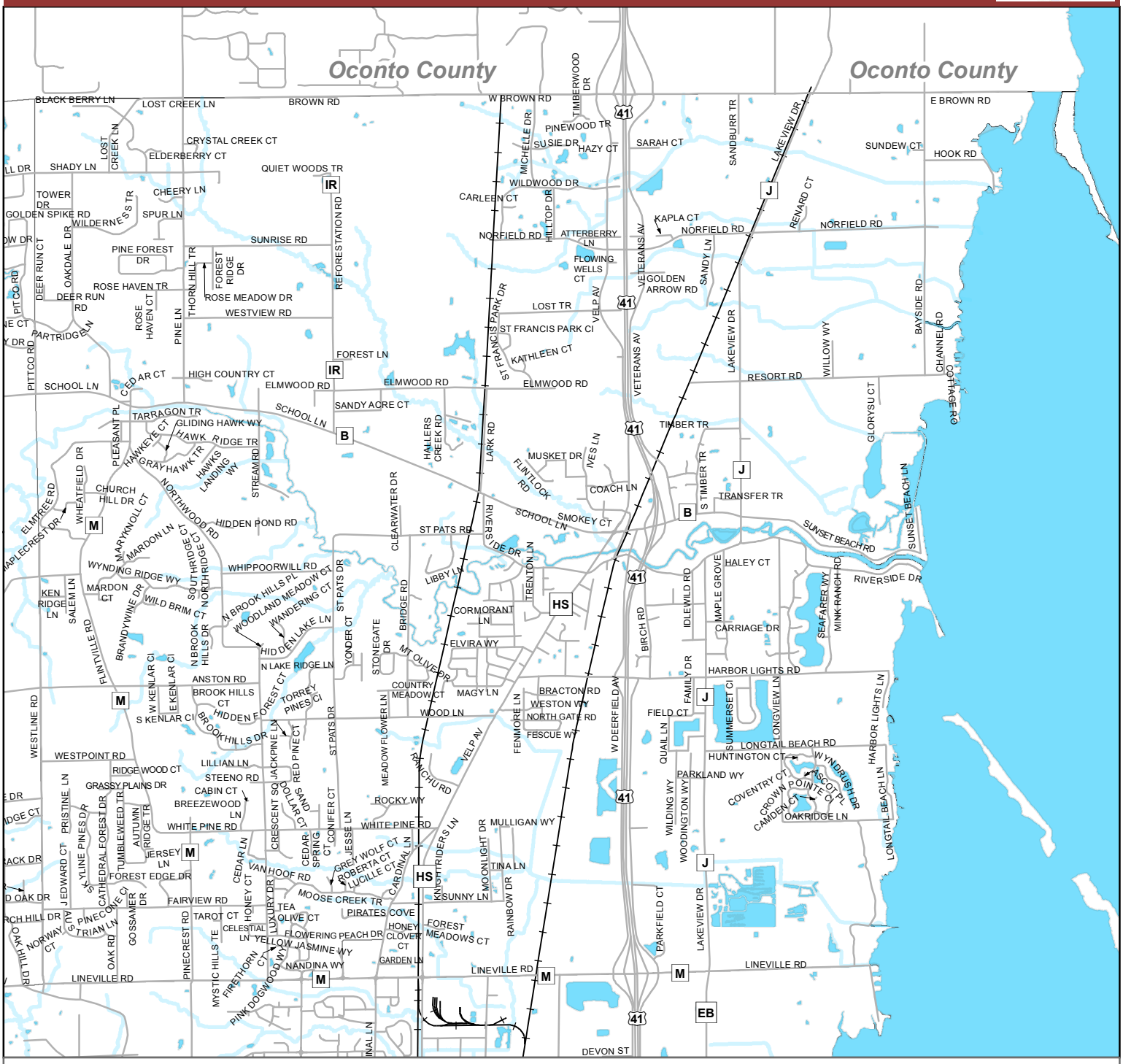
Because of the importance of surface waters, numerous federal, state, and local laws and regulations have been created to protect them. They range from the commerce clause of the United States Constitution to county floodland zoning regulations. The most heavily regulated waters are those that are determined to be natural and "navigable." On the other hand, ephemeral waterways not considered navigable and ephemeral wetlands are poorly protected by state and federal statutes and need protection at a more local level.

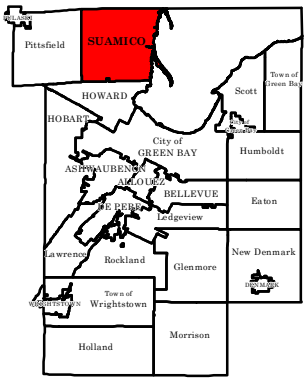
As shown in Figure 7-2, the primary surface water features in the Village of Suamico are the bay of Green Bay, Suamico River, and Haller Creek. In addition to these three resources, the Village also has a number of small unnamed streams, ditches, and man- made lakes that are also considered surface water resources. The protection and preservation of the Village's surface waters should be one of its highest natural resources priorities. While this action is important for all of the Village's surface waters, particular focus should be provided to the Suamico River, Haller Creek, and bayshore areas in order to re-establish these waters as a primary benefit and attraction of the community.

Figure 7-2

Surface Water

Village of Suamico, Brown County, WI





Legend

Surface Water

0 0.5 1

Miles

N

W E

S

This is a compliation of records and data located in various Brown County and City of Green Bay offices and is to be used for reference purposes only. The map is controlled by the field measurements between the corners of the Public Land Survey System and the parcels are mapped from available records which may not precisely fit field conditions. Brown County / City of Green Bay are not responsible for any inaccuracies or unauthorized use of the information contained within. No warranties are implied.

Map prepared by Brown County Planning Commission Staff
August 2013

Bay of Green Bay

Beyond serving as the starting point for early settlement and transportation to the interior of Wisconsin and thus being rich in historical and archeological significance, the bay of Green Bay provides the largest potential for water-based recreational activities within Suamico with about 6 miles of shoreline plus the shorelines of Long and Little Tail Points. The bay is a hard water alkaline basin, and its bottom materials consist of very loose flocculent sediment. Its depth is an average of about 26 feet outside the shipping channel. Much of the western shore of the bay, including the Suamico bayshore, is relatively undeveloped due to large wetland complexes and publicly-owned parcels that cover much of the shoreline.

The water quality and fishery of the bay of Green Bay are heavily influenced by what occurs inland in connected streams and wetlands. This is true even though many of these connections occur only once a year. Each spring, due to spring precipitation and snow-melt, almost all streams and wetlands within the Village are directly connected to the bay of Green Bay proper. This temporary hydrologic connection provides an opportunity for fish to migrate upstream to spawn, and this annual flooding benefits reproduction of other aquatic life forms. Each spring, there is a huge pulse of biotic activity as fish spawn and amphibians and invertebrates hatch and then slowly drift downstream to the bay of Green Bay proper.

Water quality and even the water temperature of the bay of Green Bay are heavily influenced by input from connected wetlands and waterways. Input into streams that discharge into the bay have an almost immediate effect on the bay of Green Bay proper. The impact upon the Village of Suamico's portion of the southern bay of Green Bay is magnified because bay water circulation is in a counter-clockwise direction to the south of Points Sable and Long Tail. As a result, what enters the south end of the bay has a tendency to re-circulate south of Points Sable and Long Tail.

Commercial fishing (primarily for perch, whitefish, and lake trout) had long been a popular activity within the bay until high pollutant loadings to the Fox River and the southern portion of the bay became a significant and widespread problem by the late 1940s and early 1950s. However, recent studies have indicated that improvements in water quality have occurred and are most likely due to reduced point source pollution loading.

Water quality impairments to the lower bay of Green Bay include PCB fish consumption advisories, excessive levels of bacteria, and low levels of dissolved oxygen. Factors causing this bacteria and low levels of dissolved oxygen are varied and complex and are discussed in detail in the Lower Green Bay Remedial Action Plan but are generally attributable to nonpoint sources of pollution and leftover industrial sources of pollution. For these reasons, the lower bay of Green Bay has been identified by the Wisconsin Department of Natural Resources as Impaired Water, which means that it does not meet federal and state water quality standards. As the most damaging new pollutant load to the bay of Green Bay is from nonpoint sources, the Village has a stormwater utility and a stormwater ordinance was developed to ensure that stormwater runoff meets WDNR and EPA requirements. The Village may also wish to consider the creation of a stormwater utility district in order to finance the necessary stormwater management facilities.

Suamico River

The Suamico River is a tributary to the bay. It is a navigable river that flows westward 16 miles from its headwaters in Shawano and Outagamie Counties and through the middle of the Village to the bay. The river transitions from a clear, bubbling stream in the western portion of the

Village to a relatively sluggish, wide, and muddy stream near its mouth. The upper two-thirds has a rubble and gravel bottom containing many invertebrates and an abundance of crayfish. The easternmost portion of the river is classified as a Warm Water Sport Fishery with bottom materials comprised of sand and silt. The remainder is classified as a Full Fish and Other Aquatic Life water with bottom materials comprised of rubble and gravel. Agricultural and rural residential land uses are adjacent to the majority of the stream and continue to expose the river to nonpoint source pollution associated with agricultural, development, and impervious surface runoff.

Where possible, the Village should consider the establishment of buffers and the planting of native grasses and shrubs along the river to improve its wildlife habitat and stormwater management capabilities. Additionally, the Village should consider working with local conservation or school groups to restabilize the shoreline along the Suamico River by planting native grasses and plants in order to further reduce shoreline erosion.

Haller Creek

Haller Creek is a tributary to the Suamico River flowing in a southeasterly direction from the northwestern corner of the Village until its confluence with the Suamico River near Velp Avenue. Haller Creek is Suamico's only trout stream and, therefore, has important wildlife value warranting protection by the Village. The Village should consider identifying those areas of the creek that may be experiencing erosion or other habitat degradation and should consider working with local conservation or service groups to enhance the river's trout habitat.

Other Small Waterways

There are many small intermittent and perennial streams within the Village. These streams provide seasonal spawning habitat for bay of Green Bay fish and provide important habitat for many other plants and animals. Many fish that reside in the bay of Green Bay as adults migrate upstream to spawn, and the young then drift slowly back to the bay. It's to their advantage to remain in these small waterways for as long as they can. These small streams provide excellent nursery habitat that allows the young fish to grow to a competitive size before they reach the bay of Green Bay proper. The importance of small streams is only now beginning to be understood by many, but longtime residents of the area realize that small streams and wetlands within the Village actually define the character of the Village of Suamico, as evidenced by the cattails on the Village's water tower.

The Village may wish to enact an open waterway ordinance to protect fish and wildlife habitat located in roadside ditches (such as the unique walleye and northern pike spawning habitat along Lineville Road) and in other streams and wetlands not currently protected by state or federal statutes.

Artificial Lakes

A number of artificial lakes have been created in the southeastern part of the Village, including Harbor Lights Lake, Lake Leone, Jessie Lake, and the Barkhausen Waterfowl Refuge ponds. Except for the Barkhausen ponds, the lakes have been created as a way to enhance residential development; although, they do provide limited fish and waterfowl habitat, as well. Because the lakes provide a conduit for contaminants to reach the Suamico's groundwater, the Village should monitor the lakes' quality to ensure pollutants are not entering the lakes or groundwater.

Watersheds

A watershed is an area of land where all the water on it and under it drains to the same place. Within this area of land, all living things are linked by the common waterway. The Suamico-Little Suamico Watershed drains the entire Village to the bay, except for a small portion of the southwestern part of the Village, which drains into Duck Creek. A few areas of the Village are also drained directly to the bay by small, unnamed streams and ditches.

Field observations by County staff and others over recent years indicate that many of the smaller streams within the Village have been significantly disturbed by past and current agricultural activities. Such disturbances include dredging, ditching, and realignment. All of these activities degrade or entirely remove the natural bed and bank of the stream, thus increasing erosion, removing vegetation and wildlife habitat, and damaging downstream water quality.

5. Floodplains

Floodplains are natural extensions of waterways. All surface waters possess them, but the size of the floodplain can vary greatly. They store floodwaters, reduce flood peaks and velocities, and reduce sedimentation. They also provide habitat and serve as filters for pollution.

Like surface waters, the importance of floodplains is also recognized and is regulated by federal, state, county, and local governments. The State of Wisconsin mandates floodplain zoning for all communities under Wisconsin Administrative Code NR 117. These minimum standards must be implemented in order to meet eligibility requirements for federal flood insurance.

For regulatory, insurance, and planning purposes, the 100-year recurrence interval flood hazard area (also referred to as the regional flood) is most often used. This is the land that has a 1 percent chance of being flooded in any given year. Mapped floodplains within Suamico include the bayshore, Suamico River, Haller Creek, and an unnamed stream/wetland complex located just north of the Village's border with Howard. The Village's 100-year floodplains that have been mapped are shown in Figure 7-3.

Figure 7-4 presents a diagram of a floodplain and identifies its constituent parts, including both the floodway and flood fringe.

There are several threats to floodplains and the resource values that they represent:

- **Filling,** which might diminish the flood storage capacity of the floodplain. This could have the effect of raising the flood elevation or increasing flow velocities to the detriment of upstream or downstream properties.

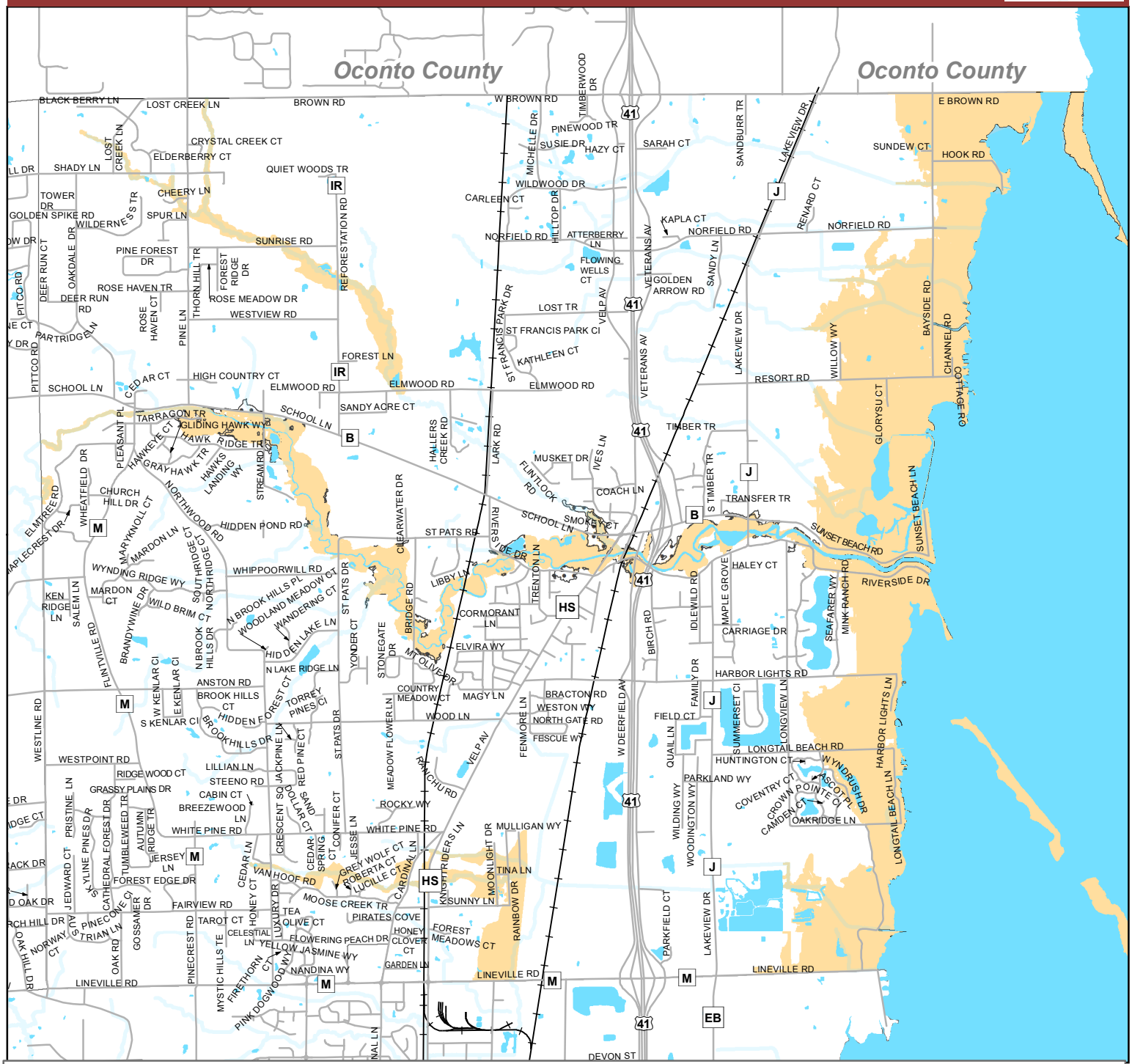
- **Grading,** which can degrade the resource functions of floodplains, such as filtering pollutants or providing habitat.

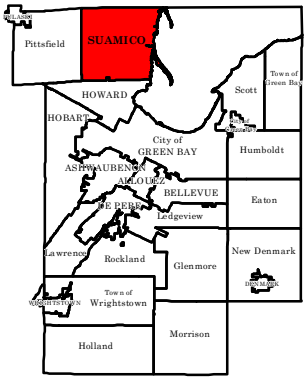
- **Impediments,** which include encroachment of buildings or undersized culverts and bridge openings. These manmade and natural impediments affect the size and proper functioning of floodplains and pose potential hazards to adjacent residents and passersby.

Figure 7-3

Floodplains

Village of Suamico, Brown County, WI





Legend

FEMA Floodplain

Area inundated by 1% Annual Chance Flooding BFEs Determined

Source: U.S. Department of Homeland Security
Federal Emergency Management Agency
Digital Q3 Flood Data Flood Insurance Rate Map (FIRM)

0 0.5 1
Miles

N
W E
S

This is a compliation of records and data located in various Brown County and City of Green Bay offices and is to be used for reference purposes only. The map is controlled by the field measurements between the corners of the Public Land Survey System and the parcels are mapped from available records which may not precisely fit field conditions. Brown County / City of Green Bay are not responsible for any inaccuracies or unauthorized use of the information contained within. No warranties are implied.

Map prepared by Brown County Planning Commission Staff
August 2013

- **Impervious surfaces,** which can increase the velocity of the flood flows, increase the number of pollutants, reduce the amount of natural wildlife habitat, and limit the amount of infiltration of stormwater into the ground.

Due to the importance of floodplains for environmental, regulatory, and insurance purposes, it is recommended that flood studies be undertaken for all rivers and streams where development is proposed. Such flood studies should map both the floodway and the flood fringe portions of the 100-year recurrence interval flood hazard area, should be based upon full development of the drainage basin, and should be reviewed and approved by both the Wisconsin Department of Natural Resources and the Federal Emergency Management Agency (FEMA). If detailed flood studies are not undertaken and/or do not take into consideration the effects of future development of the watershed, future flooding events may be more extensive and cause greater property damage.

Under current regulatory requirements, the floodways would be off limits to development. However, development could occur within the flood fringe areas with the receipt of appropriate permits and approvals, and agricultural activities could continue within the floodplain.

6. Shorelands and Stream Corridors

Shorelands are the interface between land and water. In its natural condition, shorelands are comprised of thick and diverse vegetation that protect lakes, rivers, and streams. If these areas are developed, this vegetation is lost, and fish, wildlife, and water quality are damaged.

There are a number of well-defined drainage courses with associated ravines in the western portion of the Village. Most of the streams in the eastern portion of the Village are less defined and do not have the differing topography as do the streams in the western portion of the Village.

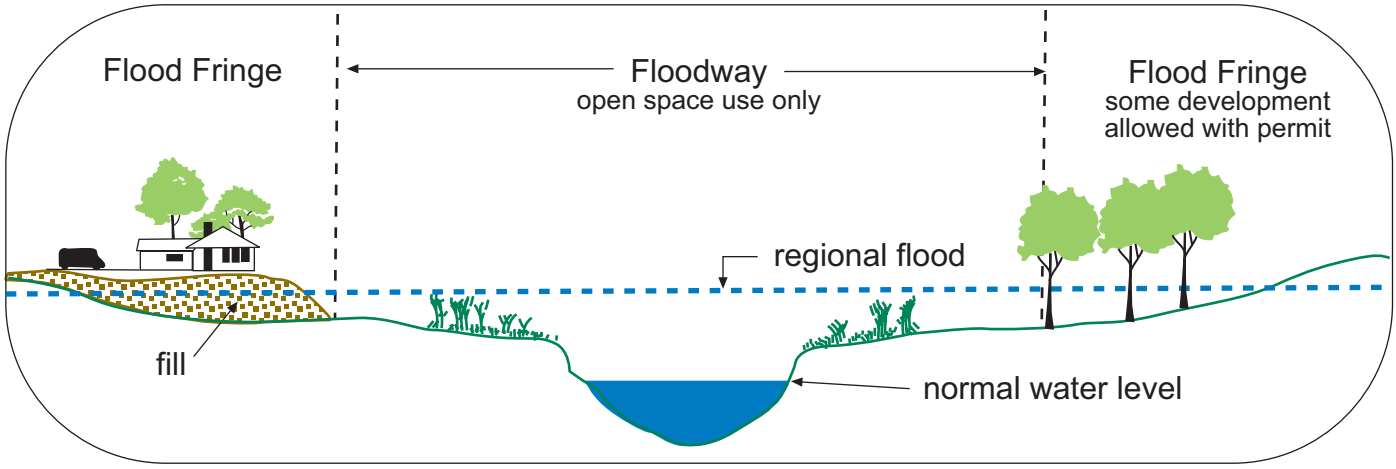
Like floodlands, the importance of shorelands is recognized and is regulated by state and local governments. Shoreland zoning is primarily intended to control the intensity of development near and to create a buffer around lakes, rivers, and streams. The buffer is intended to remain an undeveloped strip of land that protects the water from the physical, chemical, hydrological, and visual impacts of nearby development. Wisconsin mandates shoreland zoning for all unincorporated communities and those parts of incorporated cities and villages that were annexed after May 7, 1982. Since Suamico incorporated after April 30, 1994, it also must follow the state mandated minimums listed under Wisconsin Administrative Code NR 115. Figure 7-5 presents a diagram of the state mandated minimum shoreland zoning requirements.

The shoreland restrictions do not apply to those waters that are determined to be non- navigable waters. However, all lakes, rivers, and streams, no matter how small, should be assumed to be navigable until determined otherwise by the DNR.

As shorelands are closely related to floodplains, so are the threats to the resource values shorelands represent. In addition, research being conducted by the DNR and others indicates that current state-mandated shoreland zoning standards might not be adequate to properly protect water quality and shoreland ecosystems.

Figure 7-4

Floodlands and Floodplain Zoning



Definitions

Floodplain - That land which has been or may be covered by floodwater during the regional flood. The floodplain includes the floodway and flood fringe areas.

Floodway - The channel of a river or stream and those portions of the floodplain adjoining the channel required to carry the regional flood discharge. The floodway is the most dangerous of the floodplain. It is associated with moving water.

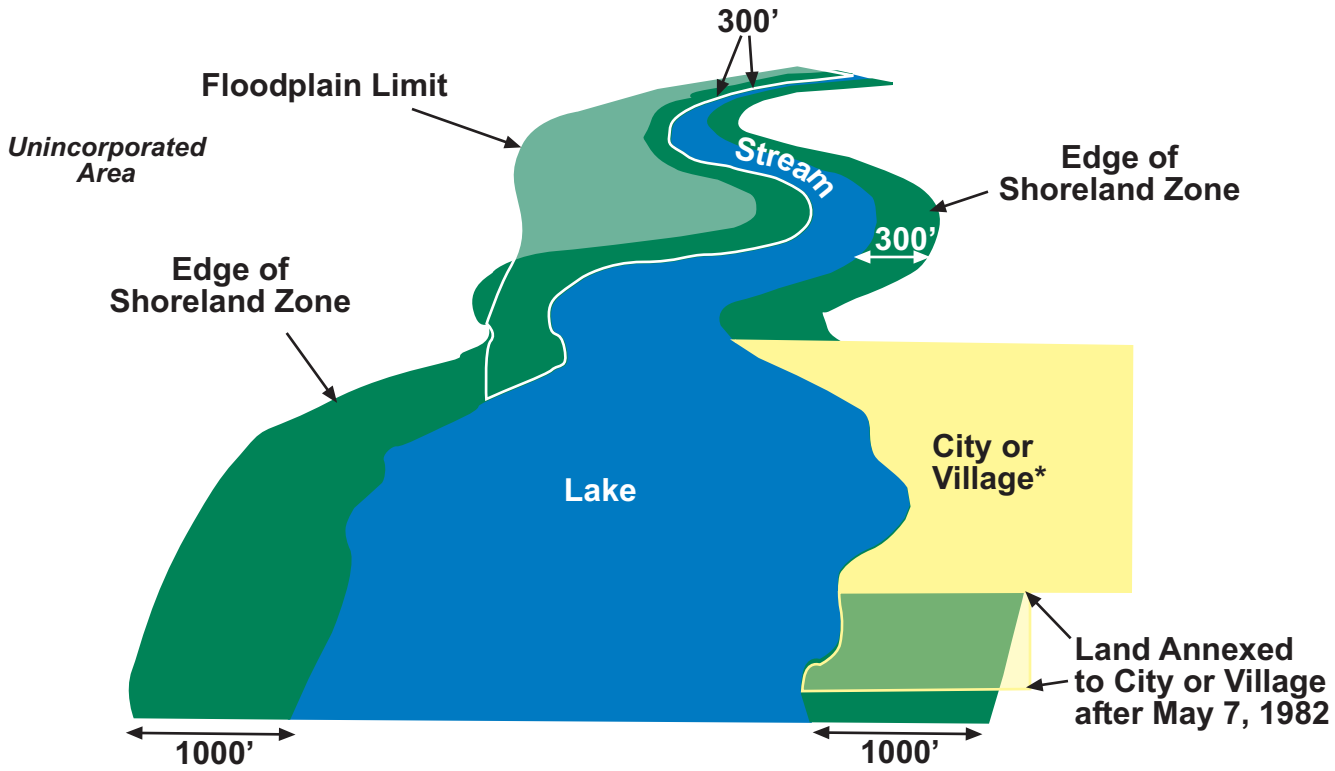
Flood Fringe - The portion of the floodplain outside of the floodway, which is covered by floodwater during the regional flood. It is associated with standing water rather than flowing water.

Regional Flood - That area where large floods are known to have occured in Wisconsin, or which may be expected to occur, at a frequency of one percent during any given year. Also referred to as the 100-year floodplain or 100-year recurrance interval flood hazard area.

Source: Wisconsin Department of Natural Resources

Figure 7-5

Shorelands and Shoreland Zoning



*Cities and villages are required to zone wetlands within the shoreland.

Definitions

Shoreland Zone - The shoreland zone is located within 1,000 feet of the ordinary high water mark (OHWM) of a “navigable” lake, pond, or flowage or within 300 feet of the OHWM of a “navigable” stream or river or to the landward side of the floodplain, whichever distance is greater.

Ordinary High Water Mark - The ordinary high water mark is the boundary between upland and lake or riverbed. It is the point on the bank or shore up to which the presence and action of the water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristics.

Navigable - Generally, a waterway is navigable if it has a bed and banks and can float a canoe at some time each year - even if only during spring floods. Even small intermittent streams that are seasonally dry may meet the test of navigability. Navigable lakes and streams are public waterways protected by law for all citizens.

Unincorporated Areas - Lands lying outside of incorporated cities or villages.

Source: Wisconsin Department of Natural Resources

Under current regulatory requirements, the 75 feet closest to navigable waters are off limits to development, but development could occur within the remainder of the shoreland area with receipt of appropriate permits and approvals, and agricultural activities could continue within the shoreland area.

Based upon the importance of the Village's shorelands and their relationship to surface water and the Village's rural character, Suamico should encourage greater protection of the shoreland area. In this regard, the Village should take full advantage of federal, state, and county funding and other assistance in the establishment of vegetative stream buffers to further filter out sediments and other associated pollutants. Suamico is currently in the process of developing a shoreland-wetland ordinance that meets the requirements of NR 115.

7. Wetlands

Wetlands are characterized by water at or near the ground level, by soils exhibiting physical or chemical characteristics of waterlogging, or by the presence of wetland- adapted vegetation. Wetlands are significant natural resources that have several important functions. They enhance water quality by absorbing excess nutrients within the roots, stems, and leaves of plants and by slowing the flow of water to let suspended pollutants settle out. Wetlands help regulate storm runoff, which minimizes floods and periods of low flow. They also provide essential habitat for many types of wildlife and offer recreational, educational, and aesthetic opportunities to the community.

There are two broad classifications of wetlands: perennial wetlands and ephemeral (intermittent) wetlands. Perennial wetlands are inundated with water for much of the year and develop classic wetland characteristics, such as soil mottling. Perennial wetlands usually support populations of water loving plants. Ephemeral wetlands, which are sometimes called intermittent wetlands due to soil type and topography, often do not develop classic wetland characteristics since they are flooded only part of the year. Both types of wetlands are equally important.

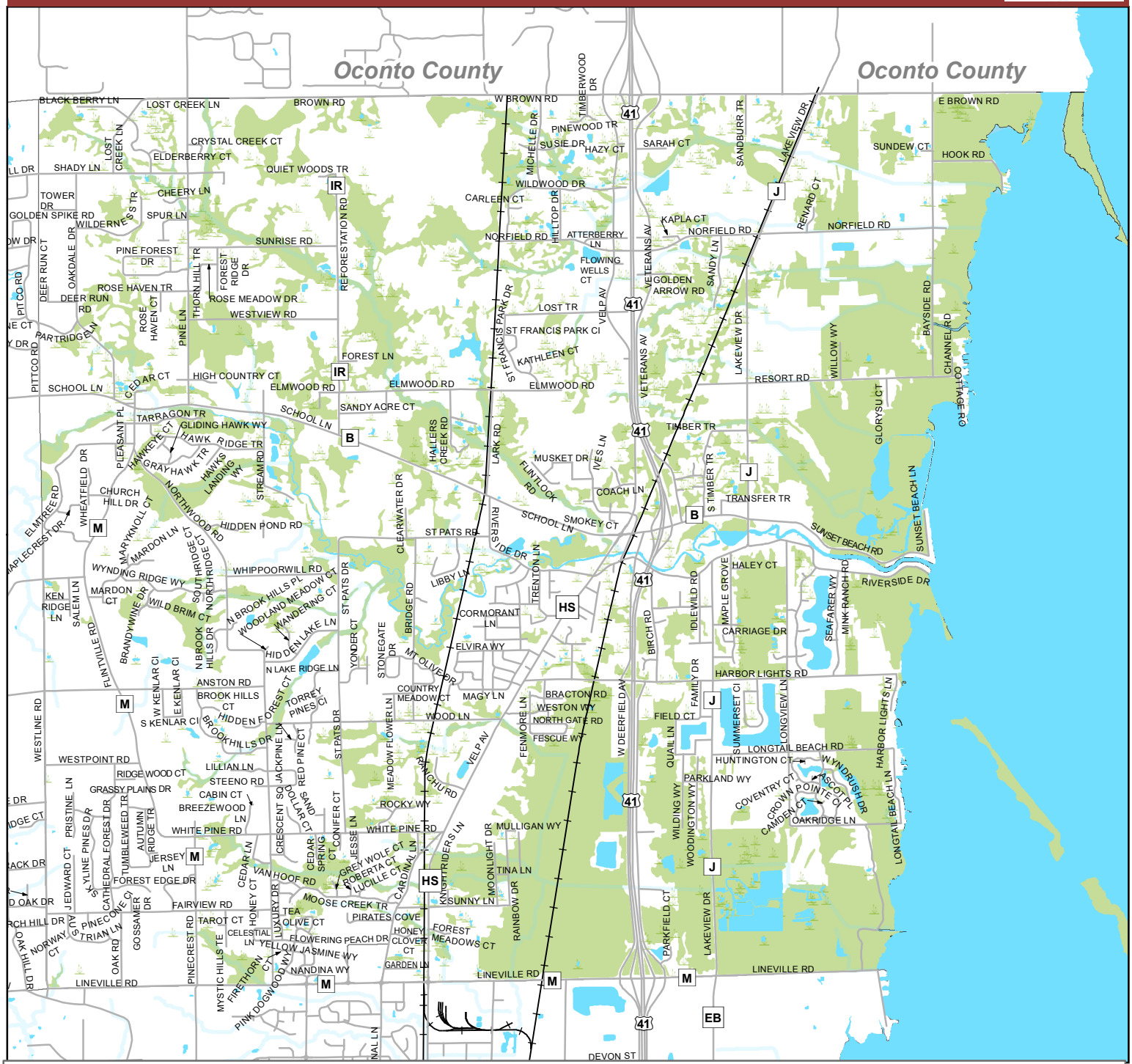
The Village of Suamico contains a significant area of wetlands along the bay of Green Bay. These wetlands are recognized as being of national importance. They are part of a larger complex of wetlands located along the entire length of the western shore of the bay of Green Bay terminating near the City of Marinette. The "west shore wetlands," as they are known, provide critical waterfowl and wildlife habitat, as well as fish spawning habitat for many game fish in the bay of Green Bay, including perch and northern pike. In order to preserve some of these vital spawning areas, the WDNR has purchased and maintains ownership over the Sensiba Wildlife Area (which includes Long Tail Point) and the Little Tail Management Unit in the far northeastern part of the Village.

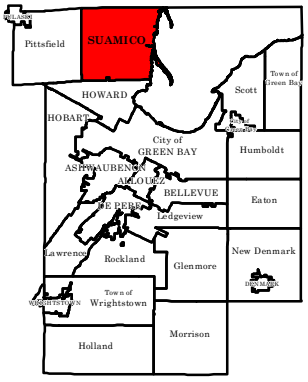
The Wisconsin Wetlands Inventory map identifies wetlands scattered throughout the Village. As shown on Figure 7-6, the WDNR digital wetlands inventory identified approximately 5,190 acres of wetlands within the Village. In addition to the west shore wetlands, there is a large wetland complex located south of Harbor Lights Road between USH 41/141 and Velp Avenue. This complex is part of the Suamico Lacustrine Flats, which is also a critical northern pike spawning area. Due to the value of the wetlands for northern pike spawning in this area, they should be strongly considered for purchase by the WDNR, Village of Suamico, Brown

Figure 7-6

Wetlands

Village of Suamico, Brown County, WI





Legend

Wetlands

Source: Wisconsin Department of Natural Resources

0 0.5 1

Miles

N W E S

This is a compliation of records and data located in various Brown County and City of Green Bay offices and is to be used for reference purposes only. The map is controlled by the field measurements between the corners of the Public Land Survey System and the parcels are mapped from available records which may not precisely fit field conditions. Brown County / City of Green Bay are not responsible for any inaccuracies or unauthorized use of the information contained within. No warranties are implied.

Map prepared by Brown County Planning Commission Staff
August 2013

County, or a combination of the agencies. Because of the inaccuracies inherent in the Wisconsin Wetlands Inventory, the Village may wish to accurately field-verify and map its known wetlands to ensure that they are not disturbed and to further streamline the development process. Suamico also contains a number of wetlands adjacent to its rivers and streams throughout the Village, as well as some isolated pothole wetlands in the more hilly terrain associated with the northwestern quarter of the Village.

The primary threat to wetlands is filling. Although an array of federal, state, and local regulations helps with protection, wetlands (especially smaller ones) are still lost to road construction and other development activities. The draining of wetlands can also occur through the placement of drain tile and rerouting of surface water. Some agricultural areas are actually former wetlands that would probably revert back to wetland character if left alone for a period of time.

Even if wetlands are not directly filled, drained, or developed, they still can be impacted by adjacent uses. Siltation from erosion or pollutants entering via stormwater runoff can destroy the wetland. Previously healthy and diverse wetlands can be reduced to degraded "muck holes" where only the hardiest plants like cattails can survive. Invasive plant species, such as purple loosestrife, can also negatively affect wetlands.

Under current regulatory requirements, all wetlands are off limits to development unless appropriate permits and approvals are obtained. In addition, under certain situations, agricultural activities may also be regulated within wetlands. In this regard, the Village should take full advantage of federal, state, and county funding and other assistance in the protection of existing wetlands and restoration of drained wetlands.

8. Environmentally Sensitive Areas

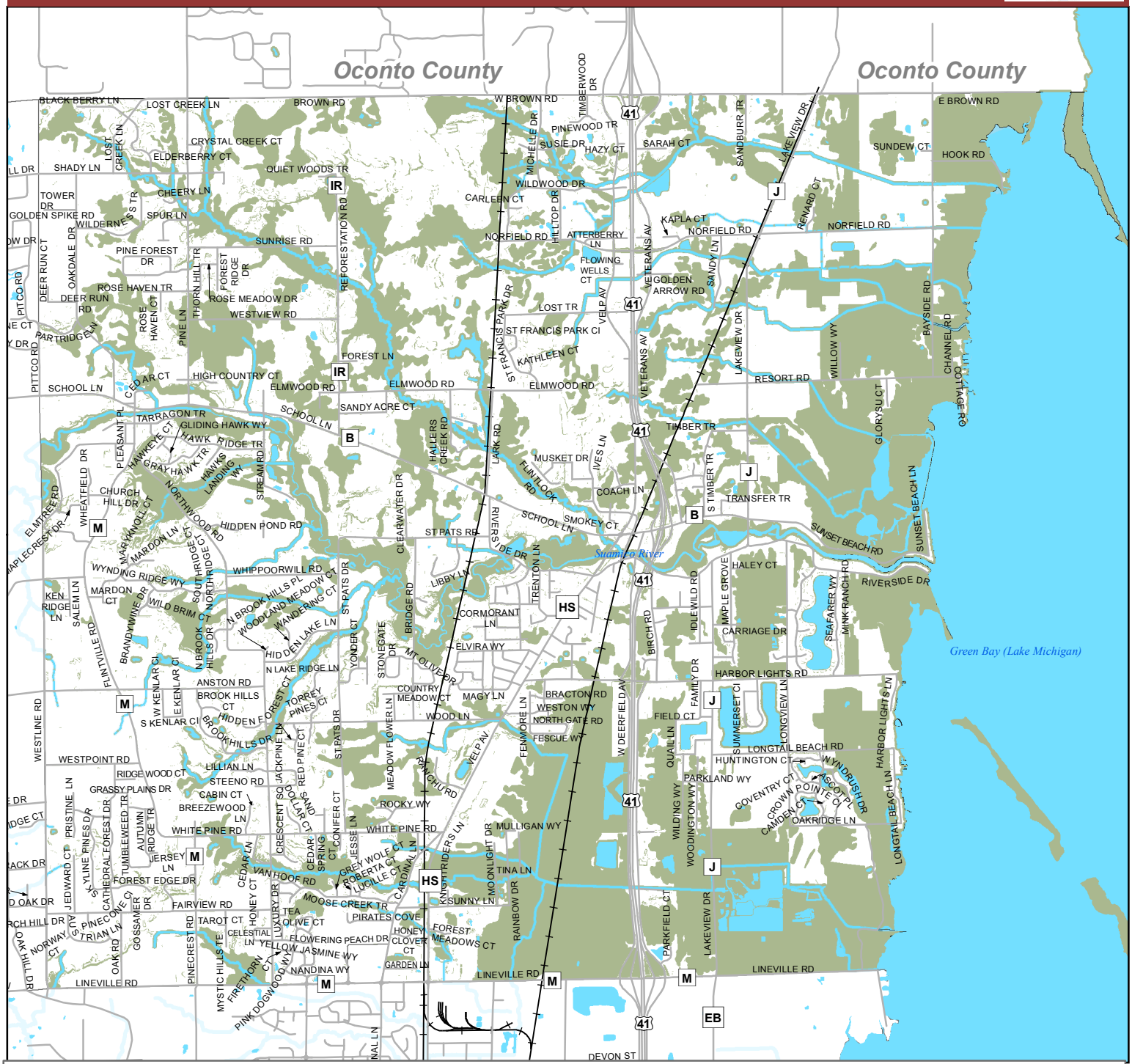
Environmentally sensitive areas (ESAs) are defined by the Brown County Planning Commission as portions of the landscape consisting of valuable natural resource features that should be protected from intensive development. They include all lakes, rivers, streams, wetlands, floodways, and other locally-designated significant and unique natural resource features. ESAs also include a setback or buffer from these features. In addition, they include areas of steep slopes (slopes 12 percent or greater) when located within or adjacent to any of the features previously noted (see Figure 7-7 for the locations of the Village's ESAs). Research and experience from throughout Wisconsin indicate that the potential exists for significant adverse water quality impacts if these areas are developed.

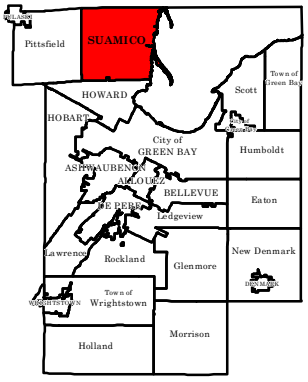
Identification and protection of ESAs are required by both state and county regulations under Wisconsin Administrative Code NR 121 and the Brown County Sewage Plan, prepared by the Brown County Planning Commission, as well as the Brown County Subdivision Ordinance. They are enforced during the review and approval of all land divisions and/or public sanitary sewer extensions. The intent of enforcing the ESAs is to protect water-related natural resource features from the adverse impacts often associated with development.

Figure 7-7

Environmentally Sensitive Areas

Village of Suamico, Brown County, WI





Legend

Environmentally Sensitive Areas

0 0.5 1

Miles

N W E S

Source: Brown County Planning and Land Services

This is a compliation of records and data located in various Brown County and City of Green Bay offices and is to be used for reference purposes only. The map is controlled by the field measurements between the corners of the Public Land Survey System and the parcels are mapped from available records which may not precisely fit field conditions. Brown County / City of Green Bay are not responsible for any inaccuracies or unauthorized use of the information contained within. No warranties are implied.

Map prepared by Brown County Planning Commission Staff
August 2013

In general, development and associated filling, excavation, grading, and clearing are prohibited within ESAs. However, certain non-intensive uses, such as public utilities and public recreation, are often allowed within these areas. In conjunction with erosion control and stormwater management practices, protection of the ESAs can provide numerous benefits, including:

- Recharge of groundwater.
- Maintenance of surface water and groundwater quality.
- Attenuation of flood flows and stages.
- Maintenance of base flows of streams and watercourses.
- Reduction of soil erosion.
- Abatement of air pollution.
- Abatement of noise pollution.
- Favorable modification of micro-climates.
- Facilitation of the movement of wildlife and provision of game and non-game wildlife habitat.
- Facilitation of the dispersal of plant seeds.
- Protection of plant and animal diversity.
- Protection of rare, threatened, and endangered species.
- Threats to ESAs are similar to those of floodplains and shorelands. In addition, the quality and effectiveness of ESAs can be severely reduced should adjacent development change drainage patterns or remove native vegetation from the lands within or immediately adjacent to the ESAs. Such disturbances can also introduce invasive plant species to the ESAs, which can result in loss of native vegetation, diversity, and habitat.

It is recommended that the Village of Suamico work proactively with the Brown County Planning Commission to identify and educate the Village's residents on the importance of the ESAs.

9. Groundwater

As shown in Figure 7-8, groundwater begins as precipitation. This precipitation (rain or snow) falls upon the land. Some of the precipitation runs off into lakes, rivers, streams or wetlands. Some evaporates back into the atmosphere, and some is absorbed by plants. Groundwater is that precipitation that soaks into the ground past plant roots and down into the subsurface soil and rock. A layer of soil or rock that is capable of storing groundwater and yielding it to wells is called an

aquifer. There can be a number of aquifers within an area, one above another. The top of the aquifer closest to the ground's surface is called the water table. It is the area below which all the openings between soil and rock particles are saturated with water. Like surface water, groundwater moves from high areas to low areas. It discharges at those places where the water table intersects the land's surface, such as in lakes, streams, and wetlands, providing a base flow for those water features. The distance such groundwater travels is generally not far.

Groundwater is the source of the Village of Suamico's drinking water. Drinking water for the Village is drawn from the groundwater from private wells and from three municipal wells that serve residents in the southeastern quarter of Suamico. Water from the municipal wells is stored in a 500,000 gallon elevated storage tank.

As with all communities, it is very important that the groundwater, the Village of Suamico's source of drinking water, is protected. The greatest threats to groundwater are contamination and overuse. As with any rural or suburbanizing community, the most common sources of contamination include feedlots, manure storage and spreading, manure pits, irrigation, fertilizers, and pesticides. Although Suamico does not currently have many problems with the high number of private wells in the Village, continued private well development may eventually have a negative impact on groundwater quantity and/or quality. The Village will also need to ensure that old wells are properly sealed to prevent contaminants from reaching the groundwater.

The Village will need to continue to monitor not just the quality of groundwater available for its residents but also the quantity as Suamico and the Green Bay Metropolitan Area continue to grow. In order to ensure a safe supply of private drinking water, the Village should consider developing a well-testing program to identify contaminants that may be present, such as bacteria, nitrates, and pesticides, as well as other contaminants. The Village should continue to provide new homeowners with information regarding proper maintenance and testing of private wells, such as the educational brochure from the WDNR entitled "You and Your Well," and the information provided on the Village of Suamico website.

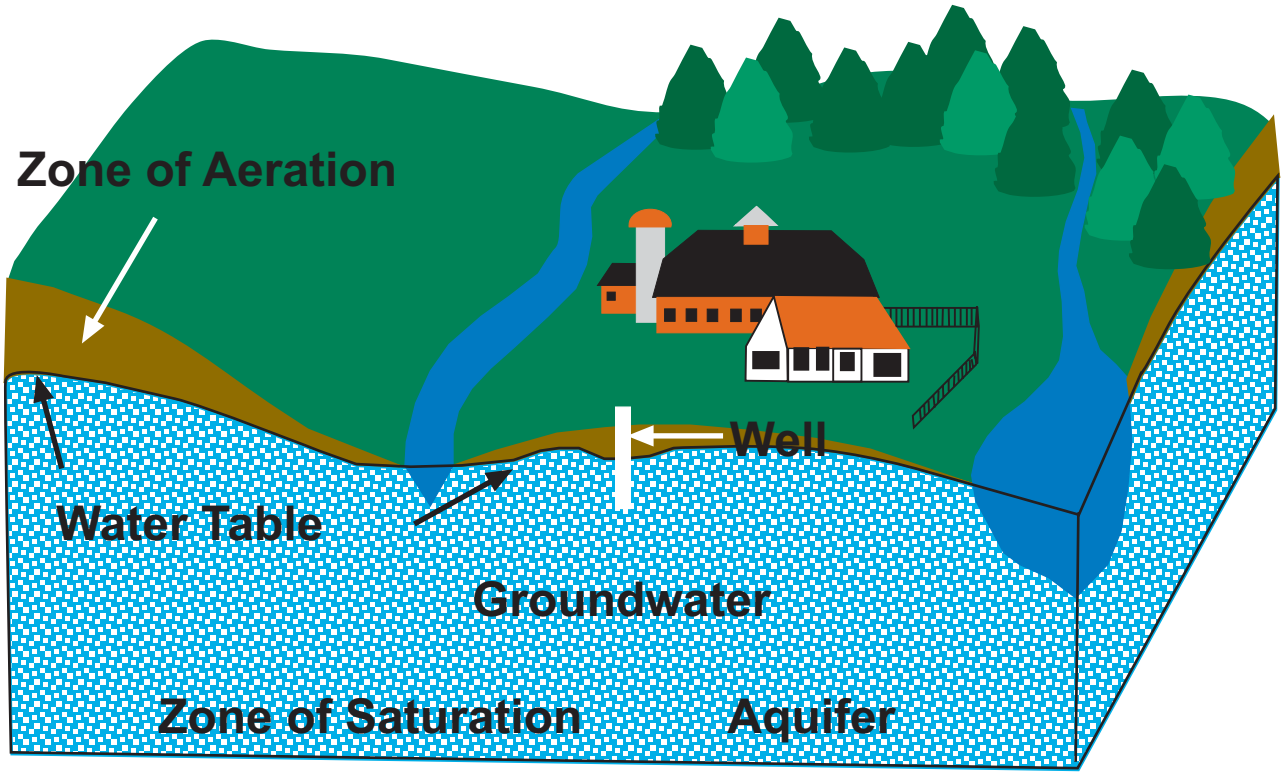
Although maintaining groundwater quality will continue to be a concern, quantity may become less of an issue because many other suburban communities in Brown County stopped drawing groundwater after they began receiving potable water from Lake Michigan. Public water supplies have plans and public awareness of water. Information regarding how to protect wells from adjacent development should be established for the public.

To help communities meet the requirements of the federal Safe Drinking Water Act and to protect their drinking water supply, the Wisconsin Department of Natural Resources recommends that all communities undertake Vulnerability Assessments and Wellhead Protection Plans. The Village of Suamico has completed this plan.

The Village should also continue to support Brown County's "time of sale" program of inspecting private onsite wastewater treatment systems to guard against failing systems. Ensuring functioning septic systems will continue to serve as a protection against groundwater contamination.

Figure 7-8

Groundwater



Definitions

Groundwater -The water below the water table contained in void spaces (pore spaces between rock and soil particles or bedrock fractures).

Water Table - The water surface in an unconfined aquifer; the level below which the pore spaces in the soil or rock are saturated with water; the upper surface of the zone of saturation.

Aquifer - A saturated geologic formation (rock or sediment) capable of storing, transmitting, and yielding reasonable amounts of groundwater to wells and springs.

Zone of Saturation - The zone in which the pore spaces between soil and rock particles are completely filled with water. The water table is the top of the zone of saturation.

Zone of Aeration - The zone between the land surface and the water table in which the pore spaces between soil and rock particles contain water, air, and/or other gases.

Source: Portage County Groundwater Citizens Advisory Committee

10. Woodlands

The vegetative state of the woodlands in Suamico varies considerably. The woodlands on the glacial moraine in the western part of the Village are characterized by mature stands of white pine, red maple, oaks, and other species in dry mesic classifications. This compares to the woodlands in the wetter eastern part of the Village, which consist largely of willows, cottonwoods, cedar, ash, aspen, and other wet and successional types of vegetation. The Brown County Reforestation Camp is almost entirely wooded with plantations of Norway pine, jack pine, and white pine planted since 1942. Natural woodlands in the camp vary from wet lowland communities dominated by black ash and trembling aspen to drier highland communities of aspen, paper birch, and red maple with scattered native white pine, red pine, and red oak.

The largest contiguous areas of woodlands in Suamico are located within the Reforestation Camp, Sensiba Wildlife Area, Barkhausen Waterfowl Preserve, and Suamico Lacustrine Flats. The wooded areas in the remainder of the Village have largely been fragmented by residential development. However, there are a few areas of woodlands up to 40 acres in size scattered around the Village.

Continued development is the primary threat to Suamico's remaining woodlands. Since these areas are prized as settings for residential subdivisions, they are often targeted for development. Intensive development, especially if improperly planned, can destroy the scenic and natural values of the woodland resource and can disrupt the blocks and corridors necessary to provide refuge and passage for wildlife. Loss of these woodlands may also degrade the perceived rural atmosphere of the Village.

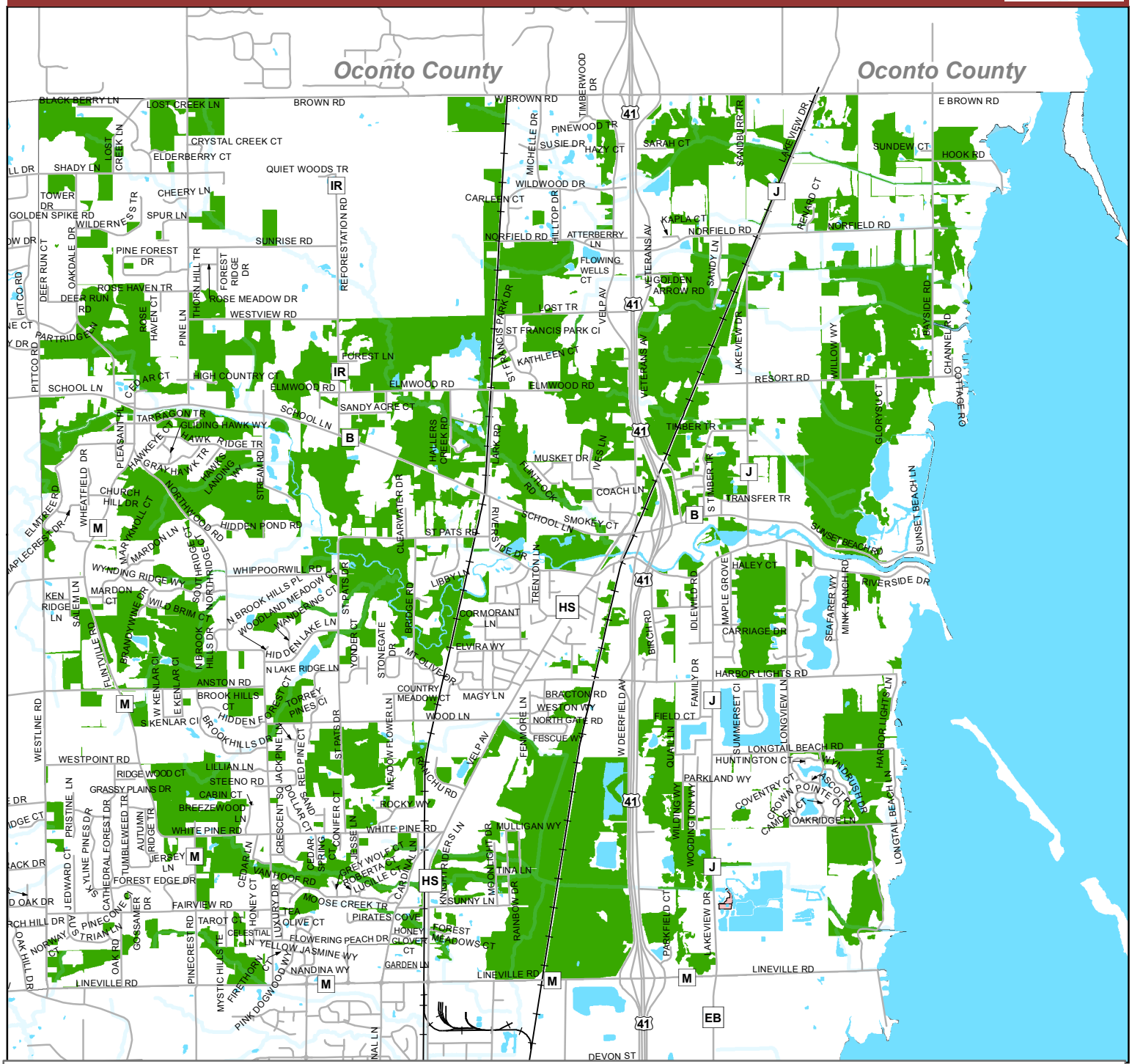
Other threats to the woodlands of Suamico include improper management, such as the over-harvesting or under-harvesting of trees, and the introduction of exotic species and disease.

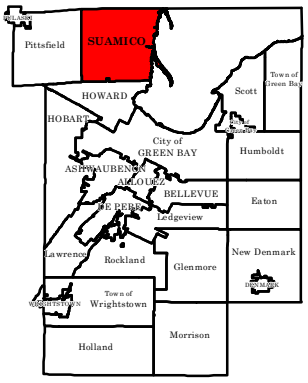
Where woodlands are not also classified as wetlands and are not located within the protected portions of floodplains and shorelands, they should be preserved as much as possible through such approaches as conservation by design and conservancy zoning.

Figure 7-9

Woodlands

Village of Suamico, Brown County, WI





Legend

Woodlands

Source: Brown County Land Use Inventory 2010. Updated 2013.

0 0.5 1

Miles

N

W E

S

This is a compliation of records and data located in various Brown County and City of Green Bay offices and is to be used for reference purposes only. The map is controlled by the field measurements between the corners of the Public Land Survey System and the parcels are mapped from available records which may not precisely fit field conditions. Brown County / City of Green Bay are not responsible for any inaccuracies or unauthorized use of the information contained within. No warranties are implied.

Map prepared by Brown County Planning Commission Staff
August 2013

11. Wildlife Habitat

Since much of the land in Suamico is actively being farmed or developed, the best wildlife habitat within the Village is contained in its woodlands, wetlands, and drainage corridors. Large tracts of woodlands or wetland-type vegetation offer areas for wildlife movement. However, these areas are still affected by development around their edges by regional issues, such as water quality, and by potential invasion of exotic species. Wild game birds and mammals found in the Village include ducks, geese, woodcock, pheasant, Hungarian partridge, ruffed grouse, cottontail rabbit, fox and gray squirrel, muskrat, mink, raccoon, skunk, opossum, woodchuck, red fox, and whitetail deer.

The west shore wetlands provide excellent habitat for many types of mammals, birds, and fish. Additionally, the Brown County Reforestation Camp provides large areas of unfragmented habitat for both upland and lowland flora and fauna. Suamico also has narrow, linear habitat areas along the Village's numerous waterways and drainageways.

Preservation of wildlife habitat is another reason why it is very important to protect surface waters, floodplains, shorelands, wetlands, and woodlands. It is assumed for purposes of this comprehensive plan that should these areas be adequately protected and preserved, so would wildlife habitat.

12. Threatened and Endangered Species

An endangered species is one whose continued existence is in jeopardy and may become extinct. A threatened species is one that is likely, within the foreseeable future, to become endangered. The Bureau of Endangered Resources within the Wisconsin Department of Natural Resources monitors endangered and threatened species and maintains the state's Natural Heritage Inventory (NHI). This program maintains data on the locations and status of rare species in Wisconsin. According to the NHI, there are some endangered or threatened species found or potentially found in Suamico. A map identifying locations for such species within Brown County indicates that there are a number of known occurrences of rare aquatic and terrestrial species and natural communities along the bayshore, as well as areas inland to USH 41/141. There are two other incidences of endangered aquatic species in the Flintville area.

Threatened or endangered species in Suamico include:

- Cherrystone Drop (threatened).
- Longear Sunfish (threatened).
- Pale Green Orchid (threatened).
- Redfin Shiner (threatened).
- Snow Trillium (threatened).
- Wood Turtle (threatened).
- Yellow Gentian (threatened).
- Common Tern (endangered).

- Forster's Tern (endangered).
- Purple False Oats (endangered).

The primary threats to these species are the loss of wetlands and other habitats due to development and other factors. Federal and state regulations discourage and sometimes prohibit development where such species are located. This is also another reason why it is very important to protect and preserve the Village's surface waters, floodplains, shorelands, wetlands, and woodlands.

13. Scenic Resources and Topography

The Village's topography ranges from almost flat adjacent to the bay (578 feet above sea level) to increasingly hilly and diverse traveling to the west (786 feet above sea level), resulting in a difference in elevation of only 208 feet over approximately 6 miles. Generally, the areas to the east of CTH J are the areas of the Village with the least amount of variability in topography. This oftentimes results in problems with draining stormwater away from development in these areas.

The western quarter of the Village is much higher and diverse in terms of its topography. It has a number of hills and ravines from the streams that drain this area. The hills provide picturesque views of the rolling terrain and, in some of the higher parts of the Village, provide views of the bay. Since this area has some issues with steeper slopes and terrain changes, stormwater in these areas may increase erosion due to the velocity with which the water drains and the generally sandy soils.

As with floodlands, shorelands, wetlands, and woodlands, scenic areas should also be considered for protection where appropriate under conservancy zoning and/or conservation by design subdivision techniques.

14. Mineral Resources

Nonmetallic mining is a widespread activity in Wisconsin, as well as in Brown County. In Wisconsin, there are an estimated 2,000 mines that provide aggregate for construction, sand, gravel, and crushed stone for road building, and limestone for agricultural lime applications. In Brown County, there are a number of active quarries that mine dolomite, sandstone, limestone, or crushed stone (sand or gravel). The pits and quarries in Suamico tend to be of a much smaller scale and operation than those in other portions of the County. The largest pits are located in the western quarter of the Village, and are typically used for gravel and sand.

The State of Wisconsin first passed a nonmetallic mining law in 1994. The law requires that all nonmetallic mining operations be registered. To be registered, the nonmetallic mineral deposit must be delineated by a professional geologist or registered engineer and certified to be economically viable. Second, if the land is zoned, the existing zoning at the time of registration must allow mining as a permitted use or as a conditional use. The state law further specifies that the registration lasts for ten years and can be renewed for an additional ten years. However, after 20 years, the full registration process must be undertaken once again. In addition, the law states that local zoning officials can deny the mining only if they can prove that the mineral deposit is not marketable or that the zoning at the time of the registration prohibited mining.

Wisconsin passed a second nonmetallic mining law in 2000: Wisconsin State Statute Section 295.13(1) and Wisconsin Administrative Code NR 135. The state statute and administrative code require that all counties in the state adopt an ordinance in 2001 (consistent with the model ordinance prepared by the Wisconsin Department of Natural Resources) to establish a reclamation

program capable of ensuring compliance with uniform state reclamation standards. The administrative code also allows cities, villages, and towns to adopt such an ordinance and administer the program within their own jurisdiction at any time. However, the administrative code further states that the county ordinance will apply to every city, village, or town within the county until such time as the city, village, or town adopts and administers the ordinance itself.

Brown County adopted its Nonmetallic Mining Reclamation Ordinance in 2001. Most communities in Brown County, including the Village of Suamico, opted to have Brown County adopt and enforce the reclamation ordinance for their respective municipalities.

Wisconsin's nonmetallic mining reclamation program requires that nonmetallic mining operators prepare a reclamation plan to state standards. These standards deal with topsoil salvage and storage, surface and groundwater protection, reclamation during mining to minimize the amount of land exposed to wind and water erosion, re- vegetation, site grading, erosion control, and a final land use consistent with local zoning requirements.

Because of the presence of small-scale nonmetallic mining operations within the Village of Suamico and the potential for both significant positive economic impacts and significant negative environmental and land use impacts associated with mining, the Village ordinances should be subjected to further review and revision. Therefore, the Village's Planning Commission and Village Board should amend the Village's zoning ordinance to address nonmetallic mining operations and consider imposing conditions, such as requiring nonmetallic mining operations to be a certain number of feet away from ESAs and residential uses, identifying appropriate hours for blasting and hauling of aggregate, and utilizing the Brown County reclamation ordinance to ensure adequate cleanup and reuse of the site when mining is completed.

15. Historic Buildings

The Wisconsin Architecture and History Inventory (AHI) is an official inventory maintained by the Wisconsin Historical Society (WHS), which tracks historically significant structures, sites, or objects. These sites collectively display Wisconsin's unique culture and history and, therefore, should be noted and protected/preserved when feasible.

Suamico has one building that is listed on the state and national registers of historic places. The Henry House (also known as the Weed Mill Lumber Inn) located at 1749 Riverside Drive was certified on January 31, 1980. In addition to the state and national historic registers, the Wisconsin Historical Society maintains the Wisconsin Architecture and History Inventory (AHI) that identifies structures by community that are not listed on either the state or national register but have historic characteristics that indicate they may be eligible to be listed. Within Suamico, there are 34 structures that are listed on the AHI and are generally located in the village center area, as well as in the Flintville area.

In 1998, a grant from the National Park Service was used to conduct an intensive historical and architectural survey of selected unincorporated communities in Brown County. Heritage Research, Ltd. Was then contracted to perform the survey and provide recommendations regarding eligibility for the National Historic Register. Heritage Research, Ltd. produced the Historical/Architectural Resources Survey of Selected Unincorporated Communities of Brown County. Within Suamico, 18 separate properties were surveyed (16 in the village center area and 2 in Flintville), and 3 were identified for further research and evaluation under National Register of Historic Places criteria.

The Suamico Fish Company building located at 1184 Riverside Drive was built circa 1905 and is a reminder of the importance fishing once played in Suamico's local economy. According to the report, "The fact that the company is still in business further bolsters its commercial role as one of the few remaining resources associated with the county's fishing trade." The report identifies this structure as the one out of three that is eligible for listing on the National Register of Historic Places.

The former Riverside Cheese Company located at 1776 Riverside Drive was built circa 1905. The report states, "Although the property's historic function as a cheese factory reflects one of the most significant industries in the economy/commercial development of Brown County and Wisconsin in general, the (building's) significant alterations seriously affect the structure's integrity of form as well as of function." As a result of the changes to the building, the building is not considered eligible for the National Register.

The third property identified for further research is located on Velp Avenue and currently consists of a farmstead and small barn. According to the report, "The site was originally used as a stagecoach stop and tavern known as The Rough and Ready, established in 1856." The report further states, "…it remains unclear whether or not the house or the granary was historically associated with the historic stagecoach stop, The Rough and Ready Tavern. This may impact historical significance. As a result of a lack of conclusive evidence, a decision regarding Register eligibility cannot be rendered at this point." The report recommends further study to determine eligibility.

As the Village continues to redevelop the village center, it should take into account the number of potentially historic structures located there and work with the property owners to refurbish the buildings in a historically sensitive way. These redeveloped buildings can then be utilized to help draw residents and tourists to the village center as a destination. The Village should work with the State Historical Society and the Howard-Suamico Preservation Commission to consider appropriate designation and preservation of potential historic sites as they are identified to maintain examples of the Village's culture and history.

16. Archaeological Resources

The following information is provided by Janet M. Speth of the Neville Public Museum and was gathered from an archival literature search. According to the literature search, few large-scale archeological surveys have been conducted within the boundaries of the Village of Suamico. The surveys that have been made have generally been confined to narrow sewer easements or highway rights-of-way. However, the fact that there are 67 catalogued sites is, according to the museum, "…a testimony to the archeological richness of the area."

The lower reach of the Suamico River contains a cluster of archeological sites that were heavily collected in the early part of the twentieth century. Many of the artifacts from this area are in the collections of the Neville Public Museum. A second concentration of sites is located in the southwest quarter of the Village, and additional sites are scattered throughout Suamico.

According to the Neville Public Museum, areas of special archeological concern and interest in the Village of Suamico would be both banks of the lower stretch of the Suamico River, including any near-shore submerged areas, which may have been dry when lake levels were lower than today. A secondary area of concern is the area roughly paralleling Velp Avenue, which is a likely location for the earliest Native American sites in the Village.

There are five historic Euro-American cemeteries in the Village: an unnamed cemetery in Section 15,

St. Benedict Cemetery in Section 22, Suamico Public Cemetery in Section 23, Ss. Edward and Isidore Cemetery in Section 18, and the two separate areas of the Unitarian Cemetery in Section 18.

The archeological sites are windows to the past. They provide information and insight as to the culture of the previous residents of Suamico. Current state law gives protection to all human burial sites. There are also programs and restrictions relating to other archeological sites. Developing these sites before they can be catalogued and studied is the major threat to this resource. Any residents finding evidence of archeological sites should contact the Village of Suamico for assistance from the staff and Howard-Suamico Historical Preservation Commission before contacting representatives of the Neville Public Museum.

Suamico should capitalize on the value of these resources, perhaps by including these sites within public neighborhood parks and educating citizens about pre-European settlement life in the Suamico region. The Village should work with the Howard-Suamico Historical Preservation Commission, Wisconsin Historical Society, and the Neville Public Museum to identify these sites. Processes for dealing with these sites during construction of new development should then be established, particularly for burial sites, which, as previously mentioned, are currently protected under state law.

17. Parks, Recreation, and Open Space

Suamico has an abundance of recreational properties, which are owned and maintained by several different units of government. Figure 7-10 identifies these recreational sites. In addition, there are approximately 115 acres of privately-owned recreational land ranging from marinas to private wildlife preserves. The park and recreation facilities are analyzed in much more detail in the Utility and Community Facilities chapter.

Figure 7-10: Publicly-Owned Park and Recreation Lands in Suamico

Park or Recreation Land	Owner	Acres
Calavera Springs Park	Village	68.5
Doctor-Vickery Park	Village	2.7
Fireman's Park	Village	0.5
Idlewild Park	Village	55.6
Municipal Services Center Park	Village	--
Rose Hill Estates Greenspace	Village	25.0
Sunset Beach Park	Village	0.6
Whisper Ridge Sub. Greenspace	Village	25.0
Wied Mill Park	Village	9.4
Bay Harbor School	Howard-Suamico School District	19.4
Bay Port High School	Howard-Suamico School District	97.5
Suamico Elementary School	Howard-Suamico School District	28.4
Reforestation Camp/NEW Zoo	Brown County	1,543.1
Barkhausen Waterfowl Preserve	Brown County	474.8
Suamico Boat Landing	Brown County	2.8
Longtail Point	State of Wisconsin	820.8
Sensiba Wildlife Area	State of Wisconsin	526.0
Littletail Management Area	State of Wisconsin	193.1
Small Craft Boat Launch	State of Wisconsin	2.0
Wooded Wetland, Deerfield Ave	State of Wisconsin	120.0

18. Community Design

Issues related to community identity and community design generally pertain to improving or establishing the Village's identity and utilizing design elements, such as signage, landscaping, and architecture, to reinforce the Village's desired rural character and natural beauty. Preserving the Village's rural character and natural beauty were both concepts that Village residents prominently identified in the visioning session. This section of the plan identifies specific ways that the Village can help to establish its community identity.

At this time, the Village of Suamico does not generally capitalize upon its own distinctive identity with the exception being a newly designed logo to represent the community. For instance, there is minimal uniform appearance to its signage and roadways, and there is no particular focus or emphasis placed upon the Suamico River or the Village's many different natural areas. Therefore, there is a danger that Suamico's identity will not be distinctive enough to set it apart from any other community. Recently, Suamico took steps to begin the formulation of its own identity by incorporating as a Village, thereby stemming any loss of land through annexation, and giving Suamico time to plan for its future.

Its cultural landmarks, especially public gathering places, also portray Suamico's identity. Churches, libraries, dance halls, and similar institutions are what often spring to mind when one thinks of a community. Within Suamico, its village center and mix of residential, commercial, institutional, and recreational uses are often what come to mind.

To create a distinct and attractive identity, to foster community pride, and to promote the Village, it is proposed that:

- The Village's entrance corridors and village center should be a focal point of Suamico's efforts to achieve good design and a distinct identity.

- The Village should continue to implement the Town Center Plan and, in particular, the "Historic Hamlet" theme area. In terms of natural and cultural resources, this would include establishment of design and building standards to encourage rehabilitation of the older, more architecturally interesting buildings and attractive landscaping.

- Planting street trees should be encouraged as a means of beautifying the built environment and providing neighborhood character. Trees and the natural/rural character they provide are some of the primary reasons people continue to move to Suamico. Suamico should require the planting of street trees for new subdivisions where trees do not already exist. In addition, the Village should seek to preserve selected existing trees either by working with developers to design around such trees or through a tree preservation ordinance. Suamico also has a forestry ordinance that is overseen by the village's Park, Recreation, and Forestry Committee.

- Even small areas of greenspace within residential developments are cultural resources that add value to neighborhoods. A local example of this is Wied Mill Park located adjacent to Rock Bottom Court. Even though the park is not developed, it helps to reinforce the natural

feel of the area. New developments should contain small neighborhood parks or greenspace either through the use of conservation subdivisions or by setting aside small areas for neighborhood greenspace, parks, recreation, or stormwater management areas.

- Where public acquisition is appropriate or a larger setback/buffer adjacent to surface water is desired, establishment of natural corridors or parkways should be considered. By keeping intensive development out of the stream corridors, water quality is improved, habitat is maintained, and recreational opportunities are preserved. Parkways also maintain scenic values. It is specifically recommended that parkways be created along the Village's primary drainage corridors, such as the Suamico River. Parkways along the other tributaries of these surface waters should also be considered. The parkways should, at a minimum, include the floodway/shoreland buffer portion of the corridor and should ideally contain additional lands. These parkways would allow the corridors to remain mostly undeveloped as wildlife corridors, preserve natural beauty, provide stormwater management areas, provide trail possibilities, and link parts of the Village together. The parkways would also enhance public access and allow the Village to capitalize on the intrinsic value of its most notable natural features. Acquisition of parkways could occur at any time that an opportunity arises. Generally, it could occur at the time adjacent lands are developed and could be accomplished either through dedication or purchase. If public acquisition is not feasible, private ownership subject to conservation easements could be considered. Lands within the parkways should be used only for passive recreation, such as trails, consistent with the Village's adopted trail plan.

- Alternative development approaches, such as conservation subdivisions, should be encouraged near environmentally sensitive areas. New subdivisions can be designed to preserve natural drainage patterns, reduce fragmentation of wildlife habitat, and limit the amount of impervious surfaces, such as roads. By clustering development on a site, large blocks of environmentally sensitive areas can be left as preserved open space. To promote such development practices, greater flexibility and incentives should be inserted into Suamico's development codes, such as allowing reduced lot sizes, smaller setbacks, and/or narrower streets, in exchange for preservation of natural resources.

- Natural, cultural, and agricultural resources education should be encouraged. Spreading knowledge of the importance of the Village's natural, cultural, and agricultural resources and ways to maintain them are essential implementation tools. For example, educating property owners along the Suamico River, bayshore, and the Village's numerous streams about nonpoint source pollution and providing tips on landscaping and buffering to prevent this pollution can help to achieve improved water quality. Periodic newsletters could be mailed to Suamico residents to provide information on topics, such as not dumping pollutants down storm sewers, tree trimming tips, and other issues relating to natural resource protection. Water resource educational materials are available from the WDNR and the UW-Extension. Another example is to erect signs that identify the names of creeks at road crossings. These signs are an excellent way to raise awareness of drainageways. Unnamed creeks could have names established, perhaps by honoring landowners along them or through school naming contests. This is also another way of raising awareness of the importance of these features.

Recommended Policies, Programs, and Actions

There are many avenues the Village of Suamico can take to achieve the natural, cultural, and agricultural resources goal and objectives listed in the plan's Issues and Opportunities chapter. They range from specific one-time actions to broad ongoing programs. Many of the policies, programs, and actions identified in this chapter have been specifically formulated to also address recommendations within the Land Use and Utilities and Community Facilities chapters of this plan. Not only is such an approach economical and efficient for the Village, but also such considerations are required under the Comprehensive Planning Law.

1. Agricultural Resources Recommendations

- Work with any remaining active farmers in the Village to ensure that encroaching development does not prevent them from continuing to farm.

- Support the updated Brown County Working Lands Initiative and the Farmland Preservation Plan after completion of this Village of Suamico Comprehensive Plan to ensure that the recommendations of the two plans are consistent with one another.

- Work with heirs to land and developers to encourage the preservation of agricultural land.

- Plan for the efficient, cost-effective extension of public sewer and water facilities by avoiding the extension of these services past large tracts of active agricultural land.

2. Natural Resources Recommendations

- Determine and identify the attributes of important rural character.

- Continue to implement the parkway and trail concepts along the Village's main rivers and streams consistent with the Village's adopted trail plan.

- Work with local conservation or school groups to stabilize the shoreline along the lower Suamico River and bayshore by planting native grasses and plants in order to reduce shoreline erosion.
- Encourage developers to incorporate access to the Suamico River and bayshore in both development and redevelopment projects.

- Flood studies should be undertaken for all drainageways within the Village. This can be accomplished on a case-by-case basis by developers as development occurs, but it may be more appropriate as part of a comprehensive stormwater management plan.

- Enforce the implementation of the stormwater management ordinance. Utilize the stormwater utility to finance implementation.

- Ensure adequate shoreline protection and screening by consistently enforcing the Village's shoreland-wetlands ordinance.

- Work with the WDNR and the Wisconsin Coastal Management Program to identify critical wetland habitats in the Village and the means to protect them.

- Periodically review and revise as necessary the Village of Suamico Floodplain Zoning Ordinance to ensure its continued viability.

- Establish and utilize a conservancy zoning district to protect environmentally sensitive areas, important woodlands, wildlife habitat, scenic resources, etc.

- Support the Brown County Sewage Plan to ensure that it is consistent with the recommendations of this comprehensive plan, particularly as it applies to the environmentally sensitive area designations.

- Provide information to private well owners regarding testing and maintenance of their wells through Village newsletter articles and educational materials from WDNR.

- Consider implementing a village-wide private well sampling program to test for potential contaminants.

- Continue to monitor the quality and quantity of the Village's groundwater resource as the Village continues to grow using the Vulnerability Assessment and a Wellhead Protection Plan to ensure a safe potable water supply.

- Support Brown County's "time of sale" program of inspecting private onsite sewage disposal systems to guard against failing systems in those areas not served by public sanitary sewers.

- Coordinate with local conservation, school, or other service groups to remove invasive plants, such as purple loosestrife, from the Village's wetlands and floodplains.

- Begin an educational program to make residents more aware of environmental areas, issues, and solutions in the Village.

- Contact the WDNR early in any development proposals along the lower Suamico River and West Shore Wetlands to properly address any threatened or endangered resources that may be present.

- Consider adoption of a nonmetallic mining ordinance to ensure adequate protection for existing and future residential developments.

3. Cultural Resources Recommendations

- Make developers aware during development of the potential for archeological sites near the lower Suamico River and bayshore, and contact the Neville Public Museum in the event that any artifacts are discovered. Where archeological sites are known, preserve them through their inclusion in the greenspace requirements of conservation subdivisions or other passive park areas.

- Utilize the Historic Preservation Ordinance to continue the preservation of the existing and any future structures listed on the State and/or National Registers of Historic Places.

- Continue to enforce the Village's design review standards for new commercial, multifamily, and industrial development to ensure it enhances the Village's desired rural character.

- Establish priorities for protection of historic and cultural buildings and strive for rehabilitation and maintenance rather than demolition when possible by working with private property owners to pursue federal and state historic preservation/rehabilitation tax credit programs.

- Continue the beatification of the Village's main thoroughfares through the creation of a sign ordinance that encourages pedestrian-scale monument-style signage rather than large monopole pedestal signs.

- Continue to implement the recommendations contained in the Village's Town Center Plan to create an identity unique to Suamico.

- Focus the Village's design and beautification efforts first on its village center and entrance corridors and then by similar efforts on its neighborhoods and major natural resources. Specific actions should include:

    - Street tree requirements where appropriate.

    - Traffic calming along CTH HS, CTH J, and CTH B in the village center to create a more enjoyable environment for pedestrians and bicyclists.

    - Establishment of parkways, walkways, trails, etc. consistent with the Village's adopted trail plan.

    - Promotion of alternative development methods, including conservation subdivisions, traditional neighborhood developments, and mixed-use development.

(end)