

CHAPTER 3 NATURAL RESOURCES

Introduction

An inventory of the Village of North Hudson's natural resources allows us to conduct a general overview of their value to the community and to determine ways of protecting and promoting them. The waters, trees, and topography should be viewed as valued assets to the Village.

The St. Croix River, a scenic waterway, and Lake Mallalieu are desirable locations for homes, but their popularity threatens their quality. Wooded areas and steep slopes are representative of area topography and also contribute to the Village's appeal. Residents are not the only ones who benefit from these features. The combination of woods, water, and topography also provides valuable habitat for wildlife.

Data Sources

Data used to produce the natural resources maps comes from various sources and are not to be used in place of a site specific study. The data is the most current available but may not represent exact conditions in the Village of North Hudson. The maps are to be used to provide a sense of what residents have within the Village.

Elevation and Slope

The topography in the Village of North Hudson is one of its greatest assets. Map 3-1 reveals that the elevation drops starting in the northeast corner and continuing diagonally to the southwest corner of the Village where the St. Croix River and Lake Mallalieu meet. Surface elevation ranges from approximately 985' in the northeast to 670' at the surface water.

Map 3-2 shows areas considered steep slopes around the Village. A majority of these areas are along the banks of the St. Croix River and Lake Mallalieu. Lands in these areas offer scenic views.

With significant elevation drop and steep slopes, the potential for erosion is great. Development brings the increase of impervious surfaces and disturbing of land and its vegetative cover. This, in turn, leads to stormwater runoff and erosion which can deposit sediment into area surface waters. These areas provide excellent wildlife and vegetative habitat and need to be protected.

The Village of North Hudson has several ordinances to control erosion and stormwater runoff. A control plan must be submitted by anyone disturbing over one acre of land. A map must be submitted which describes the site and lists

erosion control measures. The Village also requires runoff control. This states that runoff from a site cannot increase from that prior to developing.

Groundwater

Map 3-3 shows groundwater elevations and flow direction. A general idea of the depth of groundwater can be found by subtracting the groundwater elevation from the topography elevation in Map 3-1. Groundwater flow patterns typically follow the surface topography.

Groundwater is water found underground in the cracks and spaces in soil, sand, and rock and is stored in aquifers. Aquifers typically consist of gravel, sandstone, or fractured rock. These materials are permeable and allow water to flow through them. Groundwater begins as precipitation which runs off into surface water and wetlands, is used by plants, or evaporates into the atmosphere.

Groundwater is the main source of water for households and businesses. It is drawn up through wells and distributed to residents. Contamination potential is influenced by many things. Soil characteristics, land use practices, and septic systems can all attribute to groundwater contamination.

To protect groundwater, Village municipal wells are regulated by the City of Hudson's Wellhead Protection Ordinance. A wellhead protection ordinance regulates what land use activities can occur within a specified radius.

Other methods of protecting groundwater are limiting phosphorous based lawn fertilizers and protecting closed depressions, which hold stormwater and allow it to seep back into the water table.

Adopted 12.05.2006

Reserved for Map 3-1

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Reserved for Map 3-2

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Reserved for Map 3-3

Surface Water

The Village of North Hudson's western and southern boundaries are comprised of water. The St. Croix River, to the west, is part of the Lower St. Croix National Scenic Riverway. Lake Mallalieu, to the south, is a 270 acre lake (see Map 3-4). The Village and its surface waters are within the St. Croix Basin and the Lower Willow River Watershed.

Residents enjoy the lake and river for the many opportunities such as fishing, boating, and viewing wildlife that they provide. Residents depend on water for many aspects of our daily routines, recreation, and industry. Plants, wildlife, and fish depend on water for life and habitat.

Lake Mallalieu is currently on the Impaired Waters List. Impaired waters are waterbodies that are not meeting their designated uses (fishing, swimming), due to pollutants, in this case, phosphorous. The two sources of pollutants are point sources and nonpoint sources. Point sources are pollutants that are discharged directly into the water. Nonpoint sources, such as runoff, make their way into the water. Being on the Impaired Waters List, gives a lake priority for grant monies.

The Wisconsin DNR's Chapter NR 118 sets standards for the Lower St. Croix River National Scenic Riverway. The standards set rules to prevent pollution of surface and groundwaters, minimize flood damage, and maintain the exceptional scenic, cultural, and natural characteristics of the area. Within the Riverway, the Village of North Hudson is classified as a Small Town Management Zone.

To protect these valuable surface waters, the Village may consider restricting the use of phosphorous based fertilizers, create a Stormwater Management Master Plan, tighten erosion and runoff controls, promote rain gardens, and educate waterfront property owners.

The Village of North Hudson also had a Comprehensive Surface Water Management Plan done in 1986. This should be revisited and updated to include new regulations addressing the quality and quantity of stormwater runoff.

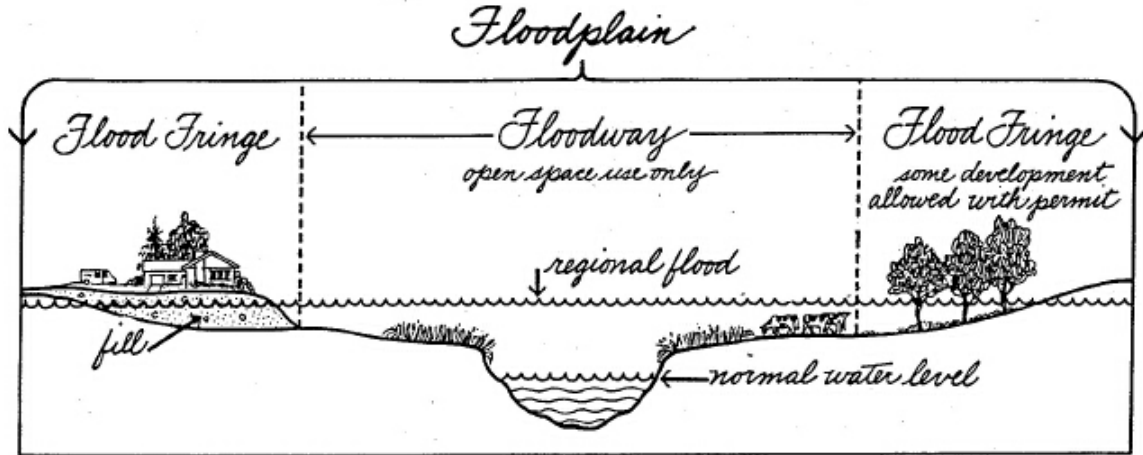
The Lake Mallalieu Association has grant monies available for natural shoreline restoration and stabilization, runoff controls, and wildlife habitat rehabilitation.

Floodplains

Map 3-5 shows floodplains along the St. Croix River and Lake Mallalieu. Floodplains are areas, which have been, or may become inundated with water during a regional flood. A regional flood is often referred to as a 100-year flood or having a 1% chance of occurring in any given year. Flood plains can be broken down into two components, the floodway and flood fringe.

Floodways are areas directly adjoining the channel of a stream and are characterized by deep, fast moving water and is typically the most dangerous part of a floodplain. Land uses in this area should be limited to conservation areas or open space. The flood fringe is associated with standing, or slow flowing water adjacent to the floodway (see Figure 3-1).

Figure 3-1 Floodplain Components



Source: Wisconsin Department of Natural Resources.

Buildings within the floodplain reduce its storage capacity causing the next flood of equal intensity and volume to crest at an even higher elevation. Because of the serious danger and damage that can occur during a flood event, most structural development within a floodway is not allowed.

The Village of North Hudson has adopted Floodplain Zoning. Floodplain Zoning is typically adopted to reduce expenditures for flood control projects, minimize business and home interruptions, and minimize costs associated with rescue efforts. Development within the flood fringe is generally accepted, provided adequate flood proofing measures are in place. Nonconforming structures have severe limits on modifications or additions and may not be replaced if destroyed. The Village may consider a long term goal of discouraging any structures within the floodplain.

Forested / Wooded Lands

Map 3-6 shows forested / wooded lands in the Village of North Hudson. The image was provided by the National Agriculture Imagery Program. The Village has a large quantity of wooded lands along the St. Croix River, Lake Mallalieu, and sections of the northern and eastern portions of the Village. Neighborhoods within the Village also have streets lined with mature trees.

The forests / wooded lands provide valuable wildlife habitat and are the homes for less visible threatened and endangered plants and wildlife. Forests and trees can help protect other resources too. They can reduce heating and cooling costs

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of homes and businesses. Forests and trees offer erosion control for the St. Croix River and Lake Mallalieu.

In all communities, forests and trees can be used for traffic calming, the creation of parks, and add overall aesthetics that enhance the quality of life for residents.

A contiguous forest is extremely important. The fragmentation of land can result in the disruption of habitat and can lead to problems between wildlife and humans.

As development occurs, trees are usually removed to make construction more efficient. More recently, the value of trees and forests as a selling point have made developers retain as many trees as possible. Currently, the Village of North Hudson does not have a tree planting requirement in their subdivision ordinance. Normally, a tree per 50' of road length is required. The Village may want to amend their ordinance or create a separate tree ordinance altogether.

Another way to promote the continued growth of trees would be to create an Urban Forestry Program. The Wisconsin DNR offers technical assistance, education and training, resource development, and helps create public awareness for the support of urban forests.

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Reserved for Map 3-4

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Reserved for Map 3-5

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Reserved for Map 3-6

Environmental Corridors

Environmental corridors are often remnants of the original landscape after years of alteration either by farming or development. Most environmental corridors exist because portions of the landscape are impossible to access, cost prohibitive to develop, or are protected by law. These areas are often prime locations for rare or endangered species. The Village of North Hudson has a significant uninterrupted environmental corridor that surrounds the community (see *Map 3-7*). This is mainly due to slopes, surface water, and woods.

Environmental corridors are important because they provide habitat for fish and wildlife and erosion control on steep sloped areas. They also provide recreational opportunities for area residents and are considered desirable assets by community residents. Corridor fragmentation can decrease the effectiveness of these attributes.

St. Croix County uses a number of historical and environmental resources that can be used in identifying environmental corridors. These can include highly erodible soils, closed depressions, prairies, rare or endangered species, and so on. The following dimensional criteria are also used for establishing environmental corridors:

- Must be linear in nature, often rising from a dominant feature or focal point, such as a water body or geologic feature.
- At least three environmental resources be present.
- At least 400 acres in size.
- At least two miles long.

The Village may want to preserve these areas and expand upon them. Environmental corridors are great places for passive parks and trails. The Village may want to work with neighboring communities to preserve and create a trail system within these areas.

Environmental corridors offer great opportunities for education. Schools could incorporate the value of these in their curriculum and help develop a nature trail within the Village.

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Reserved for Map 3-7

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Reserved for Map 3-8

Endangered Species

Map 3-8 shows generalized locations of occurrences of rare species and natural communities. The Wisconsin Natural Heritage Inventory Program (NHI) maintains data on their location and status. A list of these occurrences and the year documented can be found at the Wisconsin DNR web site.

The Village of North Hudson has documented occurrences of aquatic and terrestrial plants, animals, and natural communities. The exact location of these occurrences is protected to avoid possible damage. Any projects that disturb more than one acre of land must go through a review process to ensure that these sites are not disturbed.

Natural Resources Goals, Objectives and Implementation

Options

Goal 1: Preserve existing and encourage future tree growth throughout the Village.

Objectives

1. Maintain and improve the aesthetics of the community.
2. Maintain the tree canopy to reduce energy consumption by reducing heating and cooling costs.

Potential Options for Achieving Goal 1

1. Require the planting of trees in new developments and any redevelopment.
2. Work with appropriate state agencies to survey the trees in the Village and create an Urban Forestry Plan/Program that helps maintain, manage, and expand the Village's wooded lands.

Goal 2: Protect the St. Croix River and Lake Mallalieu.

Objectives

1. Improve the quality of these waters.
2. Ensure development does not have a negative effect on the lake and river.

Potential Options for Achieving Goal 2

1. Review erosion control and runoff standards and amend if necessary.
2. Provide educational newsletter addressing stormwater runoff and the effects on local waters.
3. Support creation of a Lake Management Plan.
4. Ban phosphorous based fertilizers.
5. Update the 1986 Comprehensive Surface Water Management Plan.
6. Create a process for picking up leaves in the Village and composting them.

Goal 3: Maintain and increase environmental corridors.

Objectives

1. Prevent the fragmentation of existing environmental corridors.
2. Utilize corridors for parks, trails, and educational purposes.

Potential Options for Achieving Goal 3

1. Work with neighboring communities to preserve environmental corridors and create a connected trail system.
2. Require developers to work around corridors and replant areas that are damaged during development.