

CHAPTER 3

Agriculture, Natural and Cultural Resources

Introduction

A review and inventory of the agricultural, cultural, and natural resources in the City of Cornell will provide a general overview of the City’s agricultural, cultural, and natural features. Informed decisions can be made when addressing the future physical growth, development, and preservation of the City’s lands through the identification and analysis of features such as agriculturally productive areas, wetlands, endangered species, soil characteristics, and valued cultural resources. By identifying and analyzing these features, development can be guided to the most appropriate locations, thus protecting the City of Cornell’s natural areas while identifying potential locations for responsible growth.

Survey Results

Below are the survey results related to natural and cultural resources:

The City of Cornell should retain its “small town” character? (please check one)		
	Count	Percent
I strongly agree	21	14.7%
I agree	75	52.4%
Not sure	17	11.9%
I disagree	27	18.9%
I strongly disagree	3	2.1%
Total	143	100.0%

Nearly 67% of the responses would like to see the City of Cornell maintain its “small town” character. Only 21% disagree with that statement.

The City of Cornell should protect and promote buildings, sites, and artifacts of historical importance. (please check one)		
	Count	Percent
I strongly agree	42	29.6%
I agree	74	52.1%
Not sure	20	14.1%
I disagree	4	2.8%
I strongly disagree	2	1.4%
Total	142	100.0%

Most residents (82%) would like to see the City protect and promote buildings, sites, and artifacts of historical importance. Only 6 of the respondents disagreed.

The City of Cornell should establish design recommendations for remodeling existing buildings and the construction of new buildings in the downtown area? (please check one)		
	Count	Percent
I strongly agree	28	20.1%
I agree	58	41.7%
Not sure	31	22.3%
I disagree	13	9.4%
I strongly disagree	9	6.5%
Total	139	100.0%

Over 61% of the respondents would like to see the City establish some design standards for the downtown area.

SWOT Exercise Results

Strengths

- State Park
- Chippewa River
- Memorial Tree Program
- 1,000's of acres of public/County land
- Numerous nearby lakes within 30 miles
- Improved surface water quality
- A lot of fishing, hunting, and wildlife
- Nature education programs
- Swimming beach
- Ice Age Trail and Center
- Abundance of trees
- Undeveloped shoreline
- No known invasive species
- The Stacker
- Great visitor center and museum
- History of the community – lumber and paper
- Preserved cultural resources
- Hydroelectric dam provide electricity

Weaknesses

- Waterfront can't be developed
- Wetlands limit development
- The Stacker needs rehabilitation

Opportunities

- Nature education opportunities
- City's centennial is coming up (2013)
- Variety of recreational opportunities – cross country skiing, ATVs, hiking, snowmobile, and biking
- Possible riverfront development where the City Shop is now located.
- Developing future trails
- Economic development
- Tours of the mill
- Hunting, fishing, and boating
- Eco tourism – bird watching (Blue Heron and Eagles), wildlife watching (including deer)
- Great Wisconsin Birding Trail in Brunet Island State Park
- Geo caching

Threats

- Water pollution
- Natural disasters
- Invasive species
- Dam failure
- County selling off land for development
- State park closing
- Chronic Wasting Disease
- Development

Groundwater

Groundwater is a significant and abundant natural resource in the planning area (Map 3-1). The primary source for all water used for domestic, industrial, and agricultural purpose within the planning area is groundwater. The need for clean, reliable water supplies grows as a community expands. Groundwater is recovered from underground aquifers through a water supply well. These water supplies are recharged by rainfall and melt water, which seeps through the porous soil under the force of gravity, to a point where it collects on an impervious layer such as granite bedrock. Recharge areas are typically located in the upland areas, with the low-lying areas such as rivers and streams being described as discharge zones.

Groundwater underlies the entire planning area and constantly moves to areas of discharge --streams, springs, and pumping wells. The distance that groundwater in the area travels from a recharge to a discharge area is generally less than four miles. The groundwater for the City of Cornell generally flows towards the Chippewa River.

Forests

The Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data (WISCLAND) completed a statewide land classification system in 1999. WISCLAND defines a forest as “an upland area of land covered with woody perennial plants, the tree reaching a mature height of at least 6 feet tall with a definite crown.”

Forests create a setting for hunting, camping, hiking, and many other forms of recreation (Map 3-2). Forests also provide valuable wildlife habitat and are the homes for less visible threatened and endangered plant and wildlife species. Forests and trees can help protect other resources too. They can reduce heating and cooling costs of homes and business and offer erosion control for river banks and steep slopes.

In urban areas, forests and trees are 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.

There are approximately 1,300 acres of forestland within the City Limits. The amount of land in the City is 2,395 acres, so over half the land within the City is forested. Most of the forested land occurs along the Chippewa River.

Productive Agricultural Areas and Existing Farmland

The Wisconsin Farmland Preservation Act was enacted in 1977 to slow the conversion of land from agricultural to urban usage. This legislation provides for the preparation of county farmland preservation plans, and state income tax credits for the maintenance of farmland in delineated preservation areas. Ultimately, only those farmers owning lands within delineated prime agricultural areas which are zoned for exclusive agricultural use will be eligible for the full state income tax credits provided under the law.

The Chippewa County Soil Survey considers soils with the classification suitability of I, II, and III to be potentially productive agricultural areas (Map 3-3). These are soils that can have few to severe limitations and may require some conservation practices in order to be able to farm. The City of Cornell has 842 acres of potentially productive agricultural areas evenly spread throughout the City, although much of it has already been developed.

There are approximately 210 acres of existing agricultural fields within the City Limits (Map 3-4). Over 116 acres of those existing agricultural fields are on potentially productive soils.

Threatened and Endangered Resources

According to the U.S. Fish and Wildlife Service, an “endangered” species is one that is in danger of extinction throughout all or significant portion of its range. A “threatened” species is one that is likely to become endangered in the foreseeable future. These species are protected because of their scientific, educational, aesthetic, and ecological importance.

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

The Wisconsin Department of Natural Resources (DNR) provides maps that depict the sections where endangered or threatened resources have been found and breaks them down by the type of species found, such as aquatic, terrestrial, or both (Map 3-5). The DNR does not further identify the locations in order to protect those species. If development were to take place in a section where endangered or threatened species are listed, the DNR would get involved to ensure the new development would not infringe upon those species. According to the map, there are two sections along the Chippewa River that have been identified to have threatened or endangered resources within the City Limits (more sections are identified just outside the City). They are classified as aquatic occurrences and can include animals, plants, and natural communities.

Stream Corridors and Surface Waters

The City of Cornell is fortunate to have a number of nearby surface water resources such as lakes and streams (Map 3-6). Surface waters provide an excellent source of recreation, as well as habitat for wildlife. Unfortunately, development has the potential to have a negative impact on the quality of water in the surface waters. Areas upstream of lakes and rivers impact the waters downstream. That is why it is important that communities and lake groups protect these resources.

The Chippewa River flows through the western edge of the City of Cornell and provides the City with nearly seven miles of shoreline. The Chippewa River Basin contains some of Wisconsin's most scenic natural resources. Most of it is undeveloped and consists of State and Federal land. This ensures that this part of the river will likely remain undeveloped for foreseeable future. Wildlife habitat is abundant and diverse along the riparian areas of the Chippewa River. The UW-Extension has partnered with the DNR and developed a Lower Chippewa State of the Basin Report that provides a snapshot of the current condition of land and water resources in the basin and a look at what can be done to

preserve and restore those resources. Management recommendations from that report should be incorporated into Cornell's Comprehensive Plan.

The City of Cornell also has a few streams, some of which are unnamed. The other two named creeks, Clark Creek that flows from the east, and French Creek that flows from the south, both flow to the Chippewa River. Stream corridors often have significant vegetative growth and act as habitat for a variety of terrestrial and aquatic species. Many species rely on the cover provided in stream corridors ranging from trees and plants, to water and rocks for their survival. Stream corridors often do not lend themselves to be easily fragmented, however, damaging the water quality and clear cutting the banks can do irreparable damage to the integrity of the habitat.

Floodplains

Floodplains are areas, which have been or may become, inundated with water during a regional flood (Map 3-7). A regional flood is often referred to as a 100-year flood or having a 1% chance of occurring in any given year. Because of danger posed in a flood event, most structural development within a floodway is not allowed. Development within the flood fringe is generally accepted, provided adequate flood proofing measures are taken.

The City of Cornell does have mapped floodplains on both sides of the Chippewa River. Most of the land within the floodplain and adjacent to the river is government owned and undeveloped. There are also a number of hydroelectric dams along the Chippewa River that can control water levels reducing the likelihood of flood damage to buildings or structures in the City.

Wetlands

Wetlands act as natural filters, removing sediments and contaminants from water (Map 3-8). Wetlands also regulate water levels by containing water during periods of excessive rain or snow melt. These unique environments are hosts to a wide variety of plant and animal communities, including some threatened and endangered species. Wetlands also serve as rest areas for migratory waterfowl during the fall and spring months. Wetlands also serve as major source of groundwater recharge and flood control. In the past decade, however, strict regulation of wetland conversion has slowed the loss of habitat and made conversion to other uses too expensive and impractical. Chippewa County does not have digital wetland information and therefore the WISCLAND was used to identify the general locations of some of the larger wetlands. Based on the WISCLAND information, there are approximately 45 acres of wetlands within the City Limits.

Wetlands are found in only a few small areas in the City of Cornell. Most of the larger contiguous wetlands are found in the northeast and southeast corners of

the City. There are a lot of wetlands just outside the City Limits. Although the wetlands less than 2 acres have not been mapped, that does not mean other wetlands do not exist in the City. When development or other land disturbing activities take place, it is important that each site is assessed to determine if wetlands exist. Even with strict regulations in place, it is important to take precautions when developing near wetlands.

Topography/Slope

Undulating topography offers a picturesque setting for rural areas. Residential areas are often developed on or in view of high points along the terrain. Despite the appeal of topography, areas of severe slopes should be avoided in development.

The topography and elevation of Cornell is varied and reaches its highest point in the southeastern part of the City just west of Townline Road. The City has an approximate relief of 190 feet from 958 feet to 1,148 feet of elevation (Map 3-9). The low point occurs in the southwestern part of the City along the Chippewa River.

Development in areas with severe slopes (described as 20% slope or greater) should be limited (Map 3-10). Typically buildings should not be constructed on any slope that is 20% or greater. Roads and driveways are often more restrictive and should be limited to slopes of 12% or less.

Wildlife and Environmentally Sensitive Areas

Environmentally sensitive areas and wildlife habitat are extremely important for the protection of aquatic and terrestrial wildlife and plants (Map 3-11). The preservation and possible expansion of these areas is vital to maintain a diverse ecosystem. Areas that may be considered environmentally sensitive area or wildlife habitat are forests, lakes, streams, rivers, wetlands, steep slopes, and shoreland buffers.

Environmentally sensitive areas, also referred to as corridors, consist of wetlands, floodplains, forestland, slopes of 20% or greater, and buffers around the surface waters (300 feet around streams, and 1,000 feet around lakes and ponds). Each of these features have been described earlier in this chapter however it is important to view them all together in order to identify contiguous environmental corridors. The integrity of these environmental corridors should be protected whenever possible.

The City of Cornell has a variety of environmentally sensitive resources. These areas should be factored in when the City makes future development decisions.

Metallic/Nonmetallic Mineral Resources

Communities now have the right to adopt an ordinance establishing requirements for reclamation of non-metallic mines (NR 135). If a community chooses not to adopt an ordinance, the county or regional planning commission may do so instead for the covered region. The primary reason for these requirements is to prevent owners and operators of non-metallic mines from abandoning their operations without proper reclamation of the site. Currently, the City of Cornell does not have any metallic/non-metallic mineral resources being mined at this time, but there have been in the past and some of those sites have not been property reclaimed.

Soil Suitability for Dwellings with Basements

Soil properties and characteristics are a major influence in the land use activities that can occur on a given soil type. Soils are grouped into classifications based on their respective properties. It is important to assess the various types of properties that occur within the soils of the City of Cornell to identify the optimum locations for development and preservation (Map 3-12).

The Natural Resource Conservation Service (NRCS) has developed a limitations rating system for the various soil characteristics discussed in this chapter. Below are the descriptions of those limitations:

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

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

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

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

The City of Cornell has an area of 2,395 acres. The soil survey shows that 177 acres of soil are not limited and 1,115 acres are somewhat limited when it comes to supporting a dwelling with a basement. The soils that make up the largest percent of land (49%) are classified as very limited when it comes so supporting dwellings with basements. The areas of the City that have the most severe limitations are in the lower elevation areas of the City.

Soil Suitability for Septic Tank Absorption Fields

Although the City of Cornell has a municipal water and sanitary district, some of the rural areas still require septic systems. Drainage or absorption fields are connected to the end of the septic tank and allow for the septic effluent to be distributed to the soil over a large area. Soil acts as the filter for the septic systems and if the soils are not suitable for absorption fields, they could contaminate the groundwater (Map 3-13). The main properties of soil that affect the soil's suitability for absorption are soil permeability, soil depth to bedrock, soil depth to the water table, and susceptibility to flooding.

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

The majority of Chippewa County has severe limitations for septic tank absorption fields. The City of Cornell is no different. Nearly the entire City has severe soil limitations for septic tanks. This does not mean septic tanks cannot be built on soils with severe limitations; however, residents should be aware of those areas and make sure their septic systems are designed and maintained properly to protect the areas wells and groundwater. Modern technology can still be used so that septic systems function properly in soils with severe limitations without adversely affecting the groundwater.

Stormwater

With development also comes a responsibility to manage stormwater. Development results in impervious surfaces and increases the volume of water entering streams, creeks, lakes, and other surface waters. Stormwater erodes soils and carries the pollutants and sediments to these surface waters causing damage to the water resources. Soil erosion is one of the leading causes of water pollution in the state. There is a wide range of state and federal regulations as well as local programs and actions that local municipalities must implement to appropriately manage stormwater.

Surface waters, specifically the Chippewa River and adjoining creeks, should be protected. Implementing erosion control and stormwater management ordinances can go a long way towards protecting these resources.

Historical/Cultural Resources

The City of Cornell is coming up on its Centennial and was established in 1913. It is important to preserve the cultural resources of this area. The loss of our State's cultural resources over the past century has been significant. According to the Wisconsin Historical Society, only 30% of historic buildings documented during the Great Depression by the Federal Historic American Building survey program still exist and only 25% of Wisconsin's Native American mounds remain intact.

The State Historical Society's website hosts the Wisconsin Architecture & History Inventory (AHI). The Architecture and History Inventory (AHI) is a collection of information on historic buildings, structures, sites, objects, and historic districts throughout Wisconsin (Map 3-14). This Inventory is housed at the Wisconsin Historical Society in Madison and is maintained by the Society's Division of Historic Preservation. The AHI is comprised of written text and photographs of each property, which document the property's architecture and history.

An architectural inventory was done in communities beginning in the mid-1970s until 1980 with the help of State grant money. Reconnaissance surveys were conducted by summer students and then intensive surveys were conducted by professional historic preservation consultants. These buildings and details may be viewed at www.wisconsinhistory.org. Follow the historical sites link. The AHI has information on two properties in the City of Cornell listed below:

Site Name	Location	Year
Cornell Pulpwood Stacker	Mill Yard Park	1911
Cornell Public Library	117 N. 3 rd Street	1928

While these buildings are not necessarily protected, the City should make every effort to preserve buildings, sites, and structures of historical and architectural significance. The Cornell Pulpwood Stacker is also listed as an official Wisconsin Historical Marker.

Other sites of cultural significance were found on the National Heritage Inventory that provides various archaeological resources. The inventory lists the name, type, and section of the artifact(s). The City has the following six archaeological resources listed on the inventory:

Site Name	Site Type	Town, Range, Section
Lot Six Cemetery	Cemetery/Burial	31, 6, W, 18
Brunet Village	Campsite/Village	31, 6, W, 18
Brunet's	Trading/Fur Post	31, 6, W, 19
Cornell City Cemetery	Cemetery/Burial	31, 6, W, 19
Chippewa River Bridge Burial	Cemetery/Burial	31, 6, W, 18
Cornell Wood Products Mill	Mill/Sawmill	31, 6, W, 18

Some sites have not been mapped due to the sensitivity of the resource.

Goals, Objectives, and Policies

Goal 1: Protect groundwater/drinking water quality and quantity

Objectives

1. Provide safe drinking water to City residents.
2. Limit development near wetlands – groundwater recharge areas and municipal wells.

Policies

1. Consider establishing guidelines for fertilization and chemical treatment of forests, gardens, and lawns.
2. Support County ordinances in regard to septic system inspections and maintenance.
3. Support County ordinances in regard to sewage treatment hookup when available.
4. Consider developing and enforce ordinances for erosion control and storm water management.
5. Consider developing wellhead protection ordinance if State land were to sell that surrounds the wells.
6. Update vulnerability studies and consumer confidence reports annually.

Goal 2: Protect existing urban forestland

Objectives

1. Enhance and promote preservation of trees within the community.
2. Restore native trees.
3. Increase the tree canopy in the City.

Policies

1. Investigate the opportunity of an Urban Forestry Program.
2. Seek grant funds to assist with tree maintenance, inventory, and planting.
3. Consider mapping and identifying existing trees in the City and create and maintain a database if the City is awarded a grant.
4. Continue Memorial Tree Planting Program.

Goal 3: Limit the amount of erosion from agricultural lands

Objectives

1. Keep existing agricultural lands productive.
2. Ensure that soil erosion does not negatively affect local water resources.
3. Ensure fertilizers do not negatively affect local water resources.

Policies

1. Consider identifying programs that assist or provide incentives to farmers to use no till practices and/or leave winter cover crops and provide that information to the local farmers.
2. Encourage farmers to add only needed fertilizer per soil test results.
3. Investigate the need for an ordinance to prevent farmers from applying manure to frozen ground or on steep slopes.
4. Encourage farmers to fence pastured stream banks so cattle cannot cause erosion along streambanks.
5. Consider revising zoning code to remove some currently permitted undesirable uses.

Goal 4: Improve the quality of surface waters

Objectives

1. Reduce erosion of soil which increased the amount of sediments that make its way into streams, rivers, and lakes.
2. Protect water that recharges aquifers.
3. Limit land disturbing activities near banks of the Chippewa River and streams that flow into the River.

Policies

1. Encourage residents to infiltrate roof water by redirecting roof downspout outlets from an impervious surface to a grassed area or rain garden.
2. Consider developing and adopting a Stormwater Management and Construction Erosion Control Ordinances for the City.
3. Identify sources of erosion and degradation and apply for appropriate grants for stormwater runoff to improve these areas where applicable.
4. Support existing ordinances to protect the Chippewa River riparian area.

Goal 5: Protect and preserve the integrity of the existing wetlands

Objectives

1. Prevent wetlands from filling in due to sediment from land disturbing activities including new and redevelopment.
2. Prevent development increasing or decreasing the natural flow of water into wetlands.

Policies

1. Consider following up with contractors if they have the appropriate permits for land disturbing activities near wetlands and navigable waterways (Chapter 30 Permit).

Goal 6: Protect the floodplain from development

Objectives

1. Prevent future development from occurring in areas in the floodplain prone to flooding.

Policies

1. Utilize WDNR, Chippewa County, or UW-Extension staff for education purposes when the opportunity arises.
2. Support enforcement of current floodplain zoning.
3. Support property owners who want to rezone floodplain areas to Conservancy.

Goal 7: Protect steep slopes where possible

Objectives

1. Reduce erosion coming from steep slopes.
2. Stabilize soils that are on steep slopes.
3. Leave steep slopes vegetated.

Policies

1. Consider limiting development from disturbing slopes over 20%.
2. Consider restricting roads and driveways to land with slopes under 12% grade.
3. Encourage logging individuals and companies to re-vegetate steep slopes if disturbed or logged.

Goal 8: Preserve sensitive natural resource areas and habitats

Objectives

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

Policies

1. Work with neighboring communities to preserve environmental corridors and expand on the existing connected trail system.
2. Encourage developers to work around corridors and replant areas that are damaged during development through developer agreements.
3. Require new developments to preserve open space and area for trails.
4. Investigate making a connection to the Ice Age Natural Scenic Area Trail from the City and existing trail system.

Goal 9: Encourage reclamation of Nonmetallic Mineral Resource sites

Objectives

1. Prevent previously mined sites from being a blight and possible danger to the community.

2. Support and enforce non-metallic mining ordinance.

Policies

1. Support existing regulations that require reclamation plans.

Goal 10: Manage stormwater runoff to protect all water resources

Objectives

1. Reduce erosion of soil which makes its way into streams, rivers, and lakes.
2. Protect water that recharges aquifers.

Policies

1. Consider developing and enforcing ordinances for erosion control and storm water management.
2. Consider developing an information and education program regarding the use of phosphorus fertilizers and other stormwater related issues.
3. Restore shorelines to native vegetative state where practical.
4. Encourage proper stormwater management on private property and investigate ways of proper stormwater management on City-owned land.
5. Encourage new development to incorporate grass swales.
6. Support existing ordinance that regulates new construction and additions to have stormwater management plans for development within 300' of river way.
7. Maintain and monitor the need for setback regulations.
8. Apply for appropriate grants for stormwater runoff.

Goal 11: Preserve, promote, and rehabilitate cultural resources

Objectives

1. Preserve the historic aspects of the community.
2. Increase the City's appeal to new businesses and residents.
3. Promote non-sensitive cultural resources as ways to educate resident's local history and attract tourists to the area.
4. Encourage new development to preserve the architectural integrity of the structures.

Policies

1. Consider updating Wisconsin Architecture and Historic Inventory (AHI) findings and photograph homes and structures for local inventory.
2. Consider informing property owners of any historical aspect of their property and inform them of possible local and national incentives for preserving or rehabilitating their property.
3. Consider developing Centennial book to commemorate the 100-year history of the City.

4. Consider contacting the Wisconsin Historical Society for further information gathering and guidance.
5. Explore the possibility of adding historical markers within the City.
6. Consider developing a local historic/cultural resource preservation plan.
7. Encourage the investigation of the cultural resources of the area including the Stacker, to determine which resources are sensitive and should be protected.
8. Explore opportunities for grant funding which could be utilized for historic preservation initiatives.
9. Encourage businesses to utilize available low interest loan programs such as MicroLoan Fund, Downtown Façade Loan, and the Revolving Loan Fund.