

Chapter 5:

Agricultural, Natural, & Cultural Resources

The comprehensive planning legislation requires this element to include goals, objectives, and recommendations for the conservation and promotion of effective management of agricultural, natural, historical, and cultural resources. The City of Muskego was built upon a rural atmosphere and it is the pride of the community that this strong rural character still exists in harmony with the urban uses. Many present steps have been taken to ensure that the agricultural, natural, historical, and cultural resources are preserved and this chapter defines ways to apply the preservation and enhancement of these resources further. The chapter addresses the future needs of Muskego for these vital resources while relating the inventories of the City's park and conservation sites and the *Vegetation and Ecological Conditions of the City of Muskego System: Opportunities for Restoration and Management Plan*. The City has an adopted Park and Conservation Plan, which deals with many of the topics presented below. The Park and Conservation Plan is adopted as part of the Comprehensive Plan and is updated on an earlier cycle (5-year) than this *Plan*.

The goal of this Agricultural, Natural, and Cultural Resource Facilities Element is as follows below. The objectives and recommendations are found in the Chapter 10 of this *Plan*.

Agricultural, Natural, and Cultural Resource Goal: Preserve and protect the significant natural features identified in the Conservation Inventory in order to maintain Muskego's rural, scenic, and historic rural character; Assure future public enjoyment of these valuable areas. Preserve farming as a valuable way of life in Muskego and sustain productive farmland for continued agricultural use.

Agricultural Resource Inventory

Many notations of this *Plan* discuss the strong urban to rural character that is in balance within the City of Muskego. The desires of the community intend to keep this character intact now and into the future, thus the need to preserve and protect the rural nature of the terrain is key. Because of the City's location in relation to suburban Milwaukee County, a trend of urban growth has pushed its way into Muskego within the last decade. This push of growth as not gone unregulated by the City however, as the Comprehensive Plans have largely maintained higher density uses to the north and east regions away from many of the workable agricultural areas. Map 5.1 shows where much of the current workable agricultural lands currently are found in Muskego. The crops consist mainly of corn, soybeans, alfalfa, and dairy products. The map shows that there are approximately 7,411 acres of working agricultural lands as of 2007.

Farmland Preservation

Objectives of this chapter present strong cases for the sustainability of working agricultural lands in the City. The most recent Park and Conservation Plan begins to set a direction of farmland preservation and the recommendations found herein expound upon this preservation further. This *Plan* recommends the preservation of farmland to maintain the community's rural character. Planned development zoning can be an available option to preserve tracts of agricultural lands in much the same way that this zoning is used to preserve environmentally significant lands. Codes and policies can be modified to allow developers to dedicate farmlands, place deed restrictions or conservation easements upon significant tracts of agricultural lands in exchange for allowing clustered developments of smaller lot sizes than the base zoning would otherwise allow.

Preservation of farmland should receive the greatest consideration in areas where agriculture remains the primary land use (Mainly found in the western and southeastern portions of the City, a trend shown on

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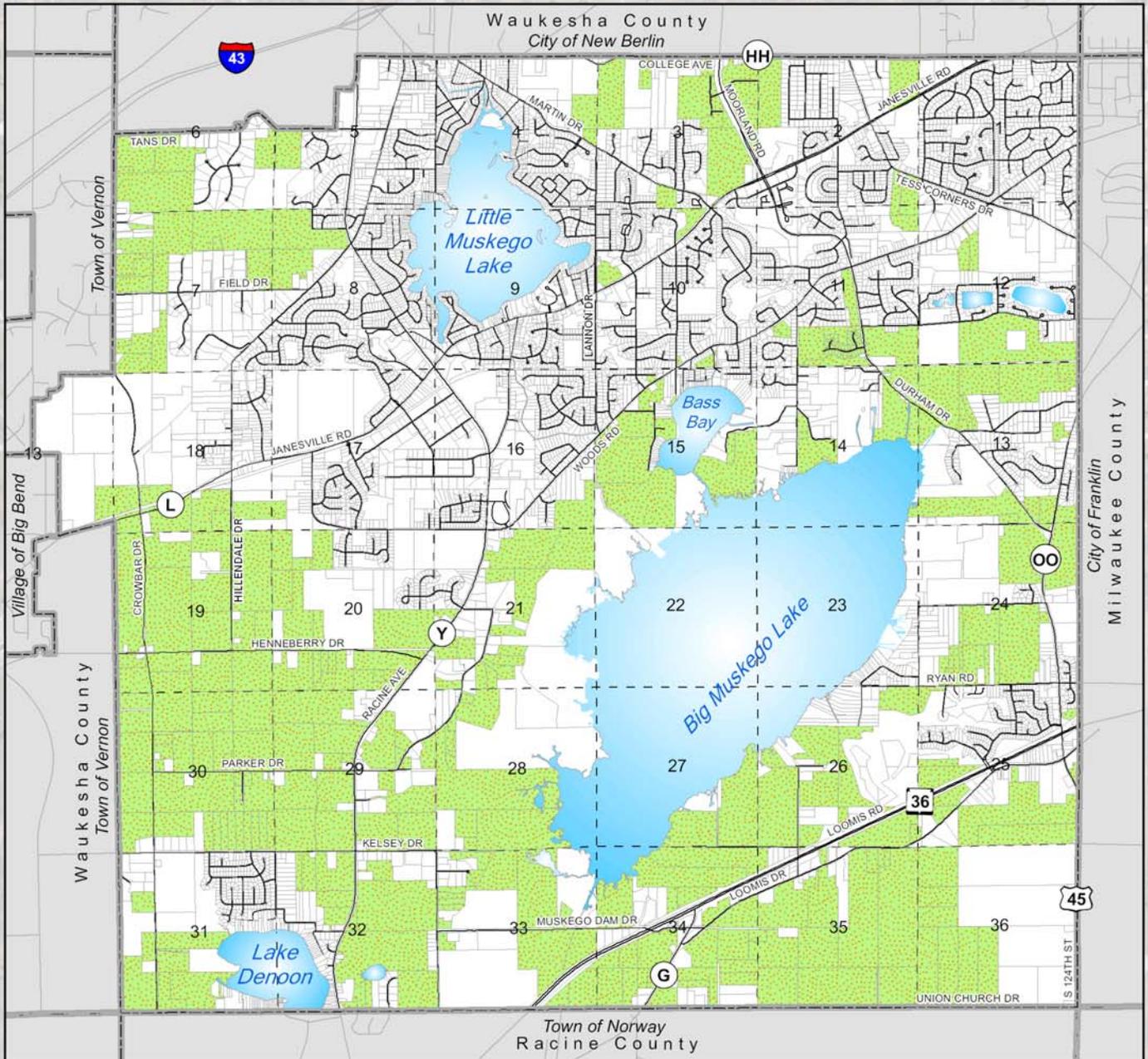
Map 5.1). Farmland preservation should also be considered to buffer conserved environmentally significant lands from areas of more intensive land development.

Overall, the City of Muskego has found that truly preserving the rural atmosphere of the community is directly attributed to preserving the large tracts of workable farmlands. The City has found that rural development contributes to sprawl at a greater rate than urban development. For example, in a higher density development, streets and public services are compact and energy-efficient while still allowing land for farming; rural density development can be costly to serve and can be wasteful of energy while allowing farmland to disappear faster.

Rustic Structures

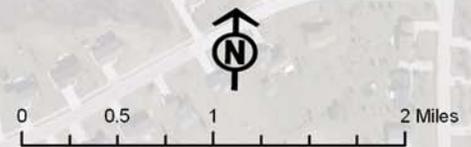
Muskego has implemented a rustic structure ordinance within the zoning code for the past decade in order to aid the preservation farm structures once found throughout the community in the past century. A rustic structure is defined by the code *as any permanent accessory structure or building which is distinctly set apart and unique from other structures and buildings due to its construction technique, materials, age, local historic significance or design, and characteristic of past agricultural practices or rural life, whether presently utilized or not for agricultural practice and which is structurally safe at the time.* The code allows landowners to apply to the City's Planning Commission and Conservation Commission for a conditional use grant to allow a structure to stay as long as the structure is kept up in a safe manner in perpetuity. Once given the rustic structure designation, the building is exempt from open space and square footage zoning regulations of the property. The City has four structures approved under this ordinance as of 2007 (See pictures and notation of location on Map 5.2).

Map 5.1



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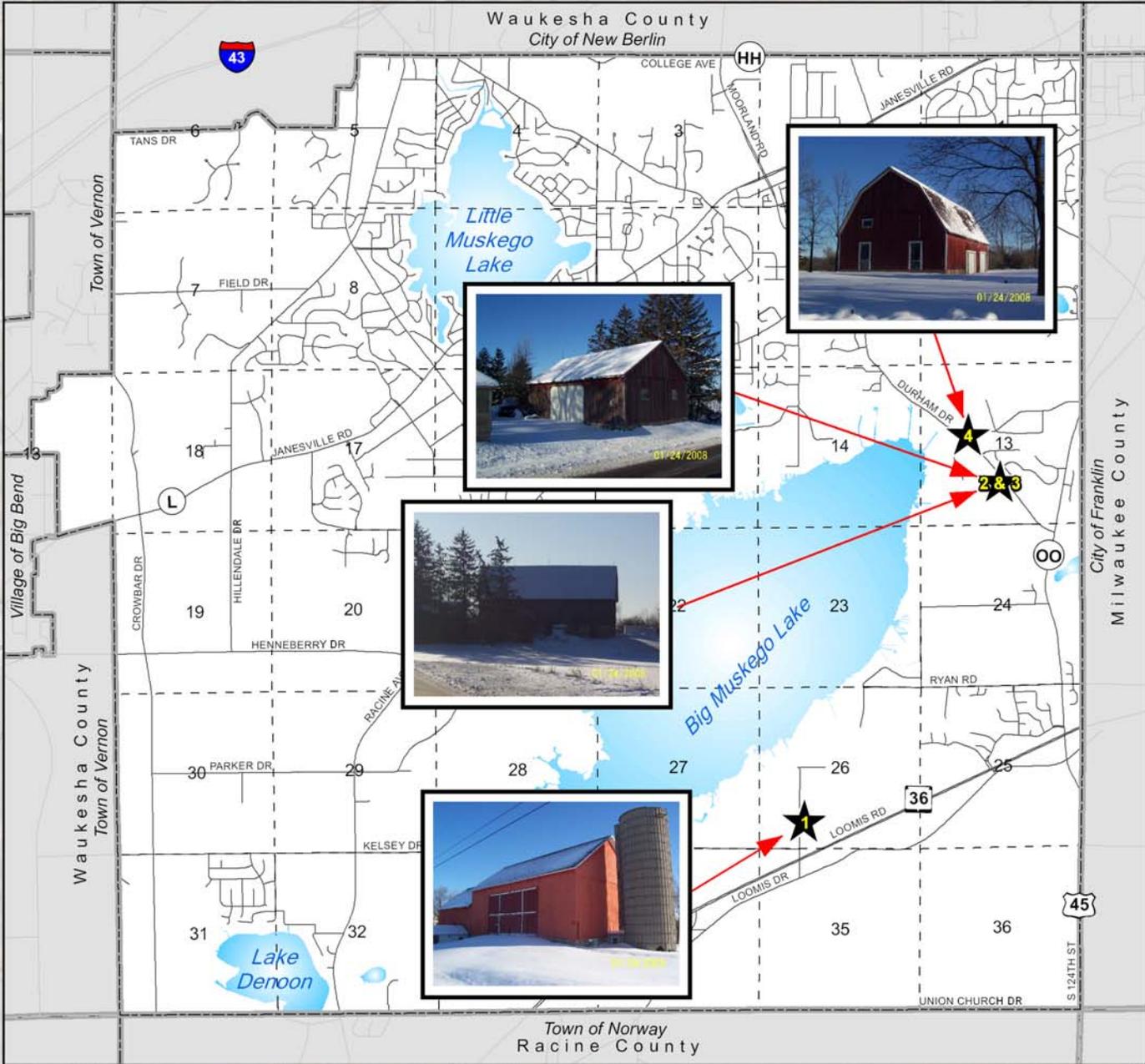
 Agricultural Workable Lands (7,411 Acres)



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Map 5.2



LEGEND

Rustic Structures

-  W151 S10178 Thode Dr.
-  W131 S8489 Durham Dr.
-  W135 S8266 Durham Dr.



0 0.5 1 2 Miles

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Natural Resource Inventory

Environmentally Significant Lands

Southeastern Wisconsin Regional Planning Commission (SEWRPC) has identified and delineated areas in the region which contain concentrations of natural resource and resource-related amenities. Environmental corridors and isolated natural resource areas contain almost all of the remaining high-value wetlands, woodlands, wildlife habitat areas, major surface waters, and delineated floodlands and shorelands. Primary environmental corridors are generally larger contiguous areas of such lands, usually along major surface waters. Secondary environmental corridors are shorter, narrower contiguous areas of environmentally significant lands. Isolated natural resource areas are smaller concentrations of natural resource features. The protection and preservation of such areas in essentially natural, open uses is considered by SEWRPC to be critical to maintaining both the ecological balance and natural beauty of the region. Consideration of these environmentally significant lands is therefore important in the acquisition and development of conservation and park lands. The SEWRPC-identified environmentally significant lands within Muskego are shown on Map 5.3.

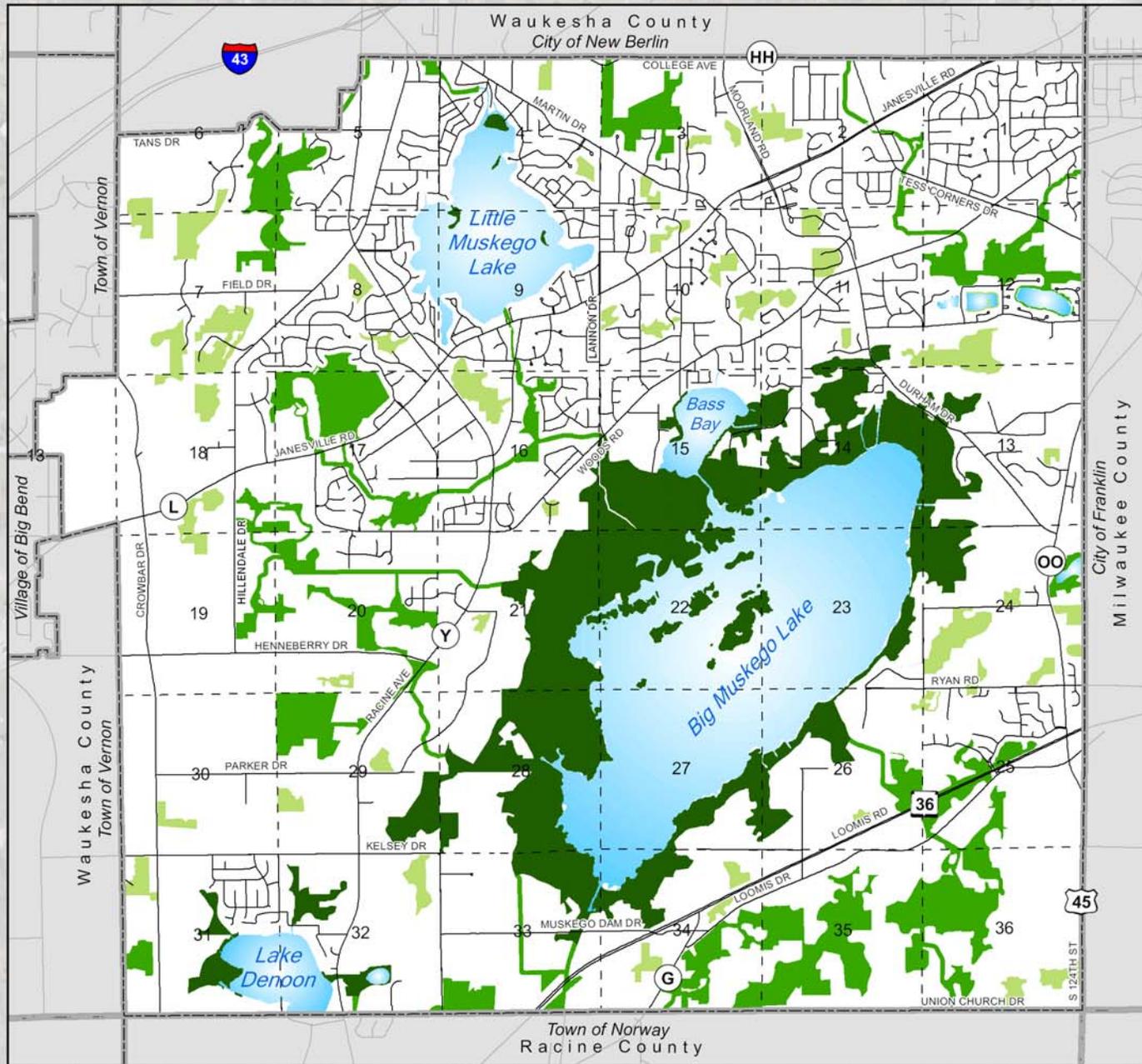
Conservation Priorities

Muskego's originally adopted Conservation Plan (2001) prioritized land areas in two fashions: 1. Low, Medium, or High Acquisition Areas, and; 2. Low, Medium, and High Management Areas. It was assumed that "management" prioritized lands would not likely be sought for outright acquisition and could be protected through working with developers to implement conservation planning techniques such as "conservation subdivisions." However, there were instances when the City has chosen not to acquire certain "acquisition" priority areas and these were protected in conservation subdivisions. Conversely, in another instance, the City has acquired land previously identified as "management" priorities. The Parks and Conservation Plan consolidated these categories into one conservation prioritization format so that either conservation strategy may be chosen. Map 5.4 shows the locations of lands that lie within the conservation priority designations described below.

The Parks and Conservation Plan and this Comprehensive Plan recommend that the City consider conservation of all prioritized areas. Lands may be preserved through land dedications, fee simple acquisition, conservation easements, preservation restrictions, or other means (other means as recommended below in this element). The Conservation Commission should review all land division and land development proposals that would affect conservation priority areas. With Planning Department staff guidance, the Conservation Commission should recommend a strategy to the Planning Commission and the Common Council to conserve such lands. It is further recommended that the City proactively seek to acquire some of the highest prioritized areas before any development proposals are brought forth. Implementation of the conservation-prioritized areas will provide a multitude of benefits to the community, including:

- Preservation of rural character
- Preservation of native plant communities
- Protection of wildlife habitat
- Creation of passive outdoor recreation opportunities
- Reduced vehicular traffic
- Reduced development sprawl and overall population density
- Reduced stormwater runoff and flooding
- Cleaner surface waters
- Groundwater recharge and Air pollution reduction

Map 5.3



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Environmental Corridors

-  Primary
-  Secondary
-  Isolated Natural Resource



0 0.5 1 2 Miles

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Concern has always surrounded City acquisition and maintenance of open space and recreation lands and if the preservation of the open spaces will truly be in perpetuity. In order to assure more scrutiny in the event the City should choose to look at selling some of its existing open space or recreation lands for conversion of a land use, recommendations exist in this chapter on what the City should first determine before approving such a sale, dedication, or grant.

High Conservation Priority Areas

Lands classified as a “High Conservation Priority” are generally larger tracts of land with higher quality environmental features such as older growth forests or larger, contiguous wetland areas. Land areas that provide continuity between large tracts of high quality environmental features are also included. Strong consideration should be given to acquiring lands in this designation. Those lands not acquired should be protected through other conservation planning techniques.

Medium Conservation Priority Areas

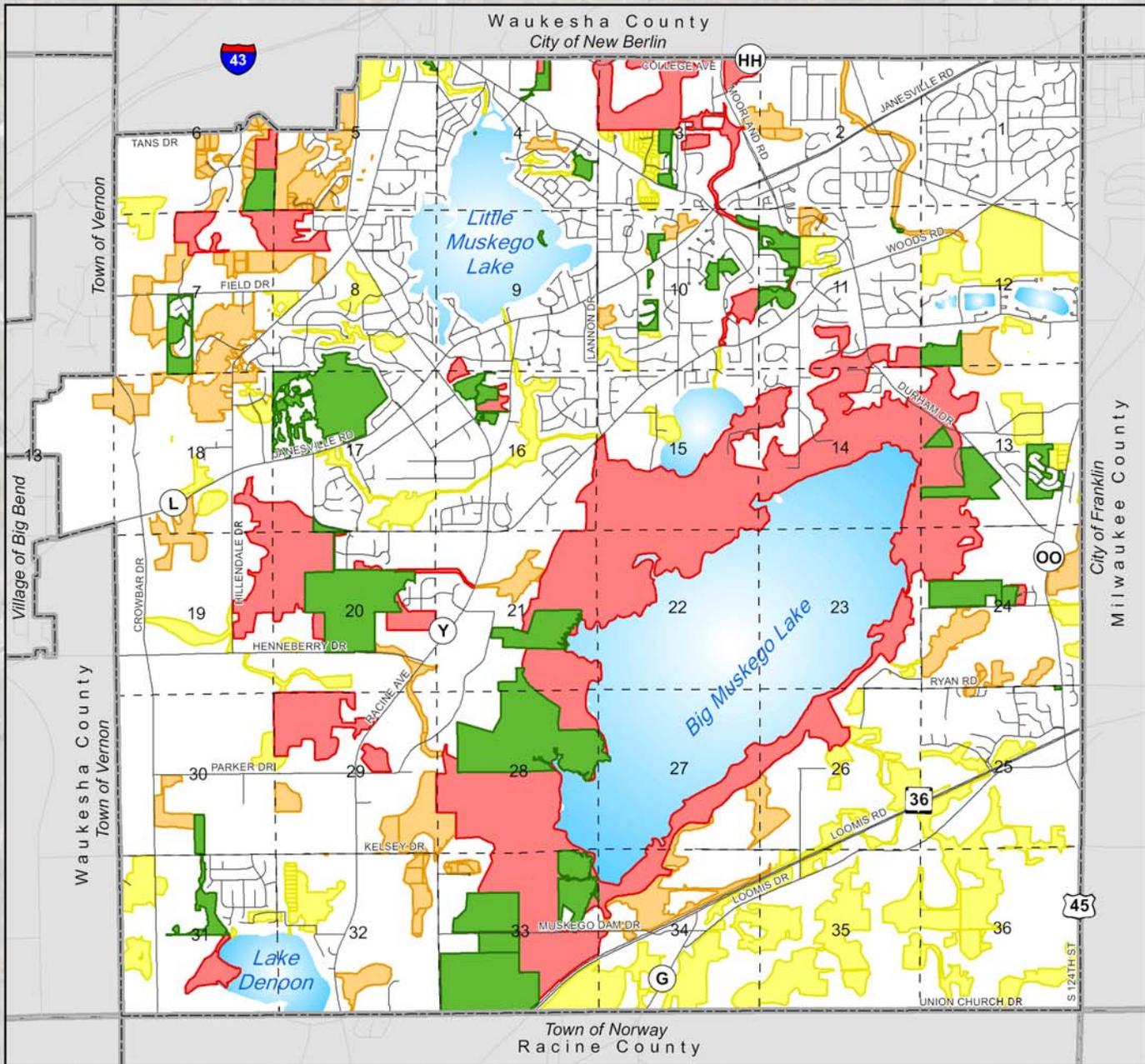
These lands are basically a continuum between high conservation priority areas and the low conservation priority areas described below. Tracts are moderately sized and/or the environmental features that they contain may be of somewhat lower quality than those designated as high priority.

Low Conservation Priority Areas

These land areas are generally smaller tracts of environmental features. This designation includes drained or degraded wetlands or lower quality woodlands. Also included are extensively fragmented, older-growth woodland areas that remain after previous subdivision or other development of land. In most cases, low conservation priority lands would be protected through means other than acquisition. For example, low quality wetlands that are protected through state and federal land use regulations.

Conservation Priorities

Map 5.4



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-  High Conservation Priority
-  Medium Conservation Priority
-  Low Conservation Priority
-  Existing Conservation Sites



0 0.5 1 2 Miles

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Natural Areas And Critical Species Habitat Sites

SEWRPC also undertook the task of identifying all of the high quality natural areas and critical species habitats remaining in the seven-county region. This inventory, as well as a recommended plan for the management and protection of these areas, is detailed in SEWRPC Planning Report No. 42, A Regional Natural Areas and Critical Species

Table 5.1 Natural Areas and Critical Species Habitat Areas

Number from Map	Area Name	Classification Code	Ownership	Size	Description and Comments
1	Muskego Park Hardwoods State Natural Area	NA-1	Waukesha Co. and Private	73 Acres	Diverse hardwoods and spring flora. Endangered Crow-spur sedge and threatened blue ash grow here. Habitat for Coopers Hawk
2	Big Muskego Lake Marsh	NA-3	State of Wisconsin and Private	1061 Acres	Large cattail marsh with Forster's Tern (endangered), Common Tern (endangered), Great Egret (threatened), and Black Tern (rare)*
3	Luther Parker Cemetery	NA-3	City of Muskego	1 Acre	Pioneer cemetery with remnant mesic prairie
4	Parker Drive Woods**	none	Private	123 Acres	Large forested area recommended for State ownership by SEWRPC
5	Lake Denoon Wetland	CSH	Private	30 Acres	Habitat for Black Tern (rare)
6	Jewel Creek	CSH	Private and conservancy	1.3 Miles	Habitat for Redfin Shiner (threatened)
7	Muskego Canal	CSH	Private	2.4 Miles	Habitat for Lake Chubsucker (State-designated Special Concern)

* Subsequent to the formulation of A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, Osprey(threatened) and Lake Chubsucker (State-designated Special Concern) were introduced to Big Muskego Lake in conjunction with a rehabilitation project.

** Although the site does not contain inventoried Natural Areas or Critical Species Habitat sites, acquisition is recommended by SEWRPC for reestablishment of a relatively large forest interior.

Source: SEWRPC, Wisconsin Department of Natural Resources, and the City of Muskego.

Habitat Protection and Management Plan for Southeastern Wisconsin (1997). Natural areas are defined as tracts of land or water so little modified by human activity, or sufficiently recovered from the effects of such activity, that they contain intact native plant and animal communities believed to be representative of the landscape before European settlement. Natural areas are classified into one of the following three categories: natural areas of statewide or greater significance (NA-1); natural areas of countywide or regional significance (NA-2); or natural areas of local significance (NA-3). Classification into one of these three categories is based upon consideration of the diversity of plant and animal species and community types present as well as size, uniqueness, extent of disturbances, and educational value. Critical species habitat sites (CSH) are identified by SEWRPC as areas that support rare, threatened, or endangered plant or animal species. These sites are separately identified when they lie outside of the natural areas described above. Preservation of natural areas and critical species habitat areas are an important consideration in the planning of parks and conservation lands. Inventoried natural areas and critical species habitat areas within the City of Muskego are summarized in Table 5.1 and depicted on Map 5.5.

Threatened and Endangered Species

The Wisconsin Natural Heritage Working List contains species known or suspected to be rare in the state and natural communities native to Wisconsin. It includes species legally designated as "Endangered" or "Threatened" as well as species in the advisory "Special Concern" category. The following are the species on record in the Natural Heritage Inventory database for the City of Muskego:

Table 5.2 Muskego Threatened and Endangered Species

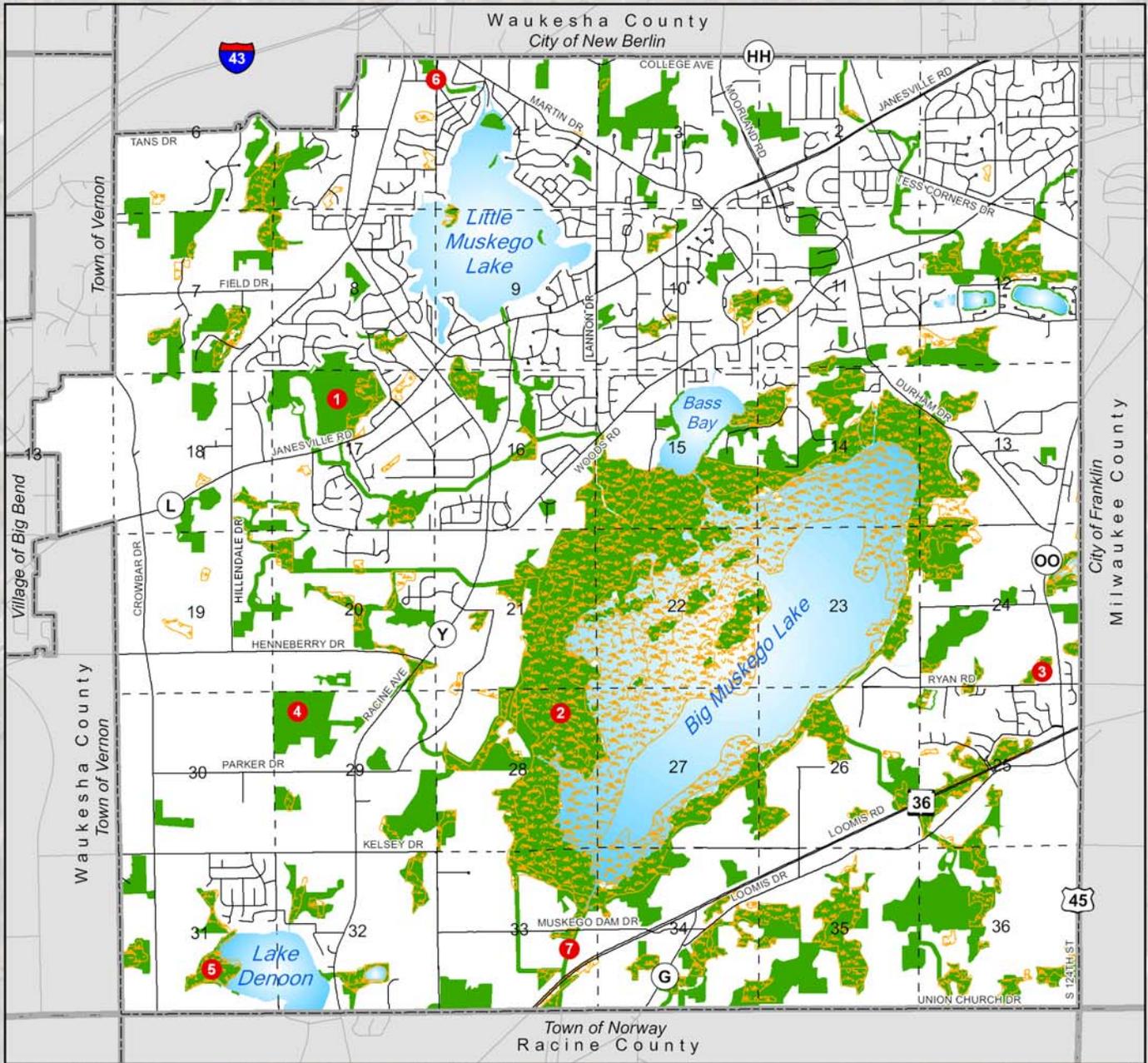
Common Name	Scientific Name	Category	WI Status
Great Egret	Ardea alba	Bird	THR
Osprey	Pandion haliaetus	Bird	THR
Caspian Tern	Sterna caspia*	Bird	END
Forster's Tern	Sterna forsteri	Bird	END
Common Tern	Sterna hirundo**	Bird	END
Black Tern	Chlidonias niger***	Bird	SC
Bald Eagle	Haliaeetus leucocephalus	Bird	SC
Blanding's Turtle	Emydoidea blandingii	Reptile	THR
Lake Chubsucker	Erimyzon sucetta	Fish	SC
Banded Killifish	Fundulus diaphanus	Fish	SC
Ravenfoot Sedge	Carex crus-corvi	Plant	END
Blue Ash	Fraxinus quadrangulata	Plant	THR
Kentucky Coffee-Tree	Gymnocladus dioicus	Plant	SC
Reflexed Trillium	Trillium recurvatum	Plant	SC

* Not listed on State's Natural Heritage Inventory but have been documented on Big Muskego Lake by City of Muskego and WDNR wildlife staff.

** Not listed on State's Natural Heritage Inventory but have been documented on Big Muskego Lake by SEWRPC

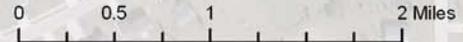
*** Not listed on State's Natural Heritage Inventory but have been documented on Big Muskego Lake by City of Muskego and WDNR wildlife staff.

Map 5.5



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- # Natural Area or Critical Species Site
- Environmentally Significant Lands
- Wetlands



Note: Natural Area or Critical Species site numbers correspond to (Table 5.1)

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Wetlands

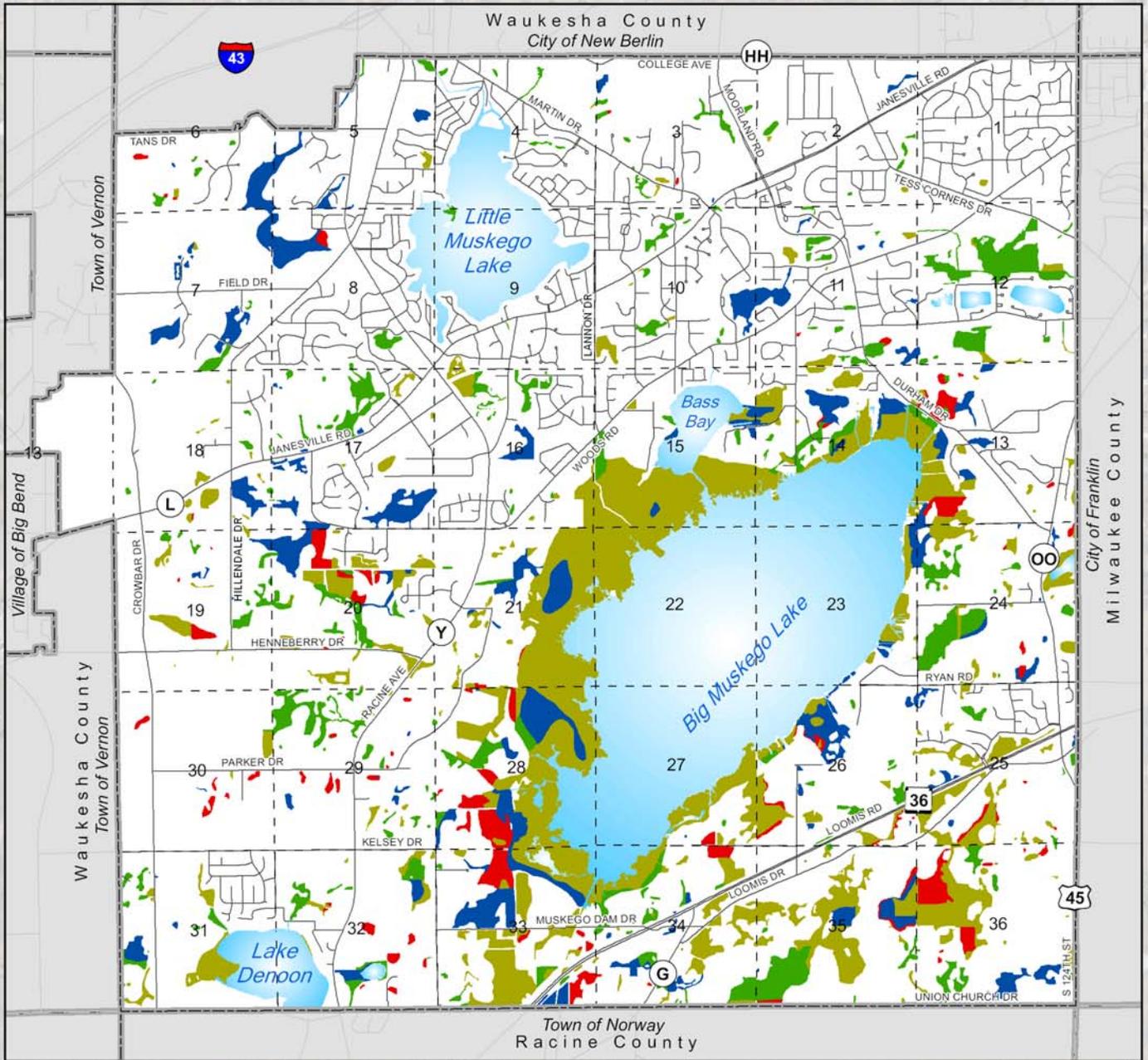
Wetlands in the City of Muskego vary from expansive marshes, such as the cattail marshlands around the shoreline of Big Muskego Lake, to narrow linear wetlands along stream margins and channelized ditches. In most locations, wetlands are moderately to severely deteriorated. Hydrological changes brought about by road construction, open ditch drainage of wetlands, and increased sediment, salt and nutrient loading from surrounding uplands, have caused a shift to vegetation types that tolerate disturbance. In many locations within the City of Muskego, the dominant vegetation types are comprised of Southeast Asian introduced non-native reed canary grass, monocultures of dense cattails, and extensive shrub thicket dominated by dogwood and willows. Reed canary grass invasion into fallowed, tilled and ditched agricultural fields is especially evident.

Along higher topographic margins of larger wetland areas and in areas that have not been subjected to major hydrologic changes, small pockets of sedge meadow and wet prairie remain. These are being invaded by woody growth in the absence of fire. Native plant species in these higher quality wetlands include lake sedge, tussock sedge, Canada blue-joint grass, prairie cord grass, and other graminoid species. Native forb dominated wetlands found in a few areas and along wetland margins include boneset, Joe-pye weed, great blue lobelia, Virginia mountain-mint, marsh-marigold, wood germander, hedge nettle, swamp milkweed, turtle head, New England aster, and blue vervain.

Most wetlands in the City have been significantly modified. The modifications include ditching, tiling, and alterations in the water level dynamics. These modified wetlands have dominant vegetation (i.e., reed canary grass, cattail, nettle) typically found in enriched wetland systems, such as those receiving nutrient loading from agricultural systems or from stormwater runoff, resulting in high nitrogen, phosphorus, and potassium levels. Because of the widespread nature of the disturbance, many wetlands in the City of Muskego are indicators of enriched wetland systems.

Determination of existing wetlands in the City of Muskego are initially based on the WDNR Wetland Inventory Maps (A representation of wetlands in the City, based on the inventory maps is found on Map 5.6). As development or disturbance of lands take place, the City mandates that the wetlands for a property be delineated and approved by the DNR. Further, the DNR determines the susceptibility of the wetlands and applies specific setbacks for structures and impervious surfaces to ensure no disturbances take place. The City also has a shoreland wetland zoning that further restricts certain land uses. The shoreland wetland zoning is mainly found around Big Muskego Lake and the western part of Lake Denoon.

Map 5.6



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Wetland Communities

-  Flats/Unvegetated Wet Soil
-  Scrub/Shrub
-  Emergent/Wet Meadow
-  Forested



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Floodplains

Floodplains in the City are regulated by the City's Chapter 14 Floodplain Ordinance and are incorporated into the City's zoning map. The Federal Emergency Management Agency (FEMA) completed a comprehensive floodplain mapping update for Waukesha County in 2008. The City of Muskego adopted the new floodplain boundaries later that year. Map 5.7 shows the floodplain boundaries in the City of Muskego as of 2008. The City's floodplain ordinance regulates the disturbance and building in and around the floodplain and associated flood zones (i.e. floodway and flood fringe). As development takes place within the City, a land owner must demonstrate that the proposed development meets the Chapter 12 Floodplain Ordinance or appropriate engineering around the floodplain must occur.

Woodlands

Forested Communities (3)

Several types of woodland communities are found in the City of Muskego consisting of these found below. Map 5.8 shows the locations of each classified woodland in more detail.

- **Fence Rows**

Fence rows are associated with agricultural fields and typically are elevated above the surrounding fields. Fence rows consist of scattered native species such as oaks and hickories, with a dominance of black cherry, boxelder, and hawthorn. An understory of non-native woody species such as buckthorn, hawthorn, and non-native grasses are also associated with fence rows. Typical shrubs and forbs consist of native brambles, and non-natives such as honeysuckle, wild carrot, and dandelion.

- **Recently Developed Forested Systems in Degraded Conditions**

Recently developed forested systems are comprised of native early-invading species such as cottonwood, boxelder, green ash, black cherry, elm, and non-native white poplar. These areas typically occupy fallowed fields, former wetland soils that have been drained, spoil piles along ditches, and riparian margins, where successional tree species have invaded and create shade suppression of the native, soil-stabilizing vegetation. Often, the sub-canopy, which is usually closed, includes dense growths of European buckthorn and other shrubs that are semi- to completely shade-tolerant. The combined influence of shading by young trees and buckthorn (*Rhamnus cathartica*) have contributed to the decline of the native, soil-stabilizing vegetation. These are low-diversity and unstable systems.

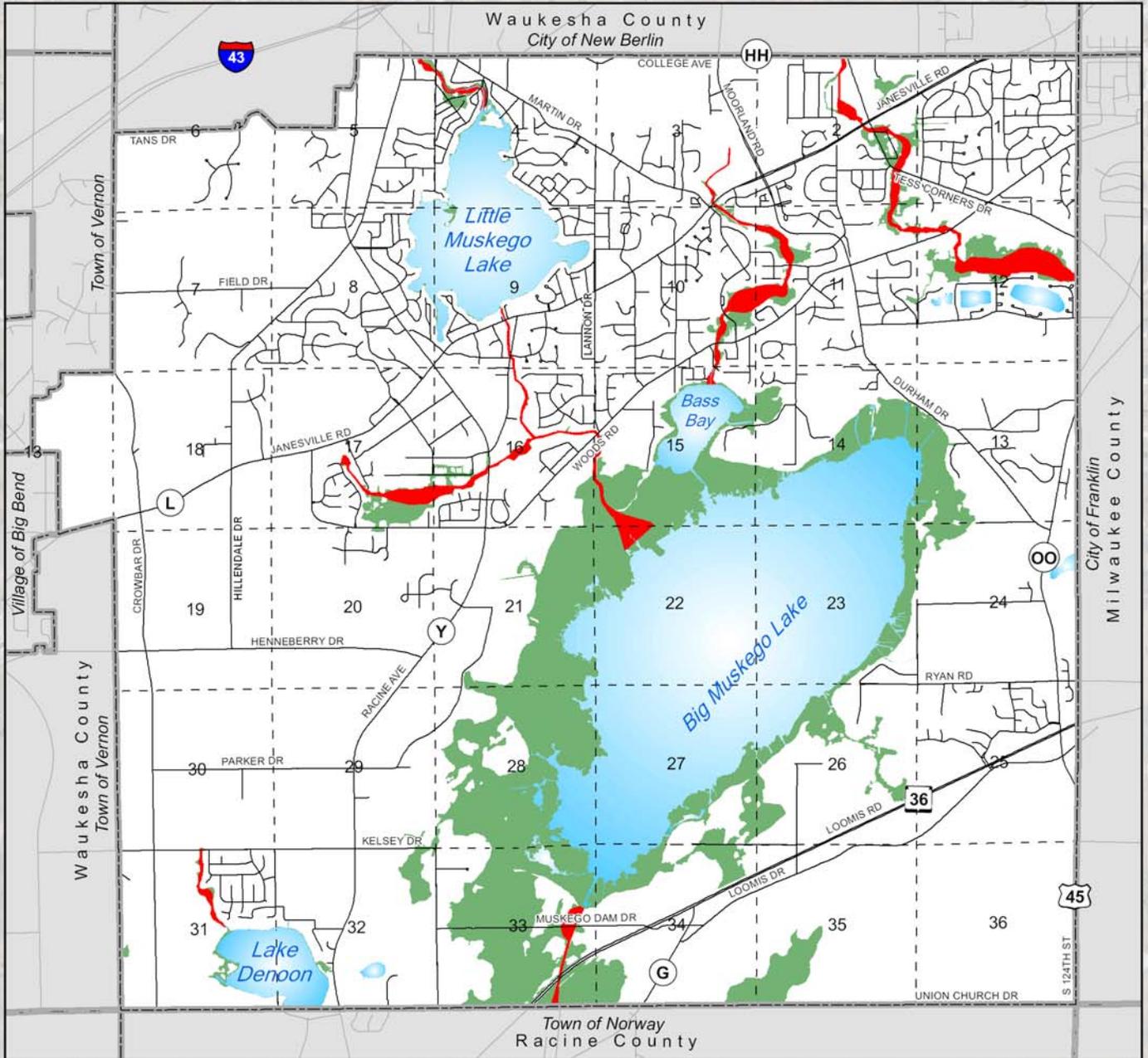
- **Black walnut/oak woods**

Black Walnut and Oak Woods are native trees that are found mostly in the northern part of Muskego on ridge tops where residential developments occur. Typical native woodland ground cover species are Pennsylvania sedge, Jack-in-the-pulpit, horse gentian, violets, false Solomon seal, wild geranium, white lettuce and starry campion. Of the wooded areas studied, this woodland community had the greatest percentage of native ground cover vegetation.

- **Oak/maple woods**

Several wooded areas are comprised of sugar (black) maple with scattered oak and basswood. In most instances the shrub/sapling layer is dominated by numerous young sugar maple with occasional black cherry, bitternut hickory and ironwood. Ground cover in summer was sparse with sedges, Jack-in-the-pulpit, Enchanter's night shade, and woodland knot weed the most frequently observed species. These woodlands can have a diverse spring flora.

Map 5.7



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Floodplain Boundaries

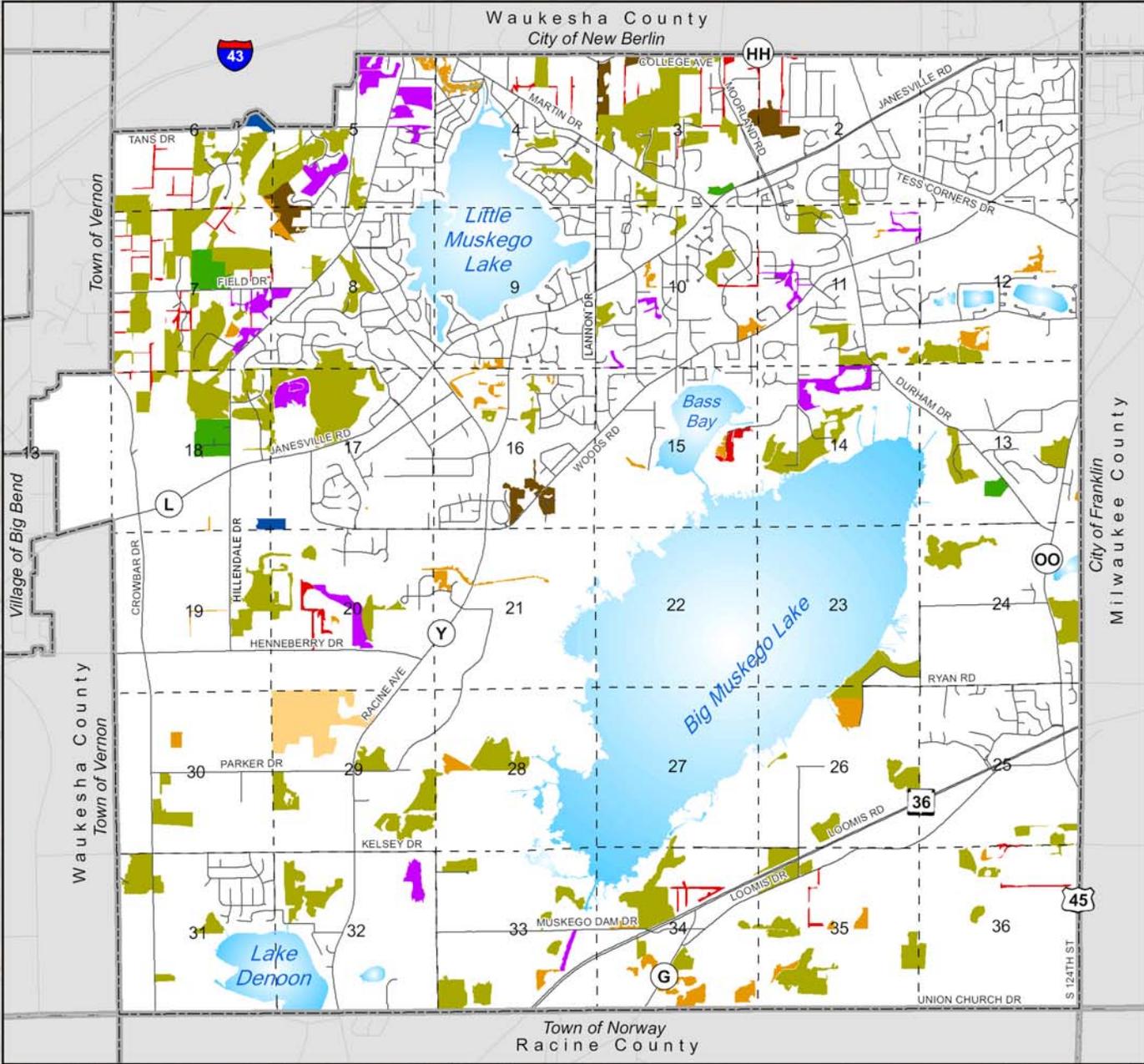
-  Floodway
-  Flood Fringe



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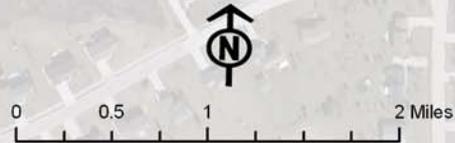
Map 5.8



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Forested Communities

- | | | | |
|--|-----------------------------|--|------------------------|
| | Fence Row | | Black Walnut/Oak Woods |
| | Recently Developed Woodland | | Oak/Maple Woods |
| | Historic Oak Savanna | | Maple/Basswood |
| | Plantation/Orchard | | Unclassified |



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- **Historic Oak Savanna**

Oak savannas are dominated by bur oak, white oak (*Quercus alba*) and red oak with native and introduced forbs, grasses, and sedges are found in the City of Muskego. In many locations these occur on higher, drier ridge tops. Ground cover vegetation varies from shade-suppressed areas with an overstocked canopy, to areas of dense invasion by European buckthorn and Tartarian honeysuckle. Some areas have relatively diverse ground cover vegetation along the edges and in light gaps. However, oak savanna systems on slopes have experienced severe degradation, where substantial erosion of the topsoil has occurred. Topsoil loss is associated with the loss of long-lived seeds, roots, tubers, bulbs, and other plant stock from the soil. In many of the savanna sites, no or little ground cover vegetation is found and woody vegetation is entirely dominated by European buckthorn, native prickly ash and others. The deterioration of these oak savannas has followed a process of degradation documented by previous studies throughout the Upper Midwest (Apfelbaum and Haney, 1989). Documentation produced by the other studies and corroborated during this inventory suggests that the previously identified trends are occurring in the City of Muskego. These include a precipitous decline in breeding bird and native vascular plant species richness, severe erosion, and a decline in the opportunity for restoring these savanna systems with increasing time, due to erosion and loss of the soil seed bank.

- **Plantations/orchards**

Several pine plantations and orchards are located within the City. These are noted as a woodland land cover type, but are not mapped.

- **Maple/basswood woods**

This large mesic wooded tract consists of a sugar maple /basswood community with interspersed oak and ash. Low swale areas and wetland depressions are found in this woodland community.

Soils

Soil characteristics vary greatly within the community but generally fall into three soil associations (or types). The soils of the northwestern portion of the City are well drained soils derived from glacial till. Soils surrounding Big Muskego Lake are poorly drained to well drained soils formed in shallow glacial lakebeds. Soils in the remainder of the City are well drained to somewhat poorly drained and are derived from glacial till. Most soils in the City have a relatively high clay component and some have a high content of organic material. Many soils in the area have severe limitations for building structures and the installation and operation of on-site wastewater treatment systems. Soil characteristics and their suitability for development are discussed in greater detail in Southeastern Wisconsin Regional Planning Commission (SEWRPC) Planning Report No. 8, *Soils of Southeastern Wisconsin*, and in the Soil Conservation Service *Soils Survey of Waukesha County, Wisconsin*. A map of the soils in the City is found on Map 5.9.

Map 5.9

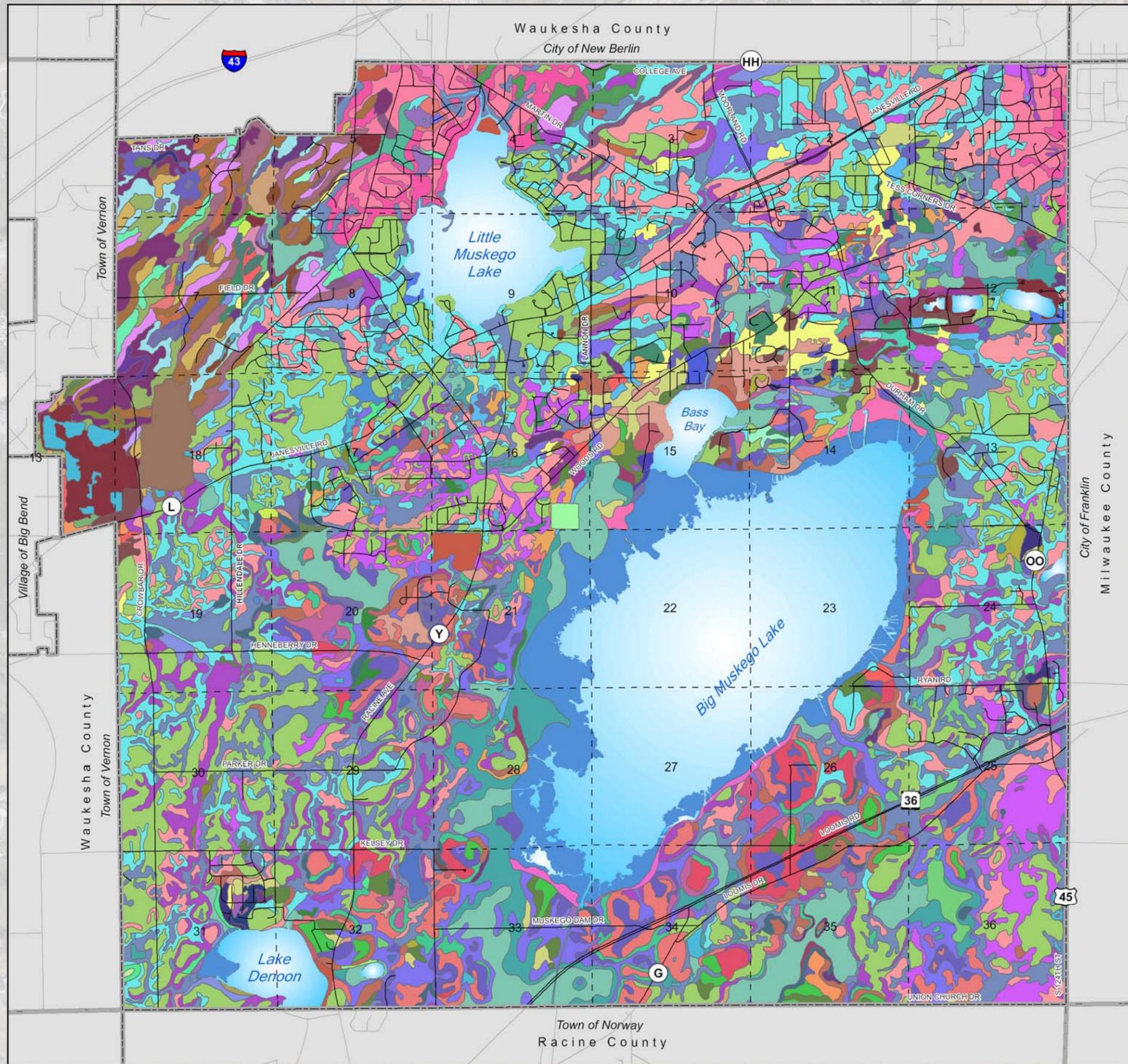
Soils

LEGEND

Ac	FmB	JuA	OuB2
Am	FmC2	KeA	OuC2
AsA	FnB	LDF	Pa
AzA	FoA	LmB	Ph
AzB	FoB	Lu	PrA
BIA	FoC2	LyB2	Ru
BmB	FsA	M-W	Rv
BmC2	FsB	MeB	Sf
BnB	FsC2	Mf	ShA
BsA	FtB	MgA	ShB
CcB	GP	MhA	ShB2
CcD2	Gd	MmA	ShC2
CeB	Gf	MoB	Sm
CeC2	GrA	MtA	ThA
CeD2	GrB	Mzb	ThB
CfC3	HeA	MzdB	ThB2
CrC2	HeB	MzdB2	ThC2
CrE	HeC2	MzdC2	W
CrF	HmB	MzdD2	Wa
Cv	HmB2	MzFA	WeB
Cw	HmC2	Mzg	WmA
DdB	HmD2	Mzk	Ww
Dt	HmE2	Na	
EsA	HoC3	Oc	
FaA	HtA	OuB	
FmA	HtB		



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Surface Water

Muskego has four major water bodies within its civil boundaries (Seen on most maps in document). Big Muskego Lake is a shallow 2,260-acre lake that is fringed with wetlands and encompasses islands of cattail marsh. Bass Bay is a 100-acre connected embayment of Big Muskego Lake and has a deeper basin typical of other glacially formed kettle lakes in the region. Recent rehabilitation efforts have enhanced the water quality, plant diversity, and fish and wildlife habitat of both Bass Bay and Big Muskego Lake. Little Muskego Lake, which covers 506 acres, contains shallow areas as well as a deeper basin that reaches 65 feet in depth. Lake Denoon, which is partially located in the Town of Norway, is a kettle lake covering 162 acres with a maximum depth of 55 feet. Significant tributaries in the watercourses include Jewel Creek, which flows into Little Muskego Lake, Muskego Creek (also locally known as Pilak Creek), which flows from Little Muskego Lake to Big Muskego Lake, and Muskego Canal, which is the outlet of Big Muskego Lake. Tess Corners Creek is located in the northeast part of the City. Numerous smaller surface water bodies are distributed throughout the community.

Groundwater

Groundwater from the shallow sand and gravel aquifers and the underlying limestone/dolomite aquifer are the primary source of drinking water in Muskego. A small amount of water from the deeper sandstone aquifer is also utilized. The sand and gravel deposits that make up the shallow aquifer were deposited by the glaciers 10,000 to 15,000 years ago.

The Muskego Water Utility wells in the sand and gravel range from 94 to 322 feet deep. The limestone/dolomite wells range from 320 to 400 feet deep. The sandstone wells range from 1100 to 1400 feet deep. Water from the sand and gravel aquifers and the limestone/dolomite aquifer is generally good. Several of the sand and gravel wells have some natural iron that is treated with sodium silicate to keep it in suspension. The natural hardness of several wells may also require softening by the user. Because the deep sandstone wells are small producers and the water is costly to pump from these depths, these wells are seldom used. Much of Muskego is covered with 50 feet or more of clay. This clay provides excellent protection to the groundwater from surface contamination.

The City of Muskego has a Wellhead Protection Zoning District employed in the Municipal Code Chapter 17 Zoning Ordinance. Through the Wisconsin Legislative Act 410 (effective May 11, 1984), and as the residents of the City of Muskego depend exclusively on groundwater for a safe drinking water supply, it is recognized that certain land use practices and activities can seriously threaten or degrade groundwater quality. The intent of the zoning district is to protect the City of Muskego's municipal water supply and well fields. The regulations specified by the district apply to all lands that lie within the five year Time of Travel (TOT) of each City of Muskego municipal well or 1,200 feet minimum, within the City of Muskego corporate limits, and have a well head protection area delineated in a Well Head Protection Plan accepted by the City.

Watersheds

As discussed earlier in this document, Muskego is located along a sub-continental divide and is broken up into two distinct watersheds, the Illinois Fox watershed (west of the divide) and the Root River watershed (east of the divide). Map 4.4 from the Chapter 4 section on stormwater drainage shows where the divide and the watersheds are in relation to the City boundaries and lakes. Waters to the east of the divide flow towards Lake Michigan and the Atlantic Ocean Basin. Lands to the west of the divide flow towards the Gulf of Mexico. The City's four major lakes drain through the Illinois Fox watershed into the Gulf of Mexico via the Fox River, Illinois River, and Mississippi River. Tess Corners Creek is in the Root River watershed that drains into the Atlantic via the Great Lakes.

Topography

Muskego is located in what is commonly known as Wisconsin's Kettle Moraine. The topography of the region displays the Kettle Moraine character and is characterized by glacial features, which are the result of marginal deposits, and geologic activities, which occurred more than ten thousand years ago during the Pleistocene Epoch. As a result, local conditions vary from rolling hills to flat terrain.

As shown on Map 5.10, the elevations in the City range from 735 to 1021 feet. The lakes and flowages in the community are generally found at 770-790 feet.

Slopes

Slopes throughout the community are general in nature with only steeper terrains found in the northwest portions of the City. Map 5.10 also displays the locations of more extreme slopes in Muskego. Most of the grades decrease closer to the lakes and the overall gradient flows from high to low as you move from north to south across the City. The most extreme slopes in the City of Muskego are located in the northwest corner at greater than 12%. For the most part, general slopes of less than 12% are found throughout the community.

The City of Muskego ordinances regulate development where steep slopes exist at more than 12%. Steep slopes are environmentally sensitive where increased amounts of erosion and runoff can enter surrounding water bodies and flowages, which in turn can negatively affect water qualities. The City employs strict erosion control policies to minimize impacts of slope during land disturbance events.

Nonmetallic Mining Resources

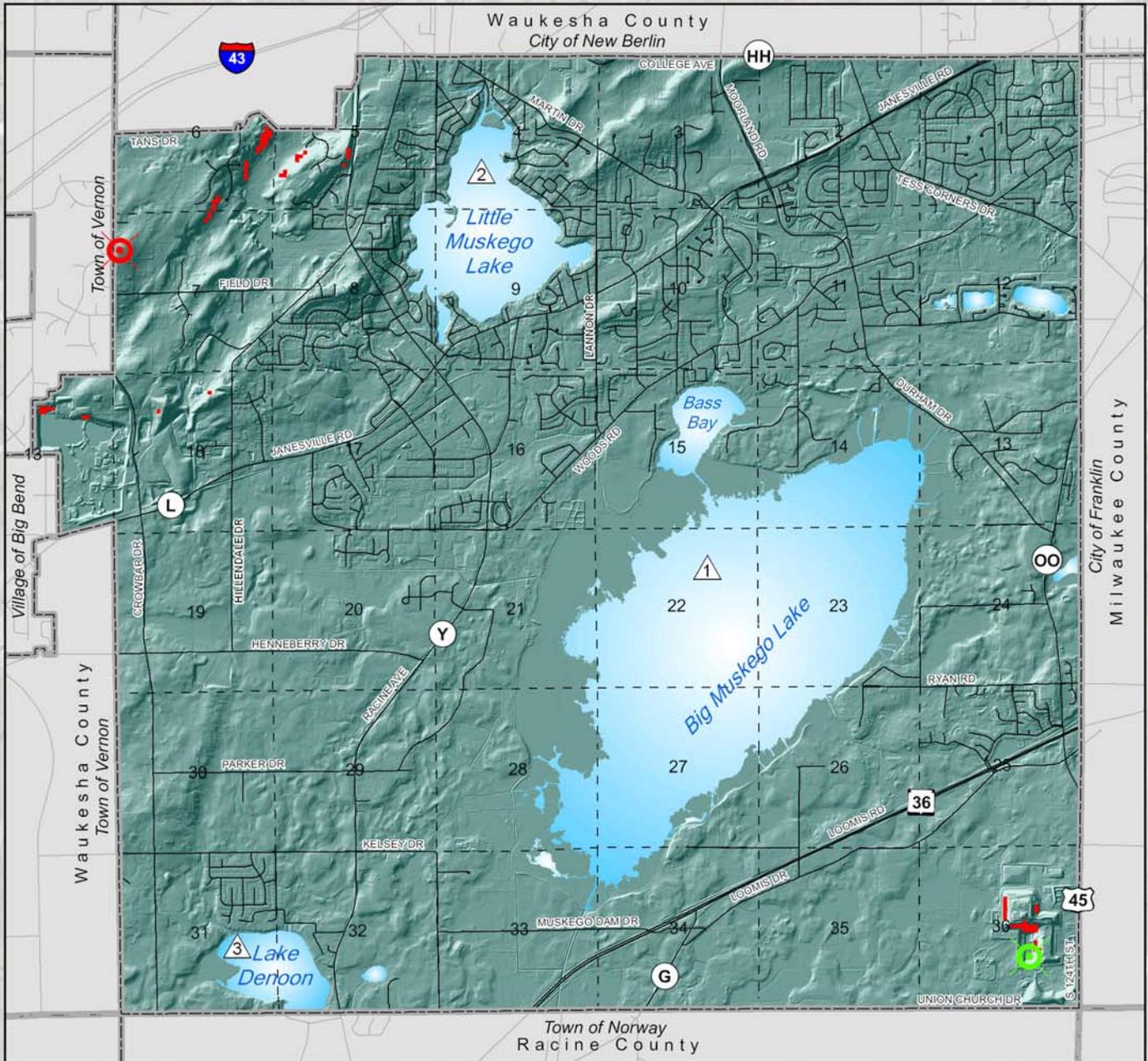
One nonmetallic mining operation exists within the City at this time. The site is operated by Payne and Dolan, Inc. located along the western border of the City on Crowbar Drive. The City has an adopted nonmetallic mining ordinance that requires a mining operation in the City to have an approved reclamation plan approved by the City's Planning Commission. The Commission requires yearly annual reviews in order to assure the operations of the plant are completed in an orderly fashion not harming the neighbors and uses that exist around it. Further, the WDNR requires any nonmetallic mining operation to submit yearly updates on the progress of a mining site towards their reclamation goals. As of 2007, the Payne and Dolan site was still mining 31 acres of their property and figured to have approximately 40-45 years of life left in the mining business.

The City doesn't anticipate other nonmetallic mining operations, however, the soils and geological makeup may allow for such resources in the distant future.

Air Quality

The City of Muskego is not known to be in violation of any air quality regulations. However, being situated in the suburban environment of southeast Wisconsin, the City must be cognizant of air quality standards and how development approvals may affect the air environment. As population grows, bringing more commercial and industrial developments, the City must be focused on the impact of emissions.

Map 5.10



LEGEND

-  Lowest Elevation - 735.15'
-  Slopes > 12%
-  Highest Elevation - 1021.82'

Surface Water Elevations

-  771'
-  792'
-  780'



Created by City of Muskego
Planning Department



Cultural Resources Inventory

Muskego has a rich and colorful cultural history that is centered on the lakes and agricultural lands. The settlement was originally home to the Potawatomi Tribe of Native Americans who referred to the area as Musk-kee-guac, or “Sunfish.” The presence of the lakes, large forests, and abundant game supported the large population of Native Americans. The first permanent European settlers to Muskego were Luther Parker and his family, who arrived from New Hampshire in 1836. Other settlers soon followed. Five separate settlements were established, including Yankee, English, Irish, German, and Norwegian immigrants. Agriculture was the backbone of the economy with produce being shipped to Milwaukee by wagon.

Preservation of historic and cultural resources is important to the life in Muskego fostering a sense of pride and providing an important context for social and cultural continuity between the past, present, and future. The rural terrain of Muskego is the most evident definition of the community’s culture. From the lakes and abundant wildlife habitats to the vast agricultural fields and rural areas, Muskego is a distinct destination. Implementing conservation techniques for all these resources from the past is a key component of this *Plan*.

Historic

Muskego did not contain any buildings or places on the National or State register as of 2008. The last structure that was part of the National Register was the Philadelphia Toboggan Co. Carousel #15 that was found in the old amusement park along Little Muskego Lake and Janesville Road during the early 1900s. The carousel was removed from the Register once it was removed from the park in the 1980s. The carousel was part of a larger amusement area along the southern shores of Little Muskego Lake known as Muskego Beach Amusement Park (1861-1967) and Dandelion Park (1968-1977), which also included a roller coaster known as the *Tailspin*. The wood roller coaster was in operation from 1929 to 1975, spanned 4200 feet and was 75 feet high.



The community does however have numerous sites and buildings listed on the Wisconsin Architecture and History Inventory. Architecture and History Inventory (AHI) is a collection of information on historic buildings, structures, sites, objects, and historic districts throughout the State of Wisconsin. The 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. Muskego has 60 listings on the inventory as of 2008 consisting of historic farmsteads and many unique architectural structures defined by the era they were built in. Further

info regarding the places listed can be found on the State's Historical Society Web page. The inventory maintains that inclusion conveys no special status or advantage and that consultation of the inventory may not be sufficient to satisfy requirements of local, state or federal historic preservation statutes.

The Muskego Historical Society has long been a part of the community supporting the preservation of Muskego's history. The Society has inventoried many of the City's significant historic buildings and places as well. The inventory and supporting information as defined by the Society is found herein:

- Old St Paul's Lutheran Church - Founded over 150 years ago. Tess Corners was a German settlement and to this day, life still centers around their church. Their historic original church or school still exists on the property as a little white clapboard building. The brick church formerly used as the church is an architectural tribute to former times.
- Muckey School (Hwy 24) - A log tavern/hotel, was built there by Peter and Catherine Muckey. It was first built there for travelers as a place of rest and food along the wilderness trail in 1841. Taverns were safe havens for wayfarers at that time. Eventually the land was donated by the Muckey family for the school.
- Sawmill and later Grist Mill on Creek (College Ave) – Within the Linnie Lac Area in the early 1840's. Hales Mill was owned by Hugh Wedge, which was on both sides of College Ave. It was the first sawmill in the area built for Dewitt and Thompson, the contractors. The New Berlin Historical Society has a marker there designating it as of historical interest.
- Boldt Farm on College Ave - Originally owned by the Loughney family and sold to the Boldt's. The home is in great condition and home of an innovative family, inventors and the then future owner of Boldt Butter and Eggs.
- Devil's Teapot (Bike trail marsh area off Racine Ave across from Culver's) - Known as the Devil's Teapot on the old Leonard farm. The tracks of the interurban train connecting Muskego with Big Bend were laid and the Devil's Teapot erupted, keeping the Milwaukee Electric Railway and Light Co. cars from running for approx. one year. The little pond swallowed trees, carloads of gravel, even railroad cars and the trestle that crossed it toppled and fell into the seemingly bottomless pit.
- Leander Point (North bank of Big Muskego Lake) - Burial ground of the Potawatomi Indians and last town in southern Wisconsin Counties to be a home for them until 1852, when removed by order of the General Government.
- Muskego Dam/Cesar's Dam - Site of the finding of the Potawatomi dugout canoe in 1892 and donated to the Milwaukee Public Library until the formation of the Historical Society in Muskego.
- Ellarson Home - Early settler in Muskego, approximately 1836, original log cabin was 2 blocks off Janesville Rd, just NE of the present park office.
- Luther Parker Cemetery - North of Hwy 36, on the south end of Little Muskego Lake, near Muskego Center. His young daughter, was the first white person to be buried in the town and this cemetery, approximately 1836.
- Bosch's Garage (Durham Hill)
- Charlie Fickau's Garage (Tess Corners Drive) - Well known blacksmith
- Bethlehem Lutheran Church (Durham Hill) - Established in 1904 and over 100 years old.
- Post-Kellner home (Located at W192 S7586 Racine Ave at the bottom of the hill) - Known as Post Hill, between Lochcrest and Richdorf Drives. The cream city brick farmhouse is a good example of the architecture of the times and the longevity of the building from the 1800's.

Archeological

The City has an affluent archeological history. As mentioned, the City was originally home to the Potawatomi Tribe of Native Americans who referred to the area as Musk-kee-guac, or "Sunfish." In

1827, the first European settler arrived and established a trading post. The settler remained two years, trading with the Potawatomi Tribe. The Potawatomi ceded their lands in Wisconsin to the Federal Government in 1833. The Potawatomi Tribe remained in the area until the 1850s, making it one of the final areas inhabited by the Tribe. However, as late as the 1870s the Potawatomi continued to return to the lakes in the area to hunt and fish.

Archeological remnants of the past continue to be recognized today within Muskego. Burial mounds have been found and recorded by archeologists around Big Muskego Lake. Further, corn hills are still found in some Muskego forests as evidence of Potawatomi tribe gardens.

If evidence is known of a possible archeological site on a piece of land proposed to be developed, the City works with that landowner to first contact an archeologist for inventory and preservation procedures.

Recreational

Recreational resources, including the conservation and park/recreation assets, are discussed in depth within the Chapter 4 Utilities and Community Facilities portion of this Plan. The City's Parks and Conservation sites provide excellent chances for residents and visitors to play, hike, and overlook wildlife. While the lakes offer further opportunities with recreational boating on Little Muskego Lake and Lake Denoon to an abundance of fishing and hunting on Big Muskego Lake. Muskego is cognizant of the scenic beauty that exists along the landscape and is working to preserve and protect these resources, while also making them available to the public through a way that will manage them in perpetuity.