

Part Three: Community Profile

The following chapters contain the third and final part of the Master Plan, the community profile. The community profile provides a solid foundation of data to substantiate current conditions and trends of the recent past. It is this data, coupled with the public input, which provided the direction for the goals and objectives and future land use contained in this Master Plan.

Both original research and information from secondary sources were employed and analyzed to reveal circumstances and implications that may be either obvious or surprising to the residents of Muskegon Township.

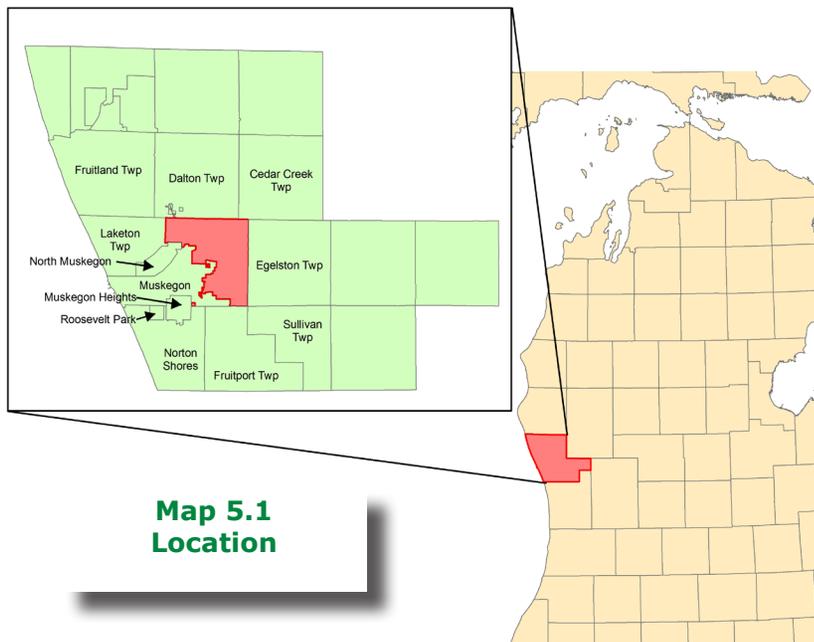


Chapter 5

Our Natural Environment



Located east and northeast of the City of Muskegon, Muskegon Charter Township occupies a unique space in the West Michigan region. It has the distinction of being the oldest Township in Michigan, created in 1837 when its boundaries also included parts of lands now in Ottawa and Oceana Counties. Eventually, its geographic extent was reduced by further divisions of the State government and annexations by the City of Muskegon. All of these factors have given the Township its current boundary, which encompasses about 23 square miles. The Township shares a common border with seven other communities: the Cities of Muskegon and North Muskegon, Laketon Township, Dalton Township, Cedar Creek Township, Egelston Township and Fruitport Township.



Map 5.1
Location

Muskegon Charter Township's unique location is reflected in the diversity of its land uses and natural features. The southwest portion of the Township has been urbanized and is only about three miles east of downtown Muskegon. The southeast corner of the community has experienced less intense development over the years, and contains vital stands of hardwood forests and open spaces while supporting low- and moderate-density residential development.

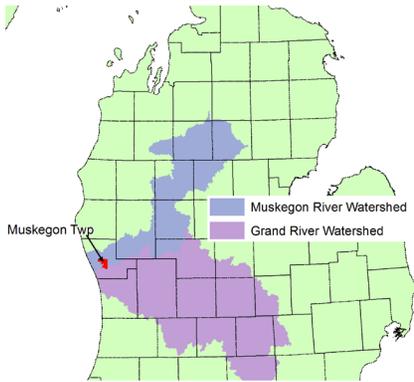
The Township is bisected by the Muskegon River, which empties into Muskegon Lake just west of the Township's boundary. The river is surrounded by a large, wooded wetland area, cutting a path about one and a half miles wide from east to west. This natural feature provides a barrier dividing approximately six square miles of the Township from the remainder.

Protecting the water quality in the Township's rivers and streams is of critical importance.

Surface Water & Watersheds

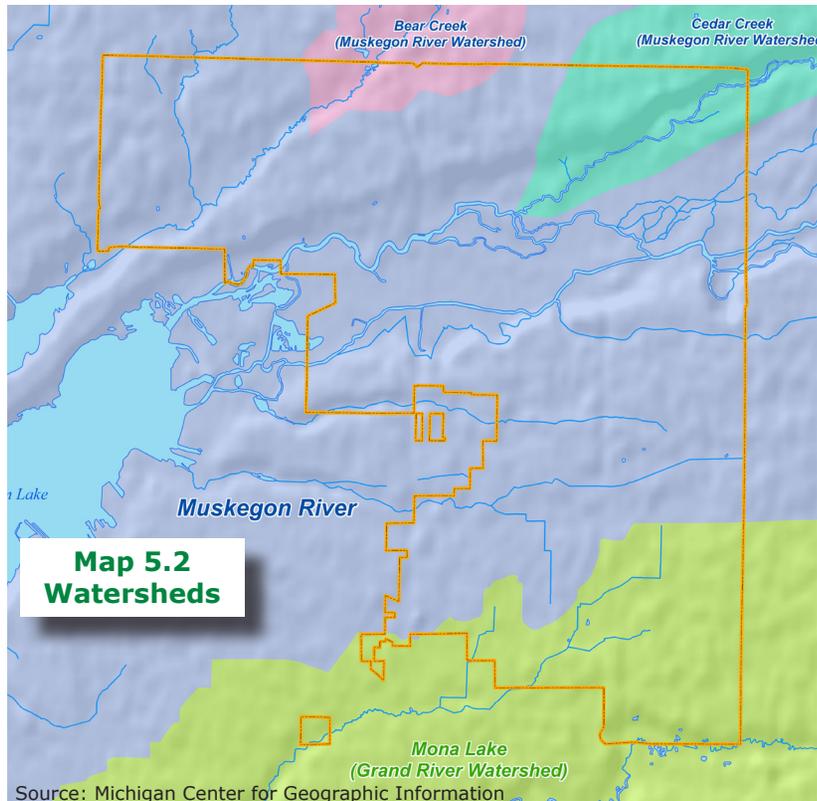
A watershed is an area of land where all of its water drains to a common location. Watersheds also include many smaller tributaries (or sub-watersheds) such as creeks and streams that feed into a larger river and are influenced by the topography of the land.

Surface water in Muskegon Charter Township consists entirely of rivers and streams flowing, generally, in an east-to-west direction towards Muskegon Lake; no lakes of significant size are located within the Township. Most of Muskegon Township is within the Muskegon River watershed, which encompasses an area of about 2,700 square miles and contains more than a dozen sub-watersheds.



The predominate hydrologic feature in the Township is the Muskegon River, which originates more than 200 miles upstream in the Houghton Lake region in Roscommon County. The river flows southwest, passing through several cities including Evert (Osceola County), Big Rapids (Mecosta County) and Newaygo (Newaygo County) before emptying into Muskegon Lake. The river

descends more than 250 feet in elevation between its headwaters in Roscommon County and its mouth in Muskegon Lake. Also flowing through the Township towards Muskegon Lake are several smaller



creeks and streams including Bear Creek, Little Bear Creek, Ryerson Creek, Cedar Creek, Four Mile Creek and Little Black Creek.

Protecting the water quality in the Township’s rivers and streams is of critical importance to protecting the overall environmental health of the Township. Rivers and streams provide critical habitats for plants and animals, increase the quality of life for Township residents and help to define the character of the community. Furthermore, while land use practices in Muskegon

The Muskegon River watershed encompasses an area of about 2,700 square miles.

Township may have a less significant effect on the watershed when compared with a community further inland, the Township should nevertheless take steps to protect the watershed. This would help to protect the water quality, not only in the Township’s waterways, but also Muskegon Lake and Lake Michigan, as well.

According to the United States Environmental Protection Agency, one of the leading threats to a community’s Township’s surface water is nonpoint source (NPS) pollution. Unlike pollution resulting from a single point, such as an industrial development or sewage treatment plant, NPS pollution cannot be traced to a single source or a specific location. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it carries pollutants and deposits them into lakes, rivers, wetlands and groundwater. These pollutants include excess fertilizers, oil and grease from urban areas, sediment from construction sites, bacteria from livestock and many other contaminants.



NPS pollutants include runoff from parking lots, stormwater discharge, and other sources



The nature of NPS pollution also means that the land use practices of one community may have a wide-ranging effect on another community. Since the Township lies at the mouth of the Muskegon River, it may be affected by NPS pollution that results from the land use practices that occur in most of the 2,700 square mile watershed located upstream of the Township.

Floodplains

Muskegon Township contains four areas that are within the flood zone as defined by the Federal Emergency Management Agency. These areas are generally found along Little Bear Creek, the Muskegon River, Four Mile Creek and Black Creek. The Special Flood Hazard Area (SFHA) is defined as the land area covered by the floodwaters of a base flood. In this area, the National Flood Insurance Program’s (NFIP) floodplain management regulations must be enforced and the mandatory purchase of flood insurance applies. Areas in the SFHA in Muskegon Township are shown on Map 5.3.

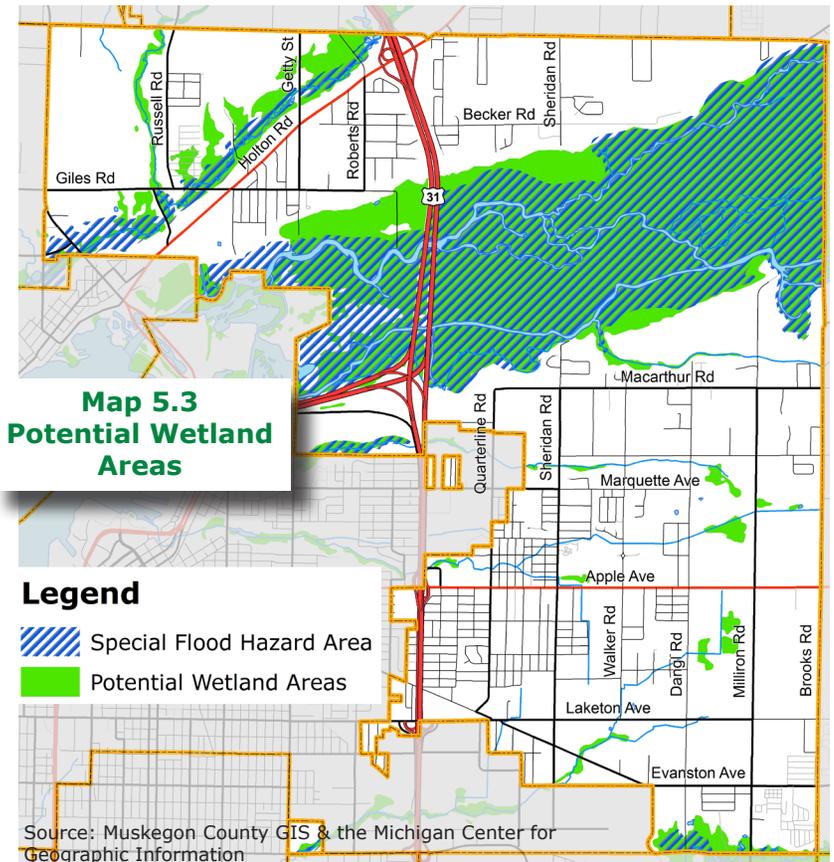
Most lands located within the SFHA in Muskegon Township are undeveloped, except for a limited number of residential properties located in close proximity to Little Bear Creek. As future land use decisions are contemplated in the updated Master Plan, the Township should discourage development in these sensitive, and potentially hazardous, locations.

Wetlands

Wetlands play a unique role in our natural environment. Muskegon Township is blessed with an abundance of natural wetland areas, most of which are found along the stream and river corridors. Wetlands as identified by the National Wetland Inventory are illustrated in Map 5.3. The Michigan Department of Environmental Quality defines wetlands as “...land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life...”

The Michigan DEQ further describes wetlands as “a significant factor in the health and existence of other natural resources of the state, such as inland lakes, ground water, fisheries, wildlife and the Great Lakes” and defines several of the environmental benefits of wetlands, citing that they provide:

- Flood and storm control by the hydrologic absorption and storage capacity of wetlands.
- Wildlife habitat by providing breeding, nesting, and feeding grounds and cover for many forms of wildlife, waterfowl, (including migratory waterfowl) and rare, threatened or endangered wildlife species.



- Protection of subsurface water resources and provision of valuable watersheds and recharging ground water supplies.
- Pollution treatment by serving as a biological and chemical oxidation basin.
- Erosion control by serving as a sedimentation area and filtering basin, absorbing silt and organic matter.
- Sources of nutrients in water food cycles and nursery grounds and sanctuaries for fish.

Michigan’s Natural Resources and Environmental Protection Act, PA 451 of 1994, provides for the protection of most wetlands greater than five acres in area, and also enables local communities to adopt a natural feature ordinance to protect wetlands and natural features within their boundaries. However, despite these regulations, the Michigan DEQ estimates that, nationally, approximately 100,000 acres of wetlands are destroyed annually, and it is generally accepted that the total amount of wetlands is continually declining.

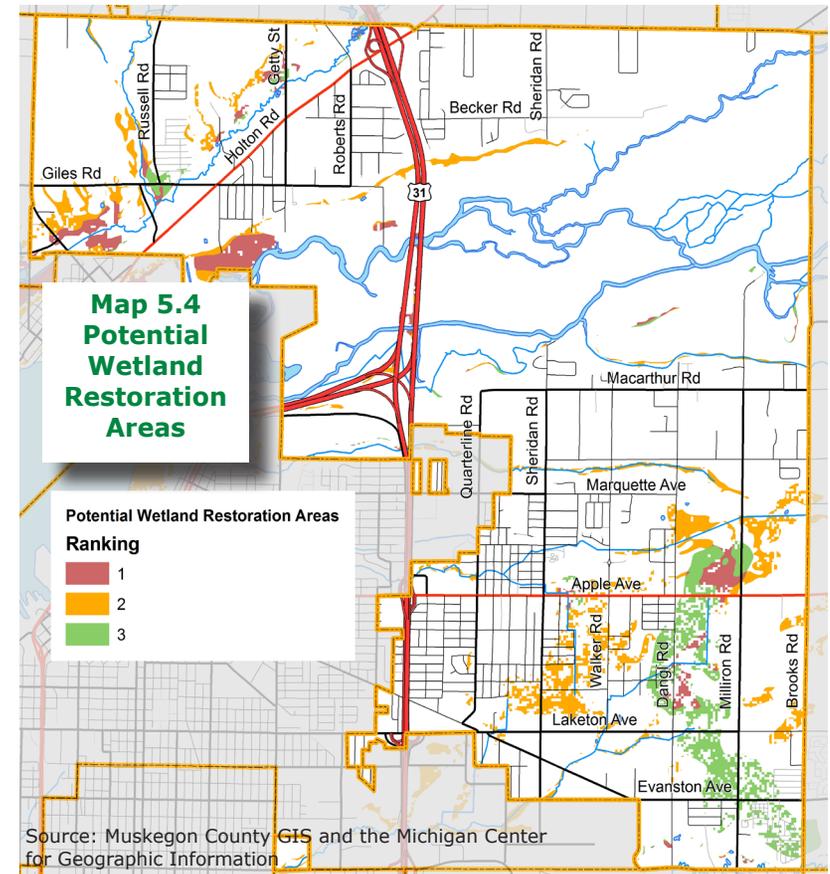
Responsible development techniques are vitally important if the decline in wetland areas is to be reversed. At the local level, the Township must ensure that reasonable and responsible development is permitted while protecting natural features, such as wetlands, to the greatest extent possible. An updated Master Plan should recommend several suggestions for protecting wetlands within the Township.

In response to the apparent decline in wetland areas, the United States Department of Agriculture, the Natural Resources Conservation Service and the United States Fish and Wildlife Service established voluntary wetland restoration programs to assist landowners who want to restore wetlands on their property.

Similar programs have been started by the Michigan Department of Natural Resources and Environment and several non-profit organizations. Most wetland restoration projects are designed to restore water to drained wetland areas by simple

Muskegon Township is blessed with an abundance of natural wetland areas.

techniques, such as plugging agricultural ditches or breaking field tiles. Map 5.4 illustrates the location of potential wetland restoration sites within Muskegon Township as identified by the Michigan Center for Geographic Information.



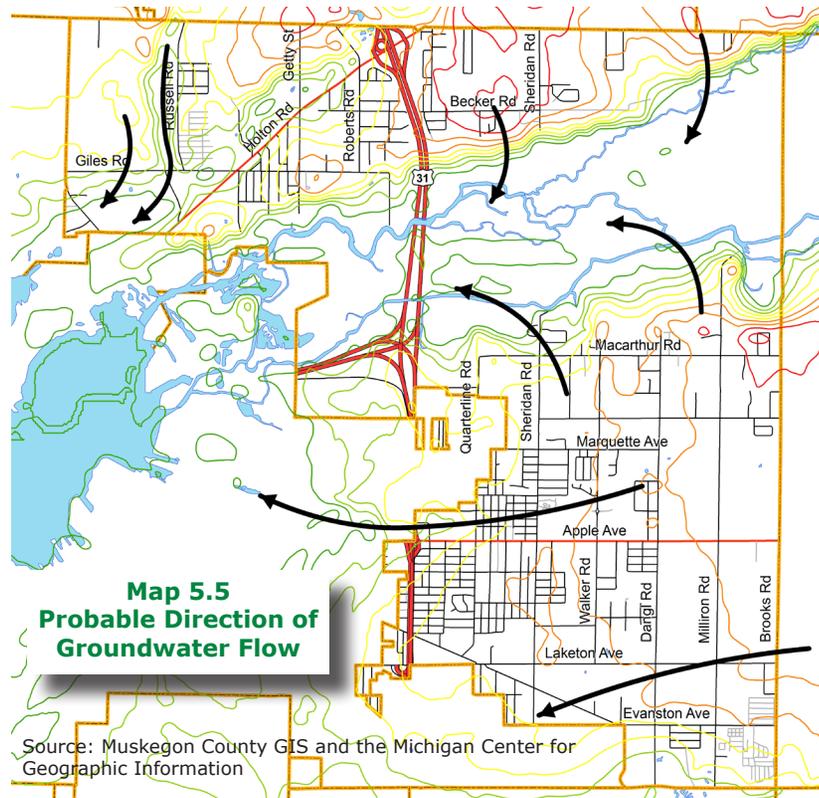
Groundwater

Maintaining a clean groundwater supply is of critical importance for any community. In Muskegon Township, many residents are connected to a public water distribution system, but data from the State of Michigan indicates that about 900 drinking water wells are located within the Township’s boundaries. The majority of these wells draw water from a relatively shallow depth: the static water level is less than 30 feet down in most cases. These wells may be susceptible to pollution if polluted water is not filtered thoroughly enough before reaching the water table.

Causes of pollution in groundwater are often similar to the causes of pollution in surface water discussed above: excessive fertilizing and intense industrial land uses can result in hazardous substances soaking into the ground, which can end up in the groundwater supply. If the soil is unable to filter these chemicals before they reach the relatively shallow water table in Muskegon Township, the water drawn from those wells may be harmful to the health of residents.

Maintaining a clean groundwater supply is of critical importance for any community.

Since the quality of the groundwater is, in many cases, affected by land use decisions and practices within a community or region, one of the goals of the updated Master Plan should be protecting this resource that is critical to the Township's residents.



Soils

The composition of soils in a community is one of the primary factors affecting the natural and built environment. By studying the characteristics of different types of soil, it can be determined whether the soil can hold enough water to keep plants growing through a drought, withstand a flood, and provide the necessary chemicals to vegetation so that they will grow properly. Table 5.1 on the following page contains the texture characteristics of soils found in Muskegon Township, which are also illustrated on Map 5.6.

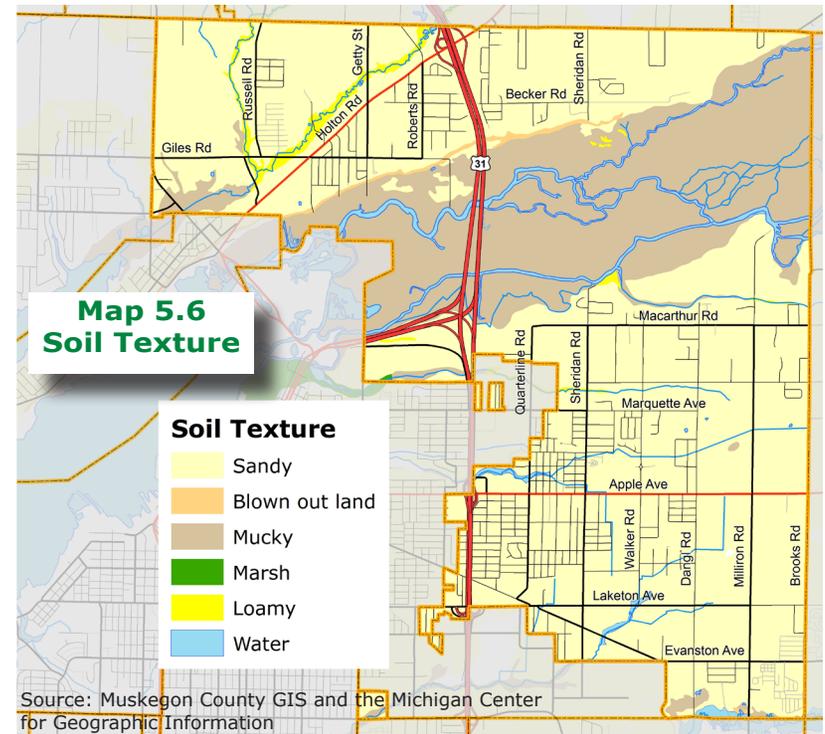


Table 5.1. Texture Characteristics of Muskegon Township Soils

Sandy	Consists of loose, single grained particles. Sands contain 85-100% sand-sized particles.
Blown-out land	Areas where the original surface layer and the subsoil have been removed by soil blowing or water erosion.
Mucky	Extremely dark in color, contains well-decomposed organic soil mixed with mineral soil material.
Marsh	Consists of old bayous and wet areas along streams.
Loamy	Is medium-textured, and contains a relatively even mix of sand, silt and clay.

Soil characteristics are also an important factor in planning for growth and development. Certain soils are ideally suited for supporting buildings, while others may be too wet or too unstable to support development without incurring significant additional development costs. Similarly, certain soils are ideal for agricultural use, while others are ideal for septic systems.

However, it is important to remember that soil characteristics are not mutually exclusive; some soils may serve competing interests. For example, one soil type may be equally suited for both agricultural uses and urban development. Therefore, soil properties alone cannot dictate land uses, but should be one of the many factors that contribute to the future land use decisions.

Woodlands

The preservation of natural woodland forests is often a high priority for many residents, as there are many benefits to the preservation of woodlands. Large stands of mature trees can improve air and water quality and provide habitats for a variety of plant and animal species. Additional human benefits include energy savings, reduced noise levels, and natural aesthetics and increased property values.

An important component of woodland preservation is connectivity. Interconnected forests allow animal species to move freely throughout a community, minimizing the hazards posed by urban development.

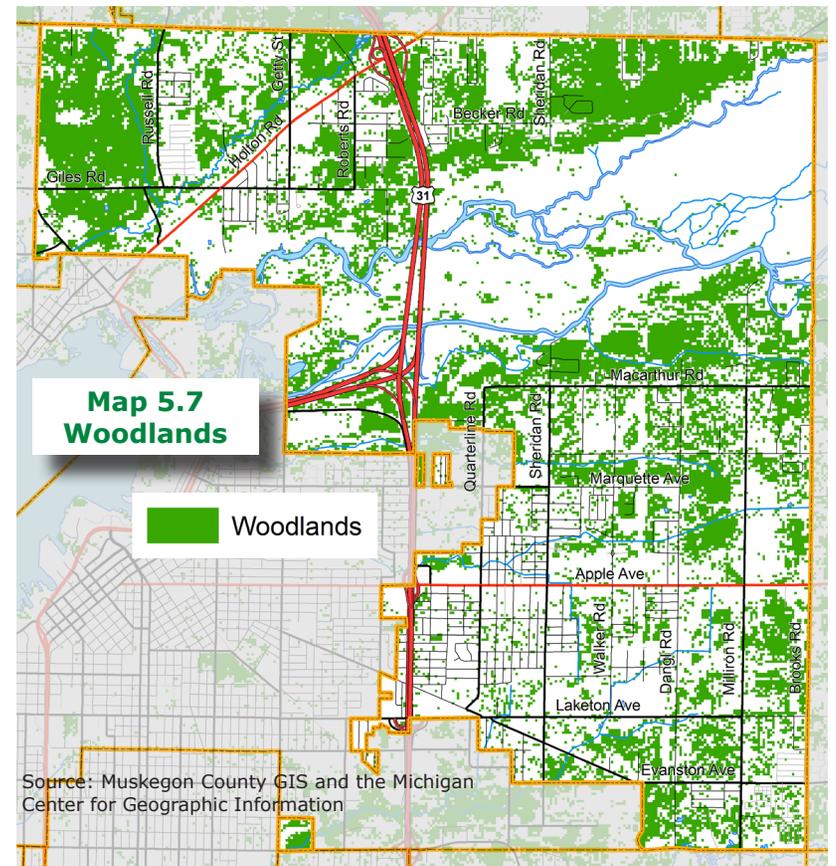
In some areas of the Township, these woodland areas also follow stream corridors, which provide additional benefits, to such as minimizing stream bank erosion.

Muskegon Township is fortunate to have about 8,000 acres of woodland areas within its boundaries. Throughout the planning process, maintaining connected woodlands should be a consideration as land use policies are considered.



Green Infrastructure

Green infrastructure refers to planned and managed networks of landscapes that preserve the ecosystem, which provides benefits to



the local human population. It consists of natural elements, such as woodlands, rivers, prairies and wetlands, all of which work together to maintain an ecosystem.

Map 5.8 illustrates the Township’s green infrastructure, and is based on mapping conducted by Grand Valley State University’s Annis Water Resource Institute (AWRI). According to AWRI, Green Infrastructure Zones includes “Priority areas that may have the greatest potential for supporting a regional green infrastructure network, but are not currently in protected status. The network includes large blocks of mostly naturally vegetated areas that serve as network anchors or hubs. Narrower natural corridors (such as river corridors) stitch the network together.”

However, a network of green infrastructure does not have to remain off-limits to residents of a community. Trails, parks and cultural

facilities can all be designed in a way that minimizes the impact on the environment while serving an important need within a community. Like any other type of land use issue, the preservation and enhancement of green infrastructure within the Township needs to be planned in a responsible way that ensures connectivity to other natural areas while still providing a higher quality of life for residents.

While detailed, site-specific green infrastructure planning may be outside the realm of a Master Plan update. A number of parallel themes are often found in both Master Plans and green infrastructure plans. Environmentally-friendly development techniques, such as low-impact development and open space development patterns, can accomplish the objectives of a community’s master plan while still preserving critical portions of the green infrastructure of a community.

