

# Village of Mayville Master Plan

## Chapter 3: Natural Resources Inventory

### Introduction

Two of the community assets most often praised by the Village of Mayville's residents are the local natural resources and rural character. From its picturesque farms and its beautiful natural features surrounding this sleepy village, the landscape of the community plays an important role in the quality of life of residents. However, recent construction of buildings in rural areas and changes in commercial properties has raised concerns about the long-term protection of the area's natural resources and rural character.

To get a more accurate picture of the current land uses and land use trends in the Mayville Community, LIAA staff members conducted a comprehensive land use/land cover update. LIAA compared 1978 land use maps created by the Michigan Resource Information System (MIRIS) with 2005 ortho-photographs provided by the USDA's Geospatial Data Gateway website, updating land use changes when necessary. Land use/land cover classifications were updated to the second tier category. *Maps 18* illustrate the updated land use/land cover for the Mayville Community. More information on the land use/land cover update will be provided in chapter seven of this plan.

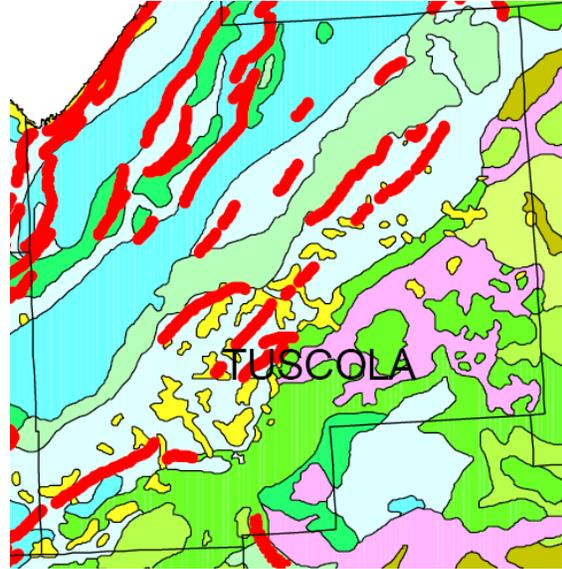
To avoid duplicative research on several items discussed in this section, portions of the *2002 Tuscola County General Development Plan*, the *1993 Fremont Township Master Plan*, and the *2007 Mayville Community Comprehensive Plan* were excerpted and incorporated into this chapter or are directly referenced. Where appropriate, these references have been updated to reflect 2017 statistics.

### Geology

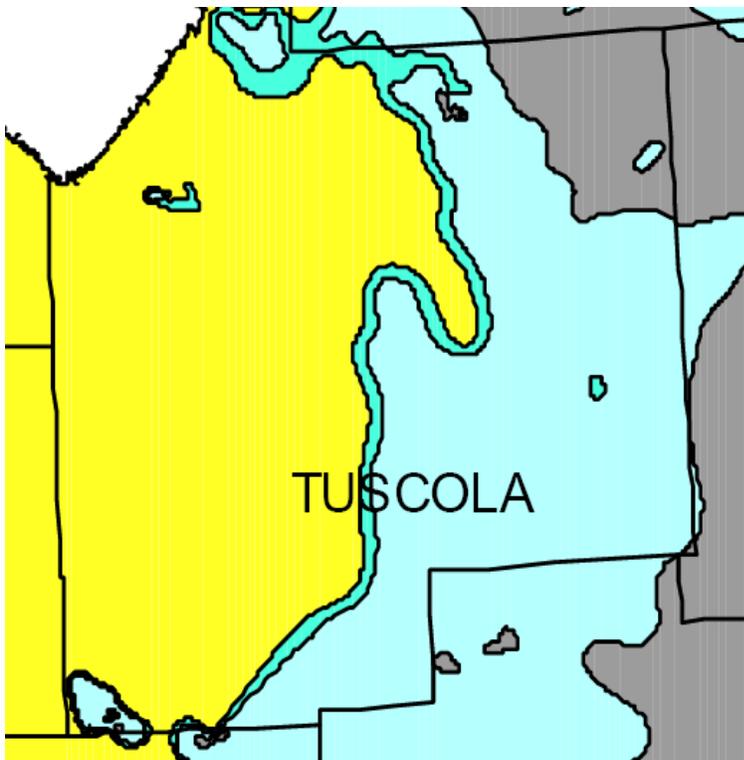
The 1982 Michigan Department of Environmental Quality (DEQ) *Quarternary Map* (below) illustrates the surface geology of the Village of Mayville and surrounding communities. As shown, the geological materials just beneath the soil surface are primarily composed of medium to fine texture tills left by glaciers as end-moraine deposits.



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The 1987 DEQ *Quality Bedrock Map* (see image) illustrates the bedrock geology of the Village of Mayville and surrounding communities, including portions of the Saginaw Formation, Bay Point Limestone and Michigan Formation.



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A thorough description of the geology of Tuscola County and the Mayville Region is provided in the *Tuscola County General Development Plan*. The Plan states,

End moraines were created due to the melting of the ice sheet as it advanced or retreated. The debris-laden ice deposited large amounts of material along this area due to the glacier edge melting as fast as it advanced from the polar ice cap. The southern end of the county is chiefly composed of end moraines of medium-texture till. It is mostly loam and silt-loam in texture and may also contain small areas of outwash material (deposits made by running water from the glaciers.) Thickness of these layers vary locally, but tend to be 60 to 90 feet in depth.

The sub-surface geology of Tuscola County is primarily sedimentary bedrock that was laid down during the Pennsylvanian and Mississippian ages of the Paleozoic Era about 300 and 330 million years ago respectively. Bedrock is covered by glacial deposits and generally, depending upon the thickness of the glacial deposits, is located at a depth from 40 to 300 hundred feet below the surface. The bedrock was formed from ancient seas, which covered the area some 250 to 600 million years ago. During the time the bedrock was forming, these seas began to withdraw from the area leaving sediments from deltas as the land drained.

The seas re-advanced and finally receded at last creating the Michigan formation on the eastern half of the county. The shallow marine seas deposited layers of silt, clay, sediments, marine animals, plants, coral, and other calcareous materials. These deposits formed sandstone, shale, coal and limestone bedrock.

## Topography

The Village of Mayville is a moderately hilly area rising to nearly 900 feet above sea level in the southeast portion of the community. *Map 9* illustrates the elevation of the Mayville Community.

## Soil Conditions

A firm understanding and knowledge of the soil types and soil suitability within the Mayville Community is useful when considering future land use development. For example, some soil types limit infiltration of fluids, presenting limitations to the placement of on-site wastewater treatment systems (e.g., septic tanks and tile fields). These limitations can be vary important to developers since lands outside the Village service area rely on individual wells and on-site wastewater treatment systems.

Based on soil information, several maps were developed for the Mayville Community to indicate those areas subject to development and building constraints. While many of these constraints can be overcome, the engineering costs may be substantial. For example, soils characteristics of high slopes and poor drainage can limit or impede construction efforts. *Map 10* illustrates the probable locations of hydric soils in the Mayville Community – areas with potentially high water tables and poorly drained soils. *Map 11* illustrates areas where slopes may be greater than 12%, presenting construction concerns such unstable soils and erosion. *Map 12* illustrates areas with



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limitations for dwellings with basements. *Map 13* illustrates areas with limitations for commercial buildings.

Based upon a 1986 soil survey by the U.S. Department of Agriculture Soil Conservation Service, major soil associations within the Mayville Community. A soil association is a group of soils that commonly occur in proximity to one another. *Map 14* illustrates the general soil associations of the Village of Mayville and surrounding community. A description of the soil association within the Village of Mayville, the *Marlette-Capac-Spinks Association*, was provided in the *Fremont Township Master Plan* and is presented below.

## ***Marlette-Capac-Spinks Association***

This association consists of nearly level to steep loamy and sandy soils, ranging from well-drained to somewhat poorly drained. This association is found in the northeast, south-central and southeast portions of the community. The survey states that most areas of this association are used for cultivated crops, pasture or woodland. Wetness, slope and erosion (both wind and water) are considered to be major limitations for agricultural purposes. The suitability for building sites ranges from good to poor. Slope and depth to the water table are the major limitations.

## **Woodlands & Wetlands**

The Village of Mayville includes a small amount of forested land and wetlands – both wooded and emergent. These features represent important natural resources which can provide critical wildlife habitat, recreation areas, and harvestable timber, as well as providing valuable services such as pollution filtration and storm water detention (e.g., flood control). *Map 15* illustrates the locations of these wetlands within the Village of Mayville. Wetlands are unique ecosystems that filter out nutrients and sediments and help to maintain and enhance the clarity of lakes and streams.

## **Surface Water**

The Village of Mayville falls within the Cass River Basin Watershed. Drains within the Village include Rich Drain and Fremont Drain.

## **Ground Water**

Groundwater is the exclusive source of drinking water for the Village of Mayville. Therefore, the groundwater quality is very important to the over-all health of the community, future development options and to the quality of the area's water features. According to the Tuscola County Health Department and the *Tuscola County General Development Plan*, most of the county is fortunate to have an adequate supply of groundwater, generally within 100 feet of the surface. In addition, the vulnerability of drinking water aquifers to surface contamination is moderate to relatively safe.

According to the April 2006 Michigan Department of Environmental Quality's *Public Water Supply Chart*, the Village of Mayville Water System is derived from groundwater and consists of two water supply wells, an arsenic removal plant with a high pressure filter and a 125,000 gallon elevated storage tank which serves a population of 950 residents.



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## Farmland

In 2005, approximately 7,880 acres of land or about 34% of the Fremont Township was in agricultural use. According to the USDA soil survey, most of the land in Tuscola County is considered *prime farmland*. However, *Prime Farmland* makes up a relatively small portion of the land in the Village of Mayville.

Approximately 2,307 acres of farmland in Fremont Township operate under the *Farmland and Open Space Preservation Program* (PA 116). This program allows land owners to enter into an agreement with the state promising to keep the land in agricultural use for a minimum of ten years. In return, the land owners are entitled to certain income tax credits and limits on special assessments. About 30% of all farmland has been entered into this program, suggesting a relatively high level of commitment to farming. This is a significant factor in the economic condition of the Village of Mayville.

## Environmental Contamination Sites

The *Tuscola County General Development Plan* provides a comprehensive summary of the environmental contamination sites of Tuscola County. The following section excerpted from the Tuscola County Plan provides a summary of the environmental contamination sites in the Village of Mayville. Where appropriate, we have updated the information, showing those changes and additions in brackets [ ].

Michigan Sites of Environmental Contamination includes leaking underground storage tank or LUST sites. [According to the DEQ, open LUST sites are locations where a release has occurred from an underground storage tank system and where corrective actions have not been completed to meet the appropriate land use criteria.] According to Michigan State University’s Institute for Water Research, “a leakage of two drops per second can result in the loss of up to 500 gallons of fuel per year and can contaminate up to 500 million gallons of water to the level where odor and taste make it unacceptable for drinking.” *Table 21* provides the *Open LUST Sites* for the Village of Mayville. Closed LUST Sites and Active & Closed UST Facilities are not noted in this plan.

<b>Table 21. Leaking Underground Storage Tank (LUST) Sites</b>		
Facility ID	Site Name	Site Address
00041818	5980 Fulton St.	5980 Fulton Street
00000661	Peoples Gas & Oil	37 East Main Street
0000032962	Guy’s Service	104 East Main Street
00016279	Naugle’s Service	30 West Main Street
00038883	Old Texaco Gas Station	105 West Main Street
00012135	Werner Perma-Shine	6004 Fulton Avenue

**Source: Remediation and Redevelopment Division (RRD) of the Michigan Department of Environmental Quality (DEQ), October, 2017**

This list is updated regularly and can be downloaded from the *Storage Tank Information Center* website: <http://www.deq.state.mi.us/sid-web/>



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## Endangered Species

The following summary concerning endangered species is provided in the *Tuscola County General Development Plan*.

Tuscola County is home to numerous plants, birds, and animals that are classified as endangered species. The Nature Conservancy and the Michigan Department of Natural Resources jointly produce and maintain a Michigan Natural Features Inventory (MNFI). The MNFI's mission is to identify, evaluate and track locations of Michigan's rarest species and to provide information that can be used in developing land use plans.

The following species are just a few of the endangered plant and animal species found in Tuscola County. A full list of plant and animal species can be found in *Appendix G*.

### Common Animal Name

Spotted Turtle  
 Silphium Borer Moth  
 Channel Darter  
 Red-Legged Spittlebug  
 Common Tern  
 Purple Lilliput

### State or Federal Status

Threatened  
 Threatened  
 Endangered  
 Special concern  
 Threatened  
 Endangered



Common Tern



Red-Legged Spittlebug

### Common Plant Name

Sullivant's Milkweed  
 Coopers's Milk-Vetch  
 Prairie Indian-Plantain  
 White Lady-Slipper  
 Furrowed Flax  
 Ginseng  
 Prairie Fringed Orchid

### State of Federal Status

Threatened  
 Special Concern  
 Special Concern  
 Threatened  
 Special Concern  
 Threatened  
 Endangered/Listed Threatened



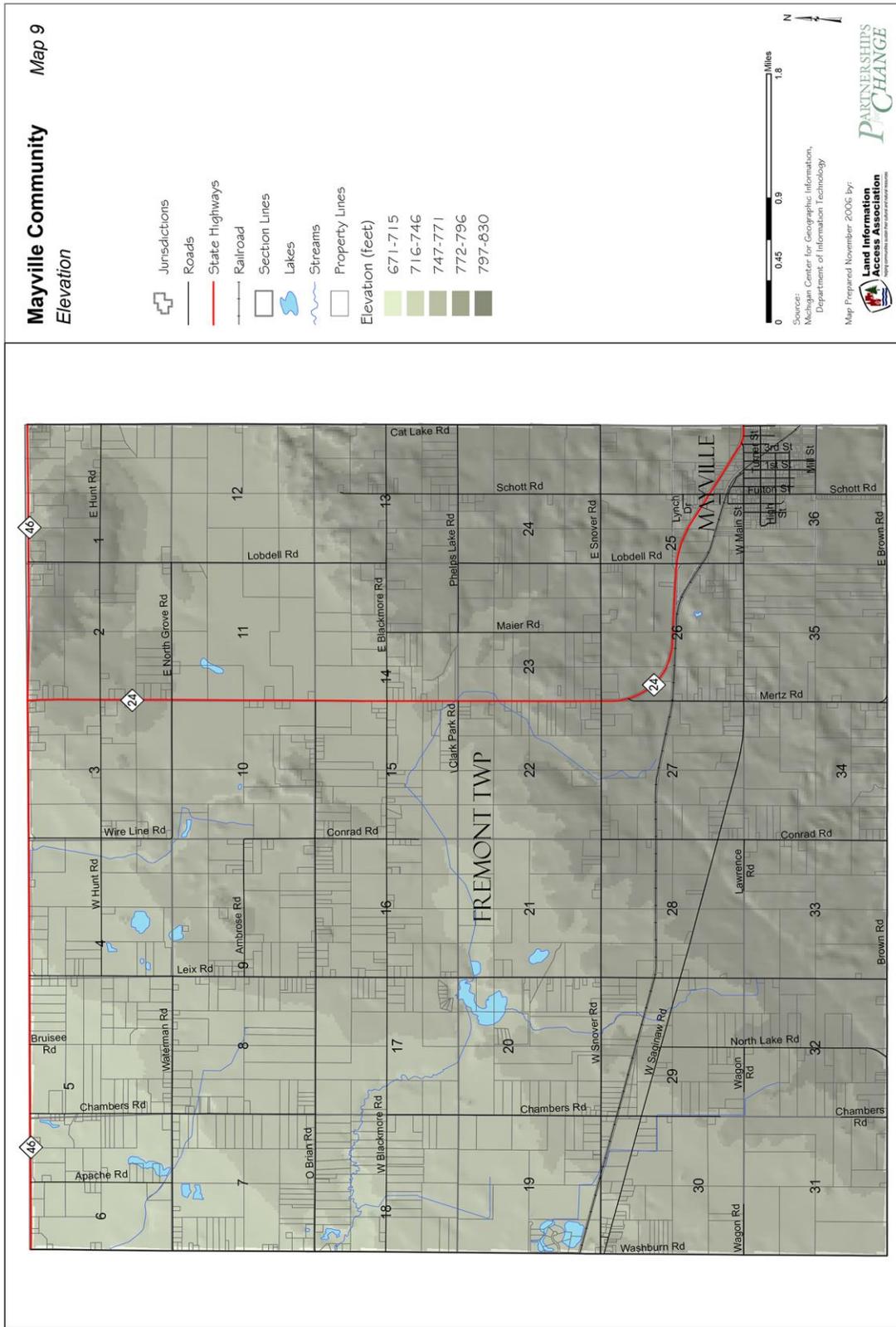
White Lady-Slipper



Cooper's Milk-Vetch

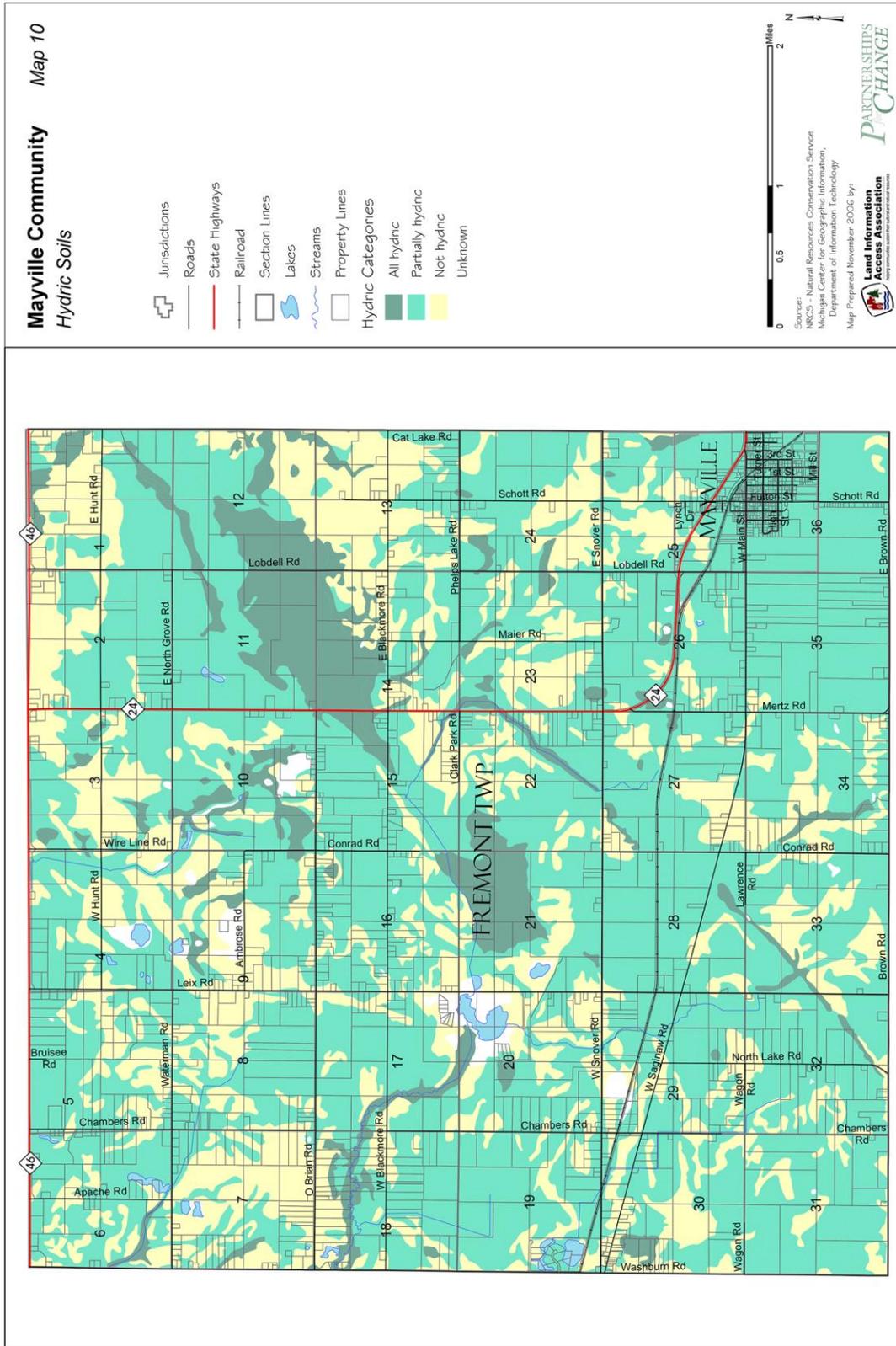
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## Map 9



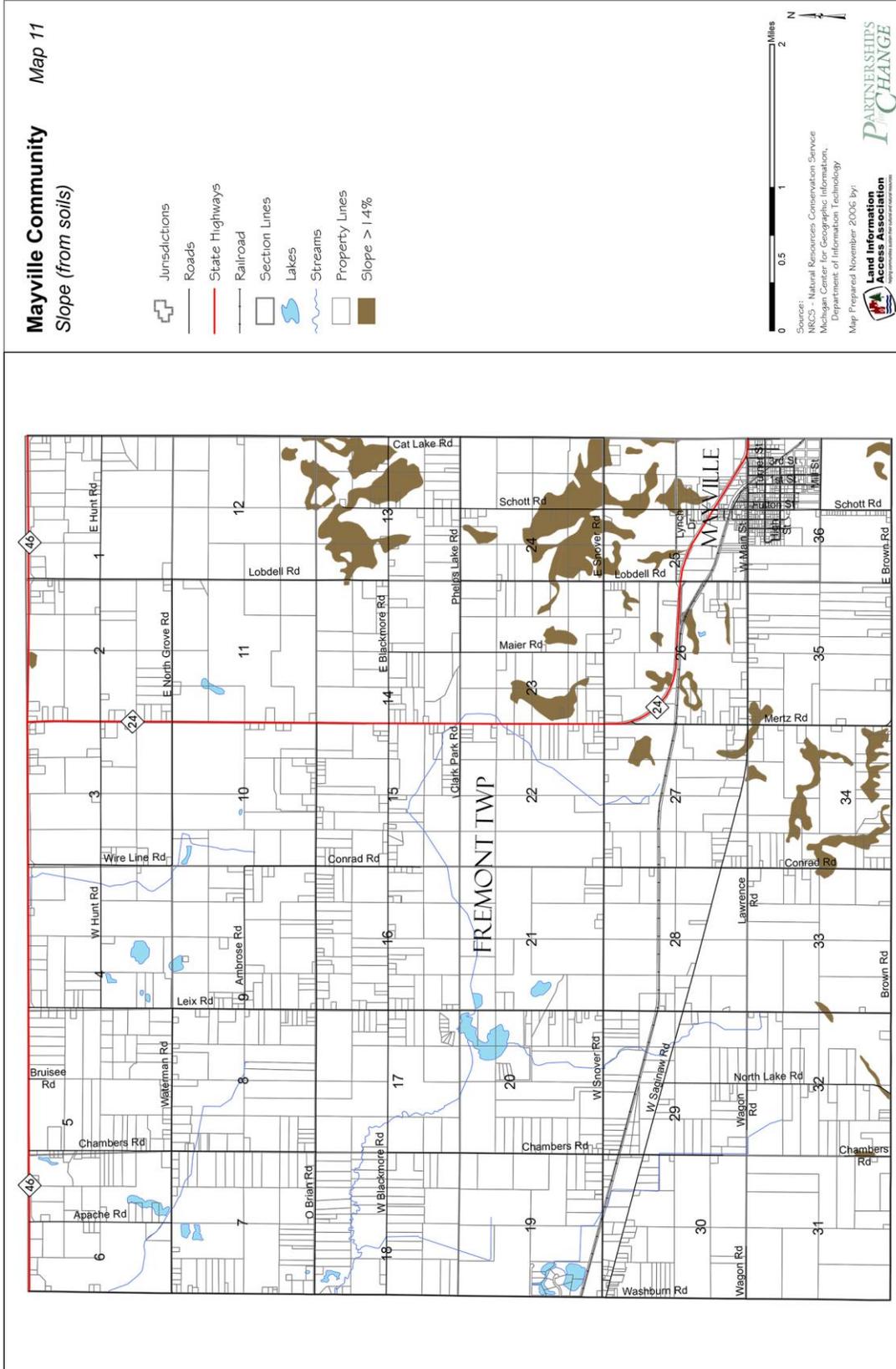
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## Map 10



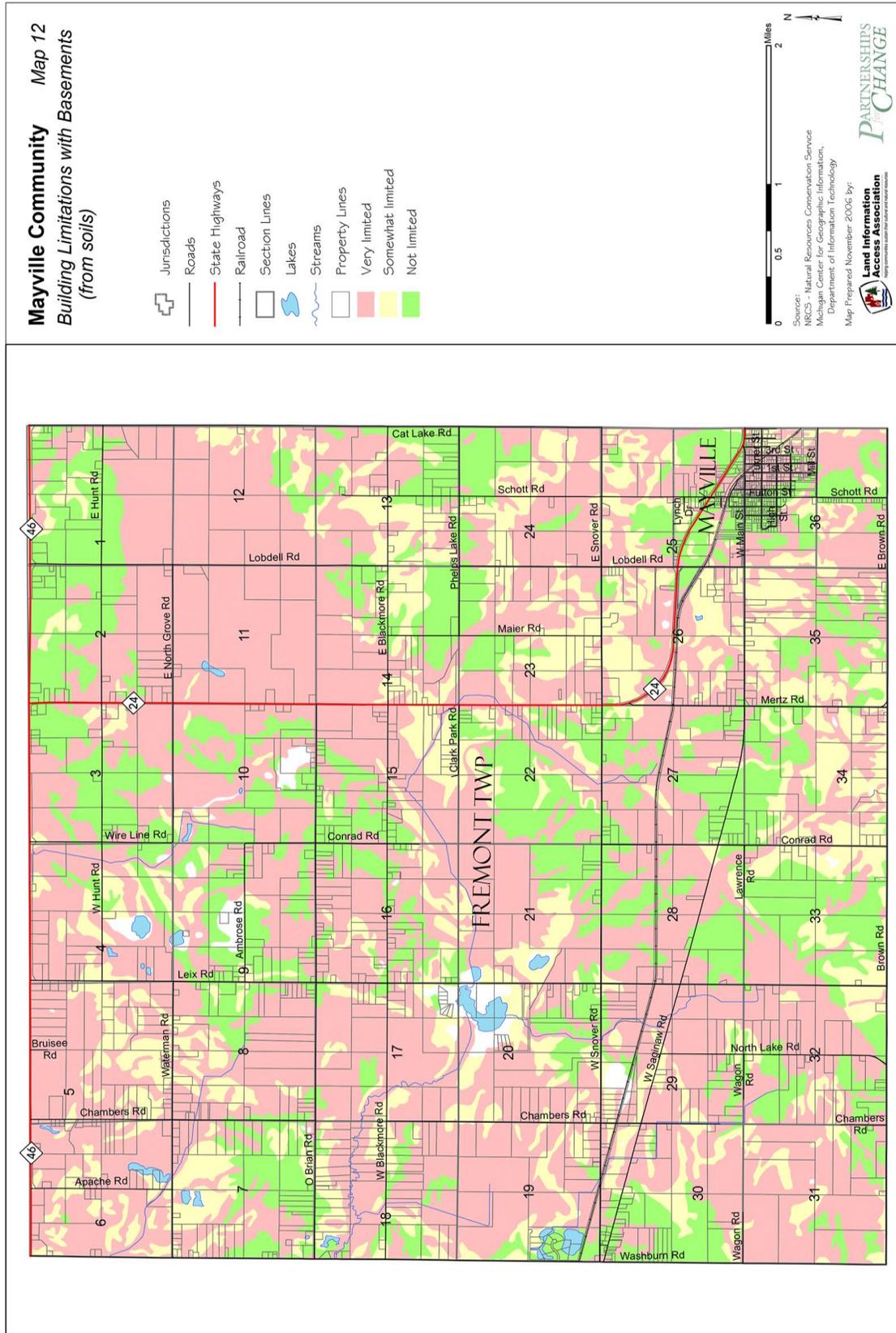
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## Map 11



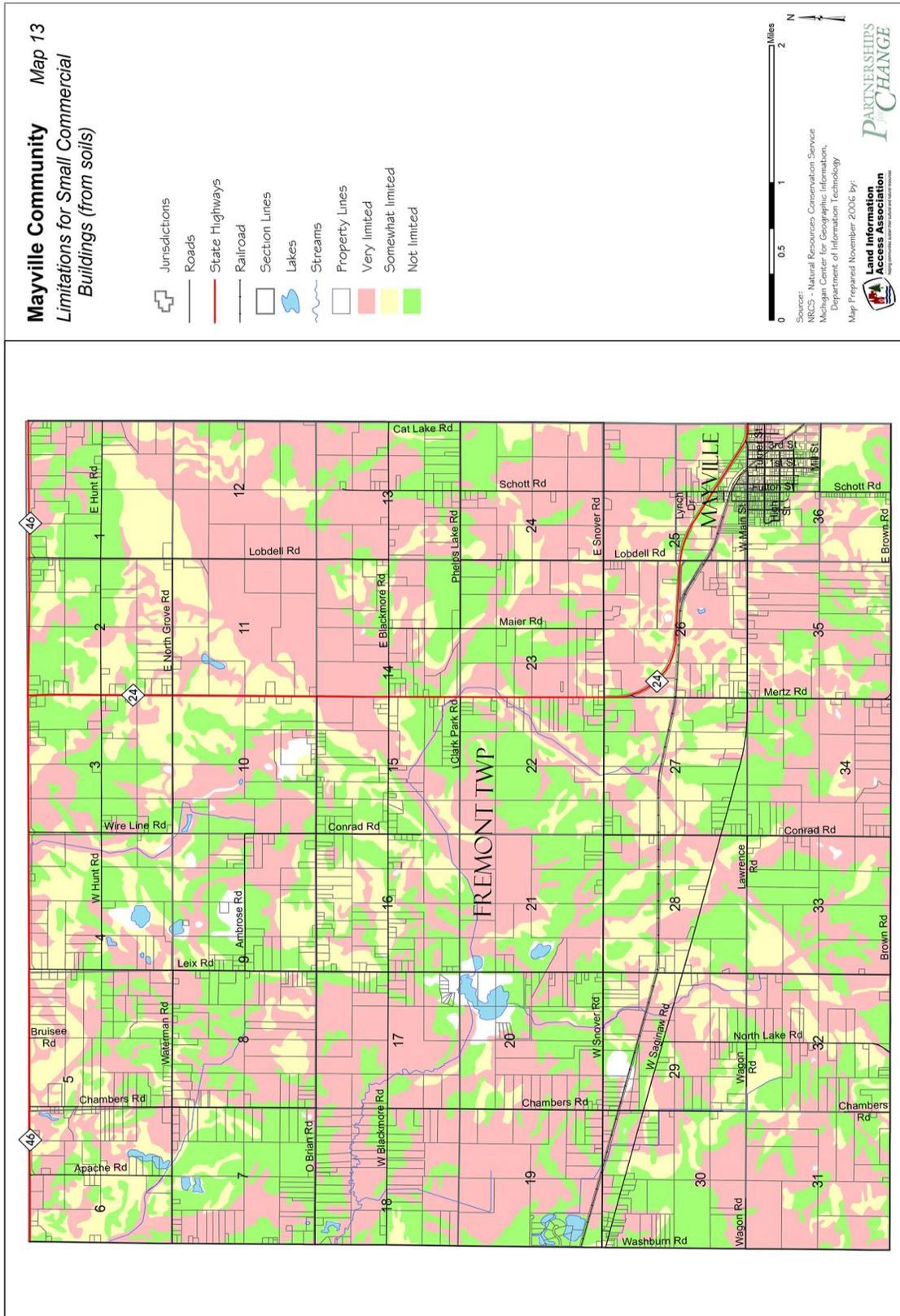
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## Map 12



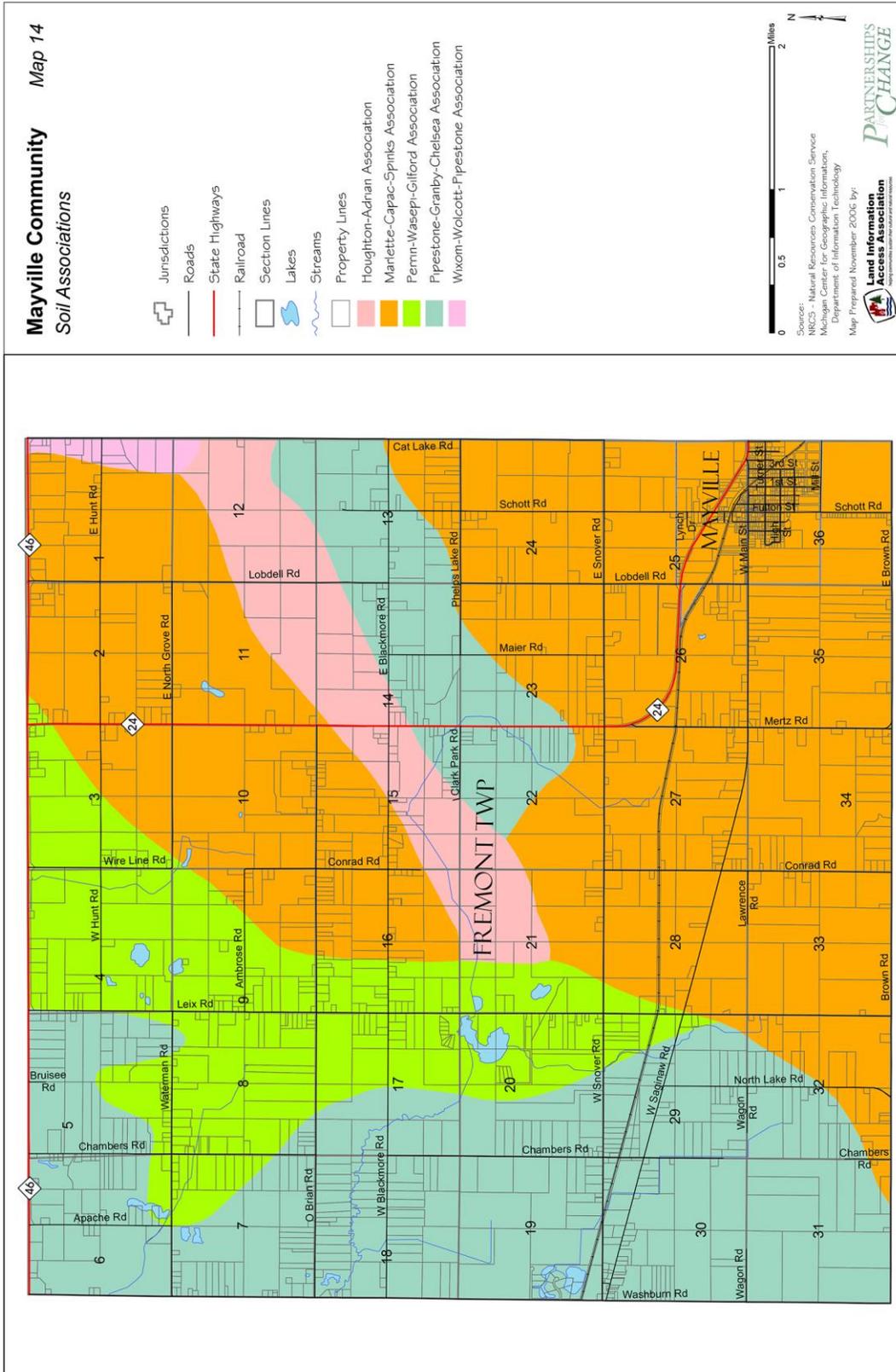
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## Map 13



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## Map 14



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## Map 15

