



Green Oak Charter Township

MASTER PLAN

Green Oak Charter Township

Master Plan

Adopted by the Planning Commission on June 5, 2008

- Replacing the 1997 Master Plan amended in 1999 -

Acknowledgements

Township Board

Mark St. Charles, Supervisor
Michael Sedlak, Clerk
Sue Dougherty, Treasurer
Rollin Green
George Kilpatrick
Tracey Edry
Wallace Qualls

Planning Commission

Robert Moran, Chair
William Haskell, Vice Chair
Sarah Pearsall, Secretary
Charles Fellows
John Mogelnicki
Wallace Qualls

Prepared by

Carlisle/Wortman Associates, Inc.
Community Planners and Landscape Architects

Contents

| | |
|--|----|
| Acknowledgments | i |
| Contents | ii |
| List of Maps | v |
| List of Figures | v |
| List of Tables | v |
| Introduction | 1 |
| How is the Plan Organized?..... | 2 |
| What is Planning? | 2 |
| How is the Plan to be Used?..... | 3 |
| How was the Public Input Obtained?..... | 4 |
| Background Studies | 5 |
| Location and Regional Context..... | 6 |
| Population, Housing & Economic Characteristics | 7 |
| Inventory and Analysis..... | 7 |
| Population Trends and Growth..... | 7 |
| Population Projections | 9 |
| Population Characteristics..... | 10 |
| Economic Characteristics | 13 |
| Households and Housing Characteristics | 18 |
| Natural Resources..... | 22 |
| Soils | 22 |
| Topography, Watersheds and Hydrology | 22 |
| Natural Rivers | 27 |
| Wetlands and Floodplains..... | 28 |
| Groundwater | 29 |
| Woodlands | 29 |
| Land Capability Analysis | 33 |
| Areas of Contamination | 37 |

| | |
|---|-----------|
| Community Facilities and Services | 41 |
| Governmental Structure..... | 41 |
| Government Offices..... | 41 |
| Police and Fire Services..... | 41 |
| Schools | 42 |
| Other Public Buildings | 42 |
| Parks and Recreation..... | 43 |
| Utilities..... | 47 |
| | |
| Circulation and Traffic | 51 |
| Road Network | 51 |
| Traffic Counts | 53 |
| Future Road Rights-of-Way..... | 56 |
| | |
| Existing Land Use | 63 |
| Land Use Classifications | 63 |
| Patterns and Trends..... | 64 |
| Large Land Holdings..... | 73 |
| | |
| Goals and Objectives | 75 |
| | |
| Citizen Input..... | 76 |
| Prior Planning Surveys | 76 |
| Visioning Workshop..... | 76 |
| | |
| Vision Statement | 78 |
| | |
| Goals and Policies | 78 |
| Community Identity | 79 |
| Environmental Protection..... | 82 |
| Natural Rivers | 85 |
| Growth Management: Residential..... | 87 |
| Growth Management: Commercial and Industrial..... | 89 |
| Community Facilities and Services | 91 |
| Community Infrastructure | 93 |
| Rural Character | 95 |
| | |
| Land Use Plan | 97 |
| | |
| General Planning Considerations..... | 98 |

| | |
|--|-----|
| Guiding Factors | 99 |
| Roads..... | 100 |
| Sewer and Water | 100 |
| Watersheds, Rivers, Tributaries and Drains | 100 |
| Natural Features..... | 101 |
| Adjacent Zoning and Land Use | 102 |
| Land Use Categories..... | 103 |
| Residential Land Use..... | 103 |
| Commercial Land Use..... | 108 |
| Village Mixed-Use..... | 112 |
| Industrial Land Use | 118 |
| Research-Office Land Use..... | 118 |
| Public/Semi-Public Land Use | 119 |
| Recreation-Conservation Land Use..... | 119 |
| Natural River Areas..... | 119 |
| Special Study Areas | 123 |
| M-36 Corridor Plan | 123 |
| East Grand River Project..... | 123 |
| Community Facility and Road Plan | 124 |
| Community Facilities and Services | 124 |
| Roads..... | 125 |
| Implementation | 129 |
| Township Policy..... | 130 |
| Zoning..... | 130 |
| Cluster Housing/Open Space Planning | 130 |
| Non-Conforming Zoning..... | 133 |
| Capital Improvements Program | 134 |
| Federal/State Funds | 134 |
| Local Funds..... | 134 |
| Master Plan Updates | 135 |
| Addendum | 137 |
| Commercial Market Analysis..... | 138 |

List of Maps

| | |
|---|-----|
| Map 1: Regional Setting | 6 |
| Map 2: Topography and Watersheds | 25 |
| Map 3: Natural Features | 31 |
| Map 4: Land Capability Analysis | 35 |
| Map 5: Areas of Contamination..... | 39 |
| Map 6: Community Facilities | 45 |
| Map 7: Major Utility Systems..... | 49 |
| Map 8: National Functional Classification..... | 57 |
| Map 9: Road Surface and Traffic Counts | 59 |
| Map 10: Future Road Rights-of-Way Widths | 61 |
| Map 11: Existing Land Use..... | 71 |
| Map 12: Future Land Use | 121 |

List of Figures

| | |
|---|-----|
| Figure 1: Population Trends, 1960-2006 | 8 |
| Figure 2: Population Projections, 2000-2030 | 9 |
| Figure 3: Percentage of Population By Age, 2000 | 10 |
| Figure 4: Educational Attainment Comparison, 2000 | 13 |
| Figure 5: Employment by Industry Comparison, 2000 | 16 |
| Figure 6: Income Level Comparison, 2000 | 17 |
| Figure 7: Percentage of Families below Poverty Level, 2000..... | 18 |
| Figure 8: New Single-Family Residential Building Permits, 1994-2007..... | 20 |
| Figure 9: Village Mixed-Use..... | 112 |
| Figure 10: Conceptual Development Plan | 113 |

List of Tables

| | |
|--|----|
| Table 1: Population Comparison, 1980-2000 | 8 |
| Table 2: Summary of Age, 2000..... | 11 |
| Table 3: Comparison of Race and Hispanic Origin, 2000 | 12 |
| Table 4: SEV by Assessment Classification, 2000-2004 | 14 |
| Table 5: Labor Force and Unemployment Trends, 1980-2004 | 15 |
| Table 6: Employment by Occupation, 2000 | 15 |
| Table 7: Household Demographics, 2000 | 18 |
| Table 8: Tenure of Householder by Year Moved In, 2000 | 19 |

| | |
|---|-----|
| Table 9: Housing Related Demographics, 2000 | 19 |
| Table 10: Age of Housing Stock by Year Built, 2000 | 21 |
| Table 11: Housing Cost, 2000..... | 21 |
| Table 12: Glacial Lakes | 23 |
| Table 13: Traffic Counts..... | 54 |
| Table 14: Existing Land Use, 2005..... | 65 |
| Table 15: Manufactured Housing Communities, 2005 | 67 |
| Table 16: Industrial Parks, 2005..... | 69 |
| Table 17: Large Public and Private Land Holdings, 2008..... | 73 |
| Table 18: Residential Land Use Classifications & Corresponding Zoning Designations..... | 103 |
| Table 19: Existing Mobile Home Parks In the Vicinity of Green Oak Township..... | 107 |

INTRODUCTION

How is the Plan Organized?

The Green Oak Charter Township Master Plan is comprised of three basic sections. The BACKGROUND STUDIES section discusses current demographics, land uses, historical trends and projections, illustrating the point from which planning must begin. The GOALS AND POLICIES section outlines policies that provide a framework for a final plan. The LAND USE PLAN is the end result, in which the community's vision for the future is imposed upon the present scenario. While the starting point is unalterable, the end result can be changed according to the policies applied.

Once adopted, the Master Plan is the official policy guide to be used by the Township Board and Planning Commission to resolve existing and anticipated community development opportunities identified in this document. Through the text and maps, the Plan illustrates the desires and attitude of the community toward future growth and development. Further, the Plan also provides continuity in development policy as appointments to the Planning Commission and Township Board change over the years.

Planning has always been important to the Township, with the first Township Master Plan adopted in 1972. This document represents a further update to the 1997 Master Plan, which was last amended in 1999. Since the update of that plan, the Township has undergone many changes. To ensure that land use and development policies reflect current conditions in the Township, it is essential that the Master Plan is periodically evaluated and kept current.



What is Planning?

Planning is a process which involves the conscious selection of policy choices relating to land use, growth and development in the community. The Master Plan is the primary official Township document which sets forth growth and development policies for the future of the community. The Township derives its authority for the preparation of a Master Plan from the Michigan Township Planning Act, P.A. 168 of 1959. Section 6 of the Act states:

The Planning Commission shall make and adopt a basic plan as a guide for the development of unincorporated portions of the Township. As a basis for the plan, the Planning Commission is hereby empowered to (1) make inquiries, investigations and surveys of all the resources of the Township and (2) assemble and analyze data and

formulate plans for the proper conservation and uses of all resources, including a determination of the extent of probable future need for the most advantageous designation of lands having various use potentials and for services, facilities and utilities required to equip such lands.

How is the Plan to be Used?

The plan serves many functions and is to be used in a variety of ways:

- 1) The Plan is a general statement of the Township's goals and policies and provides a single, comprehensive view of the community's desire for the future.
- 2) The Plan serves as an aid in daily decision-making. The goals and policies outlined in the Plan guide the Planning Commission and Township Board in their deliberations on zoning, subdivision, capital improvements and other matters relating to land use and development. This provides a stable, long-term basis for decision-making.
- 3) A third function the plan serves is providing the statutory basis upon which zoning decisions are based. The Michigan Zoning Enabling Act, P.A. 110 of 2006 requires that the zoning ordinance be based upon a plan designed to promote the public health, safety and general welfare. However, it is important to note that the Master Plan and accompanying maps do not replace other Township Ordinances, specifically the Zoning Ordinance and Map. Zoning is only one of many legal devices used to implement the Master Plan.
- 4) The Plan attempts to coordinate public improvements and private developments. For example, public investments such as road or sewer and water improvements should be located in areas identified in the Plan as resulting in the greatest benefit to the Township and its residents.
- 5) Finally, the plan serves as an educational tool and gives citizens, property owners, developers, and adjacent communities a clear indication of the Township's direction for the future.

In summary, the Township Master Plan is the only officially-adopted document which sets forth an agenda for the achievement of land use goals and policies. The plan is not a panacea for the numerous conflicting desires of citizens and Township officials. It is a long range statement of general goals and policies aimed at unified and coordinated development of the Township. As such, it provides the basis upon which zoning and land use decisions are made.

How was Public Input Obtained?

Citizen input is the core of any planning effort. In order for the goals of the plan to be achievable, general consensus regarding the vital issues to the community must be reached.

Citizen input was ascertained through two (2) methods. A planning survey was distributed to 4,000 households in Green Oak in 1992, of which thirty-three (33%) percent were completed and returned. The survey provides details on citizen attitudes on growth and development, as well as the level of satisfaction for community services, roads, fire and police safety.

Another method employed to collect citizen input was a Visioning Workshop conducted in 1997. Approximately eighty (80) people attended the workshop, including Township Board Members, Planning Commissioners, and others interested in future planning for the Township. Participants were split into five (5) topic groups, including Community Facilities/Governmental Services and Big Picture; Environmental Planning and Natural Rivers Planning; Commercial Corridor and Industrial Uses; Density/Lot Sizes and Open Space Preservation; Roads and Public Utilities. The vision statements gathered from this workshop were then used to develop and formulate the goals and policies of the 1997 Master Plan, which continue to be included in this update.

Prior to the formal adoption of this Master Plan, a presentation was given at two (2) separate Planning Commission meetings to explain the modifications made from the 1999 amended Master Plan to the current document. In addition, two (2) separate public hearings were conducted (one (1) formal, one (1) informal) to allow Township residents to provide comment and discussion.

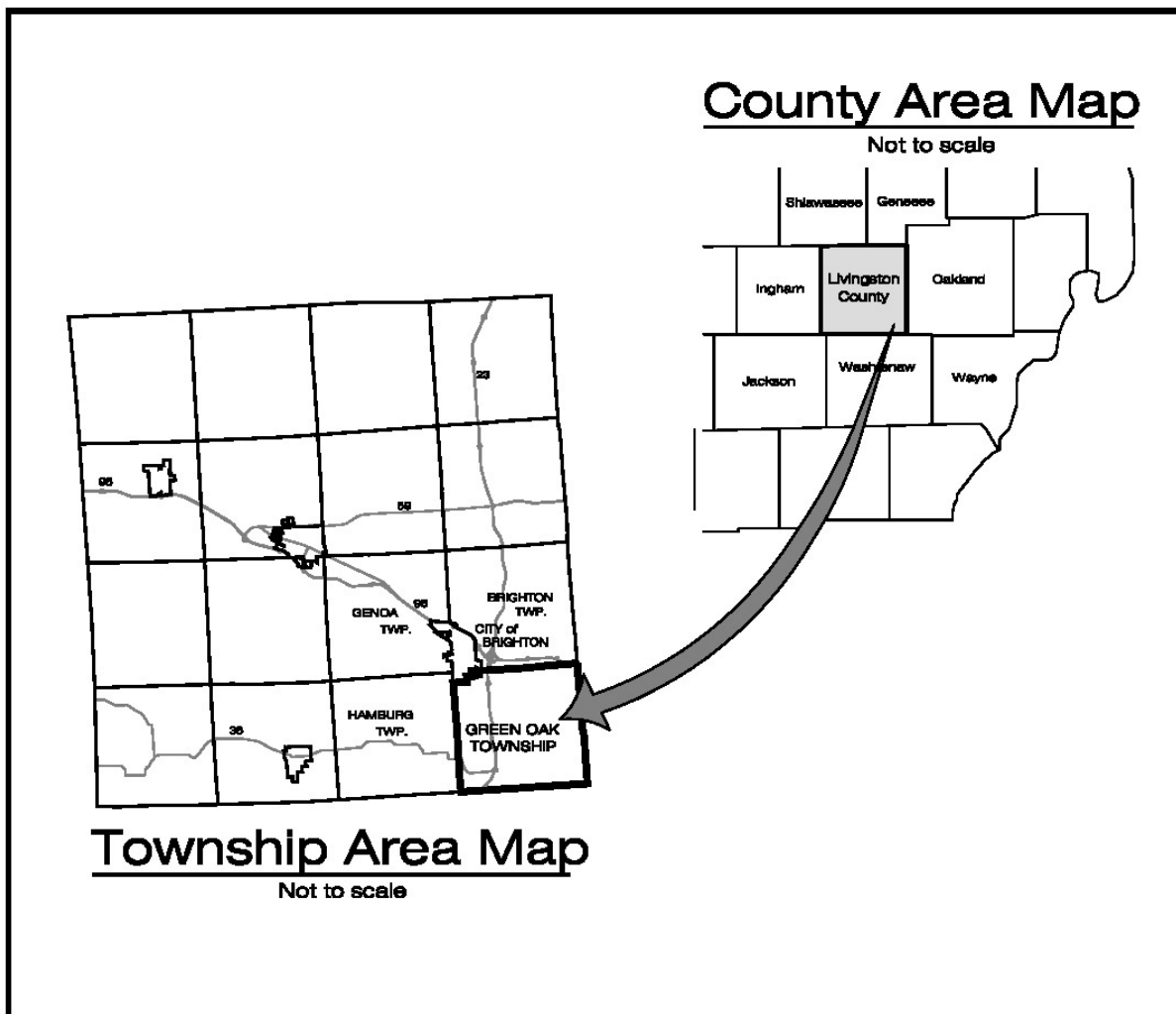
In addition, this document was distributed to Livingston County Planning Department and surrounding jurisdictions for comment as part of the county-wide intergovernmental cooperation effort.

BACKGROUND STUDIES

LOCATION AND REGIONAL CONTEXT

Green Oak Charter Township is located in the southeastern corner of Livingston County (see Map 1, below), adjacent to Oakland County (to the east) and Washtenaw County (to the south). The Township is comprised of nearly an entire geographic township, totaling approximately 36 square miles, and is immediately adjacent to Brighton Township and the City of Brighton to the north, Hamburg Township to the west, Lyon Township and the City of South Lyon (both of Oakland Co.) to the east, and Northfield Township (Washtenaw Co.) to the south. The cities of Ann Arbor, Novi and Wixom and the Village of Pinckney are other incorporated areas within ten miles. Green Oak Charter Township is less than two (2) hours driving time from most of the State's major market areas, particularly Detroit and Lansing.

**MAP 1
REGIONAL SETTING**



POPULATION, HOUSING & ECONOMIC CHARACTERISTICS

Inventory and Analysis

In preparation for the development and amendment of Green Oak Charter Township's Master Plan, population, housing and economic data were compiled and analyzed. Familiarity with this information is essential in recognizing and addressing potential community needs for various housing types or public facilities, as well as determining the potential for future land development and the demand for commercial and industrial uses. The primary sources used in compiling this data include the 1990 and 2000 U.S. Censuses, as well as the Michigan Department of Career Development (MDCD).

Population Trends and Growth

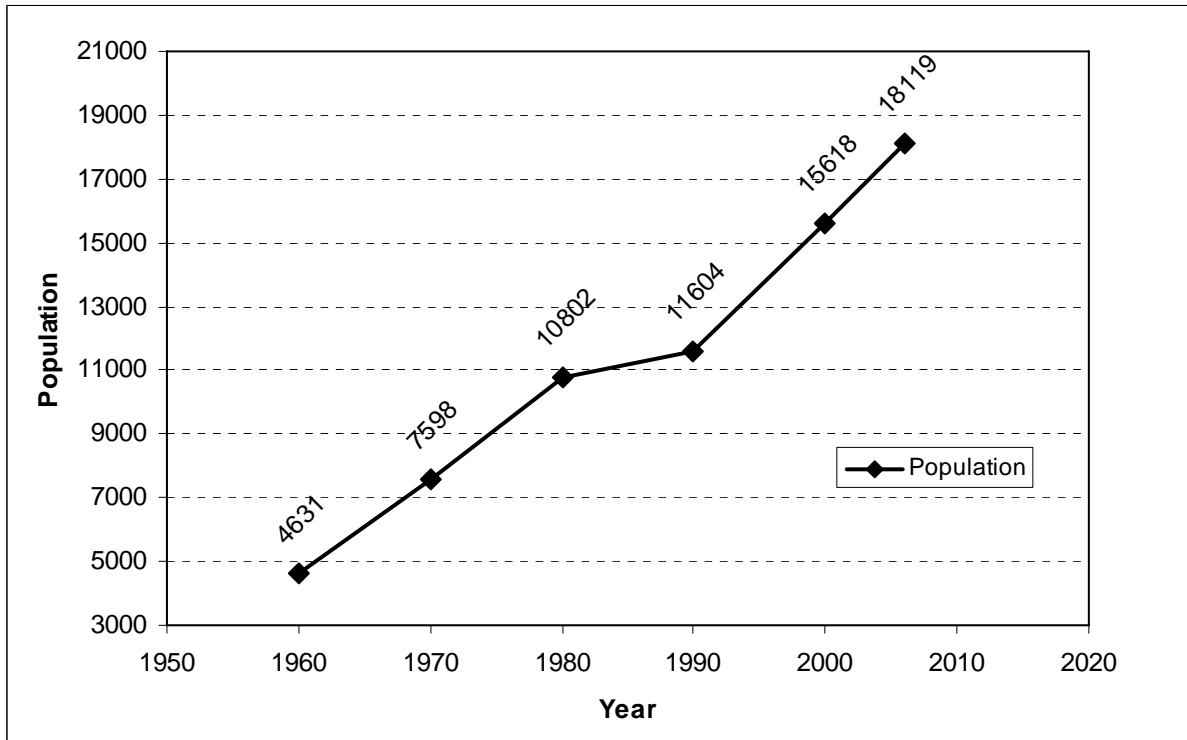
In 1960, Green Oak Charter Township's population was approximately 4,631. By 1970, the Township's population had grown to 7,598, an increase of 64%. This substantial population growth continued, reaching 10,802 by 1980. The rate of growth slowed dramatically in the following decade, resulting in a population of 11,604 in 1990 – corresponding to a growth rate of only 7.4%.

By 2000, the rate of growth increased once again. The 2000 population was 15,618, a 35% increase from 1990. This growth was consistent with the substantial population growth occurring in most of the adjacent communities. Livingston County was one of the fastest growing counties in the state between 1990 and 2000.



Figure 1, below, illustrates the population trends of Green Oak Charter Township over the past forty (40) years. As the graph shows, with the exception of 1980 to 1990, Township growth has been relatively constant. Given the significant number of approved or pending developments not reflected in the 2000 Census, significant population growth is likely to continue within the planning period of this document – approximately the next five (5) to ten (10) years.

**FIGURE 1
POPULATION TRENDS, 1960-2006***



Source: U.S. Census Bureau, 1960-2000; SEMCOG, 2006

* Population figure for 2006 estimated by SEMCOG as of June, 2006.

**TABLE 1
POPULATION COMPARISON, 1980-2000**

| | 1980 | 1990 | Change | | 2000 | Change | |
|----------------------------|-----------|-----------|--------|------|-----------|---------|-----|
| | | | # | % | | # | % |
| Green Oak Township | 10,802 | 11,604 | 802 | 7% | 15,618 | 4,014 | 35% |
| Brighton (City) | 4,268 | 5,686 | 1,418 | 32% | 6,701 | 1,015 | 18% |
| Brighton Township | 11,222 | 14,815 | 3,593 | 32% | 17,673 | 2,858 | 19% |
| Genoa Township | 9,261 | 10,820 | 1,559 | 17% | 15,901 | 5,081 | 47% |
| Hamburg Township | 11,318 | 13,083 | 1,765 | 16% | 20,627 | 7,544 | 58% |
| Livingston County | 100,289 | 115,645 | 15,356 | 15% | 156,951 | 41,306 | 36% |
| Lyon Township | 7,078 | 8,828 | 1,750 | 25% | 11,041 | 2,213 | 25% |
| Northfield Township | 4,672 | 6,732 | 2,060 | 44% | 8,252 | 1,520 | 23% |
| South Lyon (City) | 5,214 | 6,479 | 1,265 | 24% | 10,036 | 3,557 | 55% |
| State of Michigan | 9,262,044 | 9,295,297 | 33,253 | 0.4% | 9,938,444 | 643,147 | 7% |

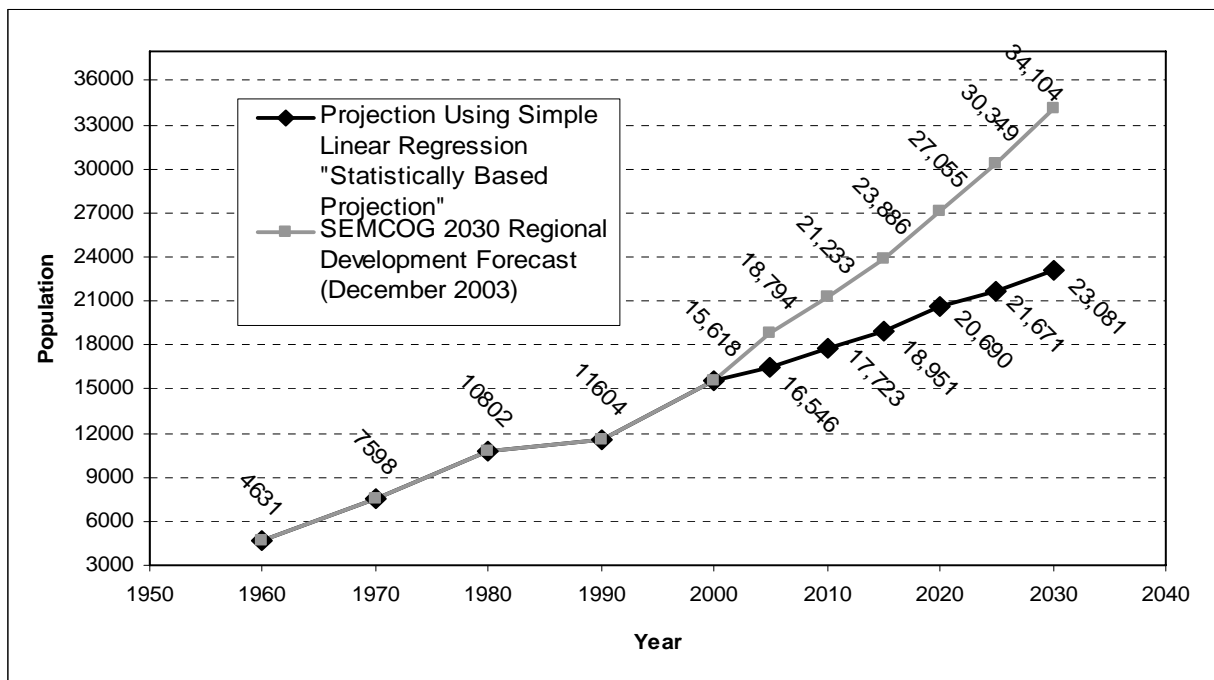
Source: U.S. Census Bureau, 1980, 1990, 2000

Table 1 offers a comparison of the recent population trends of Green Oak Charter Township with those of neighboring townships, Livingston County and the State of Michigan. While Green Oak had one of the smallest growth rates of the area in the 1980s, it retook its previous position as one of the faster growing communities in the 1990s.

Population Projections

In June of 2002, the Southeastern Michigan Council of Governments (SEMCOG) prepared its 2030 Regional Development Forecast (RDF). This RDF incorporates data from the 2000 Census, data on jobs from the state employment agency, updates of land availability and planned uses, and local officials' expectations about near-term development and future sewerage, in order to prepare population, housing and employment projections for each community in southeastern Michigan. The RDF anticipated an increase in population (3,176 people) by the year 2005, and a steady gain of approximately the same amount of people every five (5) years thereafter (see Figure 2, below). A projection using simple linear regression has also been provided for comparison. A straight line was fit to the data (1960-2000) in a least-squares sense, and used to project into the future. By comparing the RDF to the regressed values, one can see that SEMCOG anticipates the rate of population increase in the Township over the next thirty (30) years to exceed that which can be extrapolated from historic trends.

FIGURE 2
GREEN OAK TOWNSHIP
POPULATION PROJECTIONS, 2000-2030



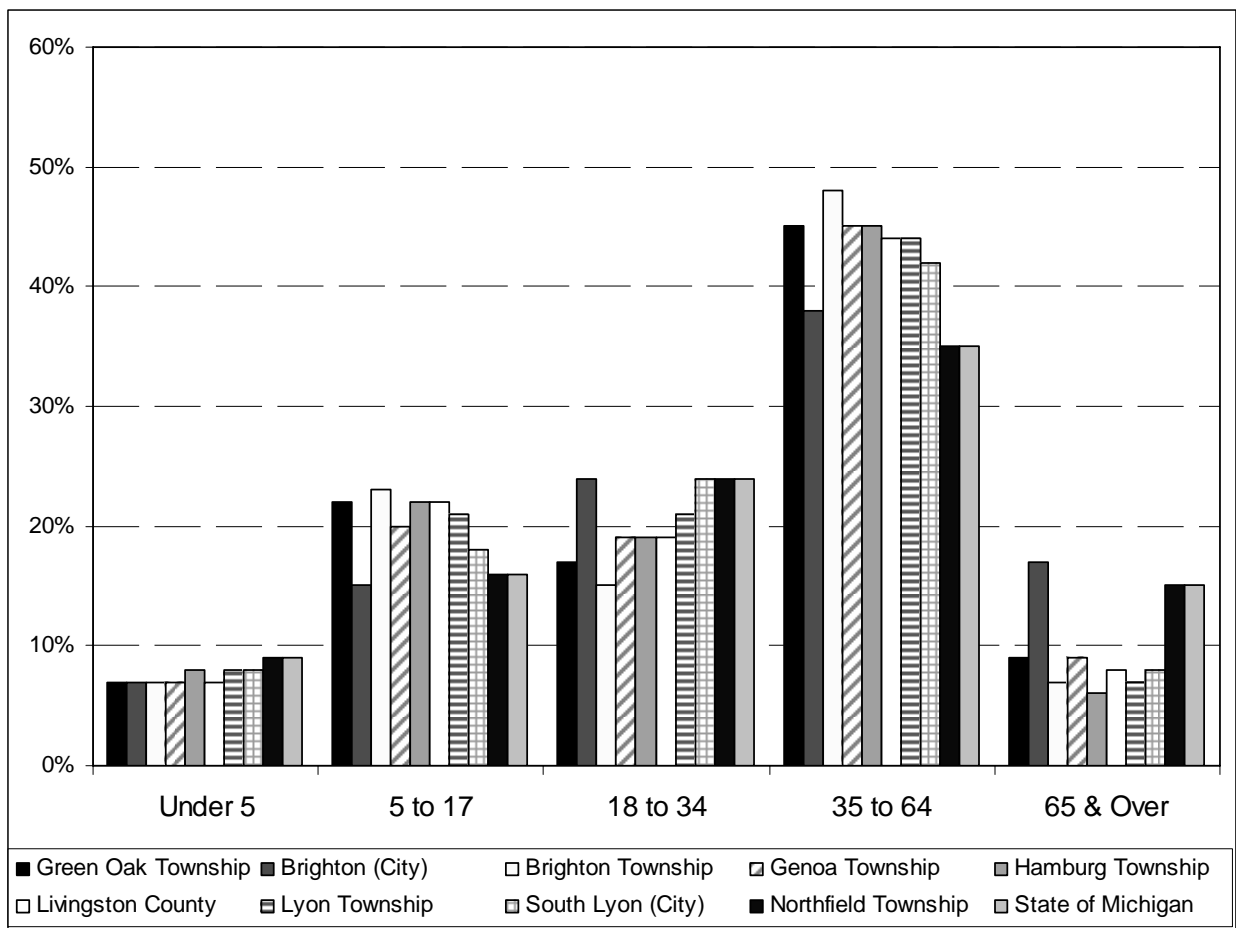
Source: SEMCOG, 2003; Carlisle/Wortman Associates, Inc., 2005

Population Characteristics

Age

The median age in Green Oak Charter Township is 36.9, which represents a significant increase since 1990 when the figure was computed to be 32.8. The current figure is consistent with adjacent communities, which range from Northfield Township's 35.1 to Brighton Township's 37.6. The age is also consistent with Livingston County at 36.2, and the State of Michigan at 35.5. The figure represents a mix of mature adults and children in Green Oak Charter Township. Figure 3 compares Green Oak Charter Township's age distribution to adjacent townships, the County, and the State.

**FIGURE 3
PERCENTAGE OF POPULATION BY AGE, 2000**



Source: U.S. Census Bureau, 2000

TABLE 2
SUMMARY OF AGE, 2000

| | 5 to 17 | | 18 to 64 | | 65 & Over | | Total | Median Age |
|----------------------------|-----------|-----|-----------|-----|-----------|-----|-----------|------------|
| | # | % | # | % | # | % | | |
| Green Oak Township | 3,447 | 22% | 9,676 | 62% | 1,378 | 9% | 15,618 | 36.9 |
| Brighton (City) | 1,011 | 15% | 4,140 | 62% | 1,110 | 17% | 6,701 | 37.4 |
| Brighton Township | 4,115 | 23% | 11,178 | 63% | 1,188 | 7% | 17,673 | 37.6 |
| Genoa Township | 3,199 | 20% | 10,136 | 64% | 1,442 | 9% | 15,901 | 37.5 |
| Hamburg Township | 4,513 | 22% | 13,218 | 64% | 1,302 | 6% | 20,627 | 35.8 |
| Livingston County | 33,820 | 22% | 98,789 | 63% | 13,037 | 8% | 156,951 | 36.2 |
| Lyon Township | 2,301 | 21% | 7,113 | 65% | 746 | 7% | 11,041 | 35.2 |
| Northfield Township | 1,490 | 18% | 5,461 | 66% | 681 | 8% | 8,252 | 35.1 |
| South Lyon (City) | 1,608 | 16% | 6,038 | 60% | 1,507 | 15% | 10,036 | 35.2 |
| State of Michigan | 1,923,762 | 19% | 6,123,659 | 62% | 1,219,018 | 12% | 9,938,444 | 35.5 |

Source: U.S. Census Bureau, 2000

Table 2 provides a breakdown of the number of school-age children, adults, and seniors in Green Oak Charter Township, its neighboring townships, Livingston County, and the State of Michigan. The proportion of school-age children in Green Oak Charter Township (22%) is consistent with the majority of surrounding townships and the County (22%), and just above the State of Michigan as a whole (19%). As is the trend across the nation, the number of seniors in the Township is on the rise.

Race

Table 3 provides a comparison of the racial composition of Green Oak Charter Township to its neighboring townships, Livingston County, and the State of Michigan. The population of Green Oak Charter Township is predominantly white (96%), though there is a greater percentage of minorities in the Township than in surrounding townships and in Livingston County.

**TABLE 3
COMPARISON OF RACE AND HISPANIC ORIGIN, 2000**

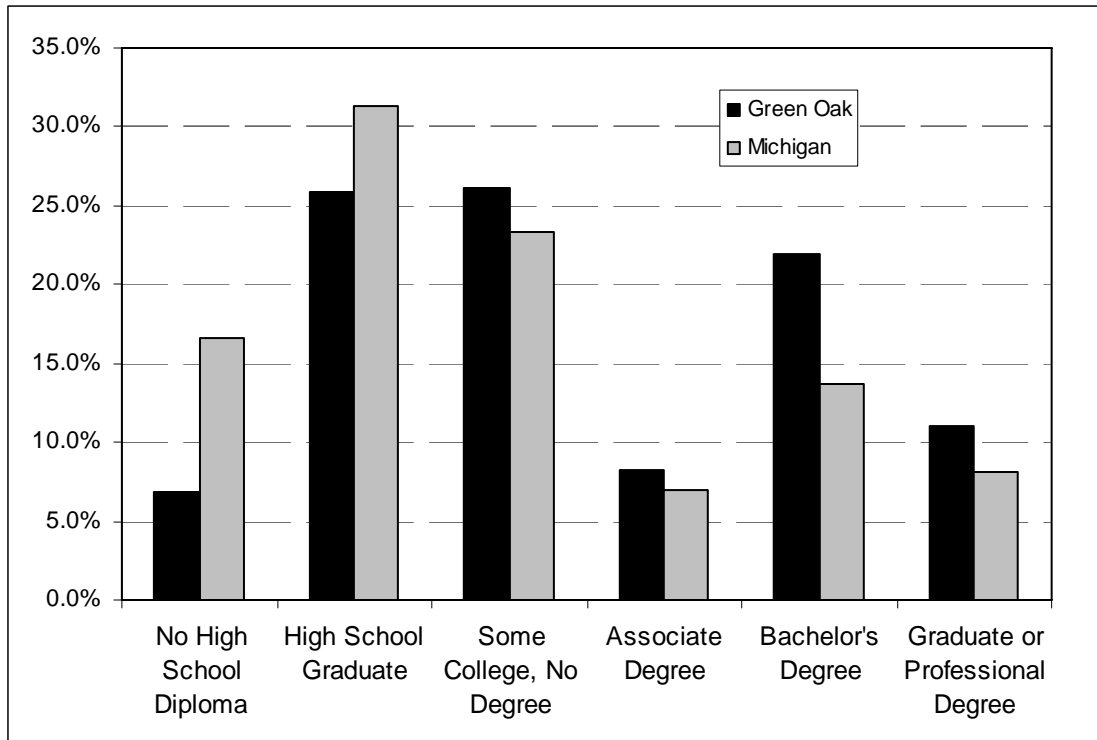
| | White | Black | American Indian | Asian | Pacific Islander | Other | Multi-Racial | Hispanic Origin |
|----------------------------|-------|-------|-----------------|-------|------------------|-------|--------------|-----------------|
| Green Oak Township | 95.9% | 1.6% | 0.5% | 0.5% | 0.0% | 0.2% | 1.3% | 1.3% |
| Brighton (City) | 96.6% | 0.3% | 0.4% | 1.3% | 0.0% | 0.4% | 0.9% | 1.5% |
| Brighton Township | 97.3% | 0.4% | 0.3% | 0.8% | 0.0% | 0.3% | 0.8% | 1.2% |
| Genoa Township | 97.3% | 0.2% | 0.4% | 0.7% | 0.0% | 0.2% | 1.1% | 1.0% |
| Hamburg Township | 97.2% | 1.0% | 0.3% | 0.4% | 0.0% | 0.2% | 0.8% | 1.1% |
| Livingston County | 97.1% | 0.5% | 0.4% | 0.6% | 0.0% | 0.3% | 1.1% | 1.2% |
| Lyon Township | 97.1% | 0.4% | 0.4% | 0.6% | 0.0% | 0.5% | 1.0% | 1.5% |
| Northfield Township | 96.1% | 1.1% | 0.5% | 0.6% | 0.1% | 0.2% | 1.4% | 1.1% |
| South Lyon (City) | 96.7% | 0.4% | 0.2% | 1.1% | 0.1% | 0.4% | 1.2% | 1.6% |
| State of Michigan | 80.2% | 14.2% | 0.6% | 1.8% | 0.0% | 1.3% | 1.9% | 3.3% |

Source: U.S. Census Bureau, 2000

Education

Figure 4 illustrates a comparison of the educational attainment of individuals age twenty-five (25) and over in Green Oak Charter Township and the State of Michigan. The number of individuals who have attended college, particularly those with Bachelor’s and graduate degrees, is much higher in Green Oak Charter Township than in the State of Michigan as a whole.

**FIGURE 4
EDUCATIONAL ATTAINMENT COMPARISON, 2000**



Source: U.S. Census Bureau, 2000

Economic Characteristics

Tax Base

Analysis of Township tax assessment data is a useful component in evaluating growth and development trends. The Township's predominantly residential nature is clearly reflected in the State Equalized Value (SEV) and parcel data contained in Table 4 below. Although recent years have seen a slight decrease in the residential percentage of the Township's total SEV (81%), due primarily to growth in industrial assessments, the total number of residential parcels continues to grow significantly (7,297 parcels). While the number of agriculturally-assessed parcels remains constant (27 parcels), their proportionate share of the Township's total SEV (0.2%) continues to decline.

TABLE 4
SEV BY ASSESSMENT
CLASSIFICATION, 2000-2004

| Classification | Total SEV | | | % of Total* | | |
|--------------------|---------------|---------------|---------------|-------------|-------|-------|
| | 2000 | 2002 | 2004 | 2000 | 2002 | 2004 |
| Agriculture | \$2,408,600 | \$5,085,600 | \$14,452,500 | 0.4% | 0.6% | 0.2% |
| Commercial | \$14,110,900 | \$26,923,100 | \$30,767,100 | 2.5% | 3.5% | 3.4% |
| Industrial | \$70,689,200 | \$104,364,900 | \$125,535,600 | 12.9% | 13.6% | 14.0% |
| Residential | \$459,320,115 | \$630,176,912 | \$727,594,300 | 84.0% | 82.2% | 81.0% |
| Total | \$546,528,815 | \$766,550,512 | \$898,349,500 | N/A | N/A | N/A |

* Percentages may not equal 100% due to rounding.
Source: Green Oak Charter Township Assessing Department, 2005

Given recent land use approvals, a considerable amount of commercial development has occurred along the US-23 corridor (particularly the Lee Road interchange). Given the extent of this development, commercial assessments are expected to increase significantly in the coming years. A commercial market analysis has been conducted, and concluded that the current commercial development within Green Oak Township is roughly three (3) times the amount that the residents of the Township alone can support. The commercial market analysis can be found in its entirety as an addendum to this document.

Labor Force and Employment

According to the Michigan Department of Career Development, Green Oak Charter Township’s labor force reached a total of 8,900 individuals in 2004, up approximately 81% from nearly twenty-five (25) years ago. Green Oak Charter Township is generally consistent with the unemployment rate of Livingston County, though much lower than the State of Michigan as a whole. The 2004 rate of unemployment in Green Oak Charter Township, although higher than in 2000 (4.2% to 2.3%), remains at less than half of the 1980 figure (10%). Table 5, below, illustrates Green Oak Charter Township’s labor force and unemployment trends, in comparison with Livingston County and the State of Michigan.

**TABLE 5
LABOR FORCE AND
UNEMPLOYMENT TRENDS, 1980-2004**

| | Green Oak Township Labor Force | Unemployment Rate | | |
|------------------|--------------------------------|--------------------|-------------------|-------------------|
| | | Green Oak Township | Livingston County | State of Michigan |
| Jan. 1980 | 4,925 | 10.0% | 10.2% | 10.4% |
| Jan. 1990 | 6,150 | 5.2% | 5.7% | 9.1% |
| Jan. 2000 | 8,325 | 2.3% | 2.6% | 4.0% |
| Jan. 2004 | 8,900 | 4.2% | 4.7% | 7.6% |

Source: Michigan Department of Career Development, 2003

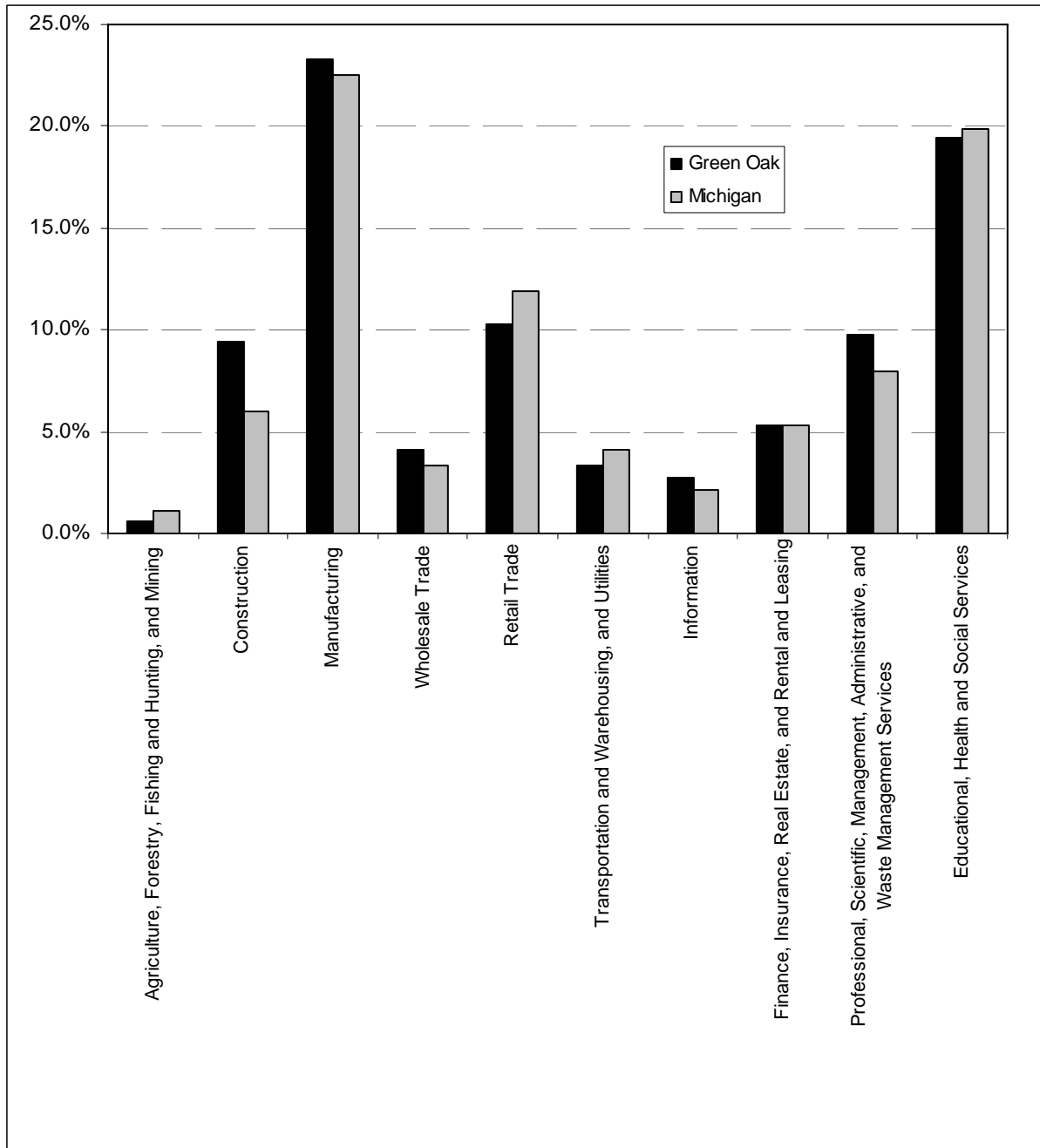
Table 6, below, provides a breakdown of the employment of Green Oak Charter Township residents by occupation. As the table shows, the category of management and professional occupations (39.6%) is the single-largest among Green Oak Charter Township residents, followed by sales and office (24.9%).

**TABLE 6
EMPLOYMENT BY OCCUPATION, 2000**

| Occupation | # | % |
|---|-------|-------|
| Management, professional, and related occupations | 3,092 | 39.6% |
| Service occupations | 940 | 12.1% |
| Sales and office occupations | 1,942 | 24.9% |
| Farming, fishing, and forestry occupations | - | <1% |
| Construction, extraction, and maintenance occupations | 910 | 11.7% |
| Production, transportation, and material moving occupations | 915 | 11.7% |

Source: U.S. Census Bureau, 2000

**FIGURE 5
EMPLOYMENT BY INDUSTRY COMPARISON, 2000**



Source: U.S. Census Bureau, 2000

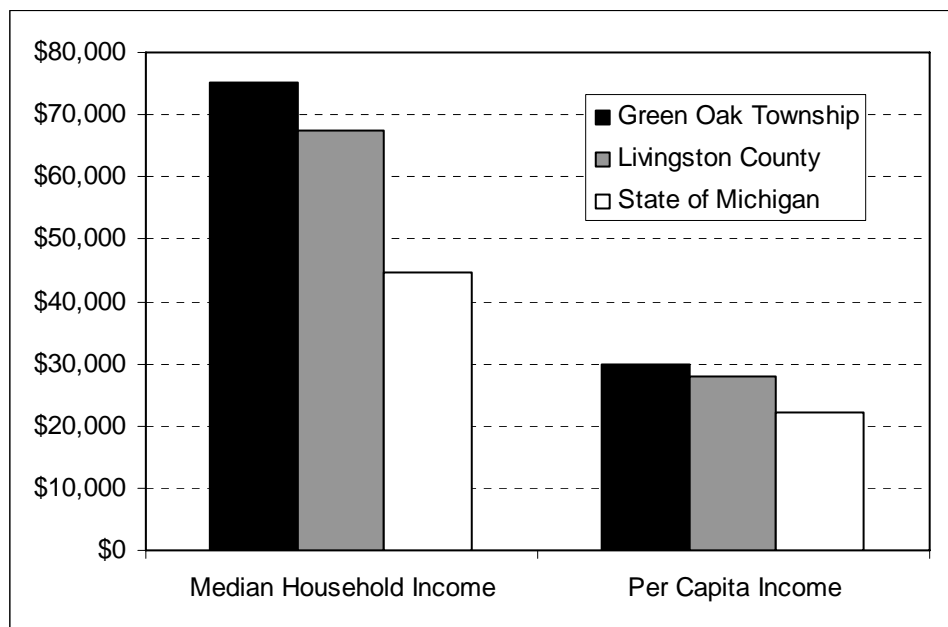
Figure 5, above, illustrates a comparison of employment by industry between Green Oak Charter Township and the State of Michigan. Similar to the State as a whole, Green Oak Charter Township residents are employed primarily in the manufacturing and education, health and social services industries (23.3% and 19.4%, respectively). Gordon Food Service and the W.J. Maxey Boys Training School are the two (2) largest

employers in the Township, employing 410 and 340 people, respectively (Livingston County Data Book, September, 2003).

Income and Poverty

Median household income in Green Oak Charter Township was \$75,173 in 2000, and the per capita income was \$29,923. As illustrated in Figure 6, Green Oak Charter Township income levels were somewhat higher than those of Livingston County as a whole, while both are significantly higher than the average for the State of Michigan.

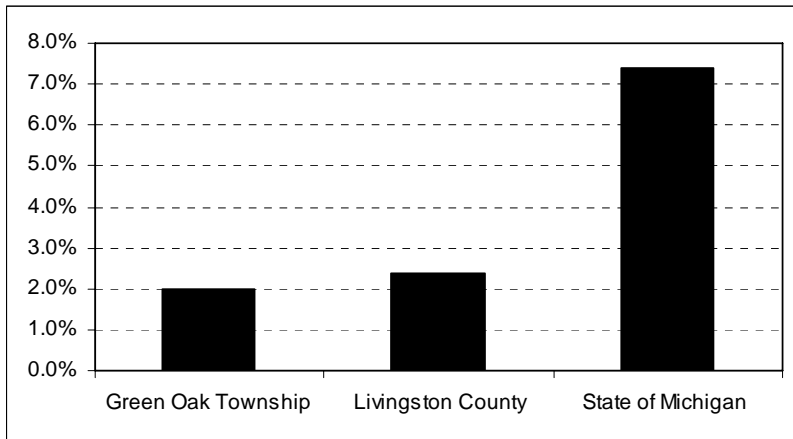
**FIGURE 6
INCOME LEVEL COMPARISON, 2000**



Source: U.S. Census Bureau, 2000

As one would expect based upon its per capita income, Green Oak Charter Township has a much lower percentage of families living below the poverty line than the State of Michigan. Figure 7, below, compares the percentages of families living below the poverty line in Green Oak Charter Township with Livingston County and the State of Michigan.

**FIGURE 7
PERCENTAGE OF FAMILIES
BELOW POVERTY LEVEL, 2000**



Source: U.S. Census Bureau, 2000

Households and Housing Characteristics

Households

As of the 2000 Census, the Township had a total of 5,456 households, as shown in Table 7, below. Green Oak Charter Township has a comparatively higher percentage of family households (79.3%) than the State of Michigan (68%), though it is very consistent with Livingston County (78.6%). The average number of persons per household for the Township (2.79) is also consistent with the County (2.80) but substantially higher than that of the State (2.56). “Family” households are those which contain a householder and one (1) or more other people living in the same household that are related by either birth, marriage, or adoption. The higher number of persons per household in Green Oak Charter Township reflects the higher average family size of the Township.

**TABLE 7
HOUSEHOLD DEMOGRAPHICS, 2000**

| | Green Oak Township | Livingston County | State of Michigan |
|-------------------------------|---------------------------|--------------------------|--------------------------|
| Number of Households | 5,438 | 55,384 | 3,785,661 |
| % Family | 79.3% | 78.6% | 68.0% |
| % Non-Family | 20.7% | 21.4% | 32.0% |
| Average Household Size | 2.79 | 2.80 | 2.56 |
| Average Family Size | 3.15 | 3.18 | 3.10 |

Source: U.S. Census Bureau, 2000

The tenure of householders in Green Oak Charter Township is illustrated below in Table 8. Compared with figures for the State of Michigan, the Township and Livingston County have had a greater number of people move into their current home within the twenty (20) years prior to the 2000 Census. The very similar rates between the Township and County (85.7%/84.4%), reflects the more recent growth of the area compared to that of the State.

**TABLE 8
TENURE OF HOUSEHOLDER BY YEAR MOVED IN, 2000**

| | Green Oak Township | Livingston County | State of Michigan |
|----------------------------|---------------------------|--------------------------|--------------------------|
| 1999 to March, 2000 | 13.3% | 16.4% | 17.5% |
| 1995 to 1998 | 28.9% | 31.6% | 27.8% |
| 1990 to 1994 | 24.4% | 19.2% | 16.3% |
| 1980 to 1989 | 19.1% | 17.2% | 16.2% |
| 1970 to 1979 | 7.8% | 11.0% | 11.0% |
| 1969 or earlier | 6.4% | 4.7% | 11.2% |

Source: U.S. Census Bureau, 2000

Housing Units

As shown in Table 9, Green Oak Charter Township has a total of 5,780 housing units as of the 2000 Census, 94.26% of which are occupied. Of these, 73.2% are owner-occupied, which is higher than the average for Livingston County (66.2%) and for the State of Michigan (66.0%). Renter-occupied housing units comprised 26.8% of the total, understandable given the Township's low rate of multi-family units, which are more often renter-occupied.

**TABLE 9
HOUSING RELATED DEMOGRAPHICS, 2000**

| | Green Oak Township | Livingston County | State of Michigan |
|--------------------------------|---------------------------|--------------------------|--------------------------|
| Number of Housing Units | 5,780 | 58,919 | 4,234,279 |
| Percent Occupied | 94.3% | 94.0% | 89.4% |
| Percent Owner-Occupied | 73.8% | 66.2% | 66.0% |

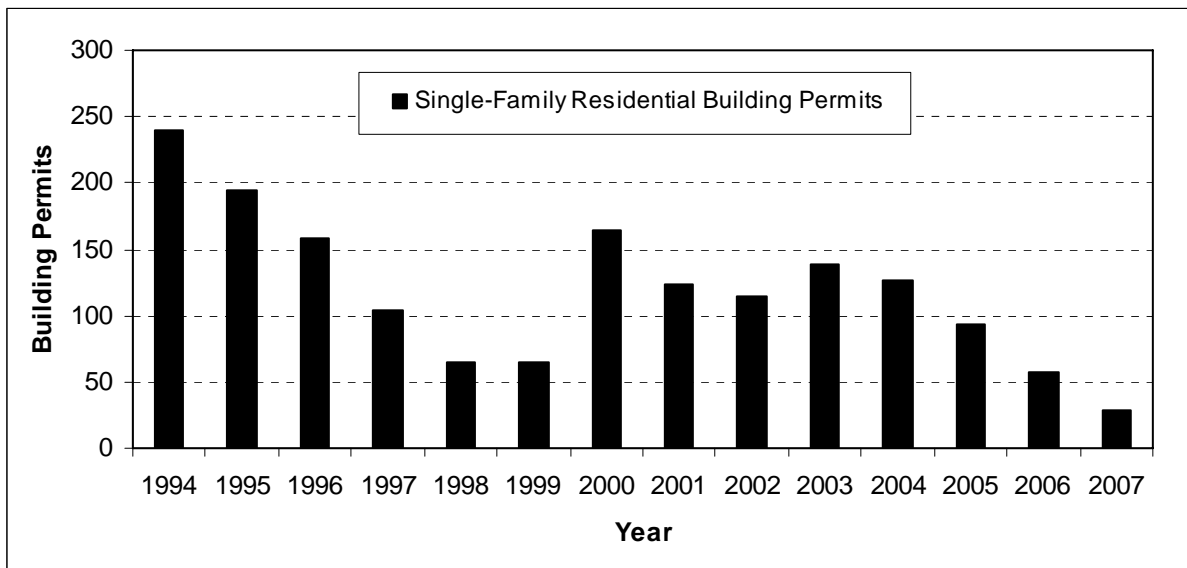
Source: U.S. Census Bureau, 2000

Analysis of the number of residential building permits issued can offer insight into the demand for or pace of residential development in the community. Figure 8, below,

displays the number of residential building permits issued on an annual basis from 1994 through 2004. New single-family residential building permits, as defined by SEMCOG, include all free-standing, detached buildings having only one housing unit, but not including manufactured homes located within manufactured housing communities. In reviewing the building permit data, no clear trend appears to exist over the past ten years. The later portion of the 1990's showed continual reduction of building permit activity for single family units. The number of permits increased in 2000 and has stayed generally consistent since that time. The Township did not approve any new multi-family units during the time period; however, nearly forty (40) permits were issued for attached condominiums in 2003 and 2004, with additional permits granted in 2005.



**FIGURE 8
NEW SINGLE-FAMILY
RESIDENTIAL BUILDING PERMITS, 1994-2007**



Source: SEMCOG, 2005 and Green Oak Charter Township, 2008

A comparison of Green Oak Charter Township's housing stock with that of Livingston County and the State of Michigan is provided below in Table 10. As the table illustrates, the age distribution of Green Oak Charter Township's housing stock is

generally consistent with the County, but substantially different than that of the State. Within the thirty (30) years prior to the 2000 Census, 64.8% of homes were built in Green Oak Charter Township. This compares to 69.9% for the County and only 42.3% for the State, reflecting the relatively recent surge of housing development throughout the Livingston County area.

**TABLE 10
AGE OF HOUSING STOCK BY YEAR BUILT, 2000**

| | Green Oak Township | Livingston County | State of Michigan |
|----------------------------|---------------------------|--------------------------|--------------------------|
| 1999 to March, 2000 | 1.5% | 5.3% | 2.2% |
| 1995 to 1998 | 12.7% | 14.4% | 6.4% |
| 1990 to 1994 | 13.7% | 12.9% | 6.1% |
| 1980 to 1989 | 16.9% | 14.2% | 10.5% |
| 1970 to 1979 | 20.0% | 23.1% | 17.1% |
| 1960 to 1969 | 10.7% | 9.1% | 14.2% |
| 1940 to 1959 | 16.9% | 11.1% | 26.5% |
| 1939 or earlier | 7.6% | 9.9% | 16.9% |

Source: U.S. Census Bureau, 2000

Table 11, below, exhibits housing cost in Green Oak Charter Township as compared to the State of Michigan. The median housing value for owner-occupied units in the Township was \$201,300 in 2000, 7% higher than Livingston County and almost 75% higher than that of the State of Michigan (\$115,600). Median monthly rent was \$632, 8% lower than Livingston County (\$681), but 16% higher than that of the State (\$546).

**TABLE 11
HOUSING COST, 2000**

| | Green Oak Township | Livingston County | State of Michigan |
|-------------------------------------|---------------------------|--------------------------|--------------------------|
| Median Value, Owner-Occupied | \$201,300 | \$187,500 | \$115,600 |
| Median Rent, Renter-Occupied | \$632 | \$681 | \$546 |

Source: U.S. Census Bureau, 2000

NATURAL RESOURCES

The natural features of Green Oak Charter Township have historically played a major role in influencing growth and development. The natural resources of the Township including the Huron River, its tributaries, and lakes have provided beautiful settings for homesites, and recreational facilities serving the entire region. Indeed, the attractiveness of the natural environment is one of the major reasons why people have located in the Township.



While there are many opportunities for enjoyment and utilization of the natural resource base, particular features of the natural environment are incapable of supporting development or are of sufficient significance to be preserved. It is helpful to examine the various natural resource factors in detail to determine the opportunities and constraints for development, as well as weigh the value of preservation.

Soils

An understanding of soil characteristics is essential to the development of a community in a manner which minimizes construction costs, risks to public health, and environmental damage. This is especially critical in Green Oak Charter Township because of the limitations of many soil types.

Soil types within the Township are identified in the Livingston County Soil Survey prepared by the U.S. Soil Conservation Service. Detailed soils maps are available through County Planning or the Soil Conservation Service. For land use planning purposes, the two (2) possibly most important soil characteristics are the suitability for septic systems and the susceptibility to wetness and flooding. The suitability of soil types for septic systems is evaluated below in the *Land Capability Analysis* section (page 33), and wetlands and flood-prone areas are addressed under *Wetlands and Floodplains* (page 28).

Topography, Watersheds and Hydrology

The terrain throughout the Township is gently rolling to hilly, with sandy uplands and ridges, sandy plains and numerous wet flat plains. The highest point in the Township, at about 1,035 feet above sea level, is located near the western portion of the Township

on a moraine north of Winans Lake Road. The lowest area of the Township is approximately 860 feet above sea level and is found in the floodplain of the Huron River. The general topography of the Township is shown on Map 2.

All of Green Oak Charter Township falls within the Huron River watershed. The Huron River watershed includes numerous smaller sub-watersheds throughout its course; in Green Oak these include the Davis Creek, Nichwagh Lake, Woodruff Creek and Huron River sub-watersheds (See Map 2). Correspondingly, the Township is traversed by a number of tributaries, including the main and south branches of the Huron River, Davis Creek, Greenock Creek and numerous streams and tributaries.



Glacial lakes are also a predominant feature throughout the Township’s landscape. The largest of the lakes, as well as their acreage and sporting designation, are displayed in Table 12, below.

**TABLE 12
GLACIAL LAKES**

| Lake | Acreage | All Sports |
|-------------------|-----------|------------|
| Whitmore Lake* | 677 acres | Yes |
| Silver Lake | 152 acres | Yes |
| Island Lake | 140 acres | Yes |
| Nichwagh Lake | 117 acres | No |
| Fonda Lake | 84 acres | Yes |
| Briggs Lake | 74 acres | No Motors |
| Mallard Lake | 70 acres | No |
| Sandy Bottom Lake | 56 acres | No |

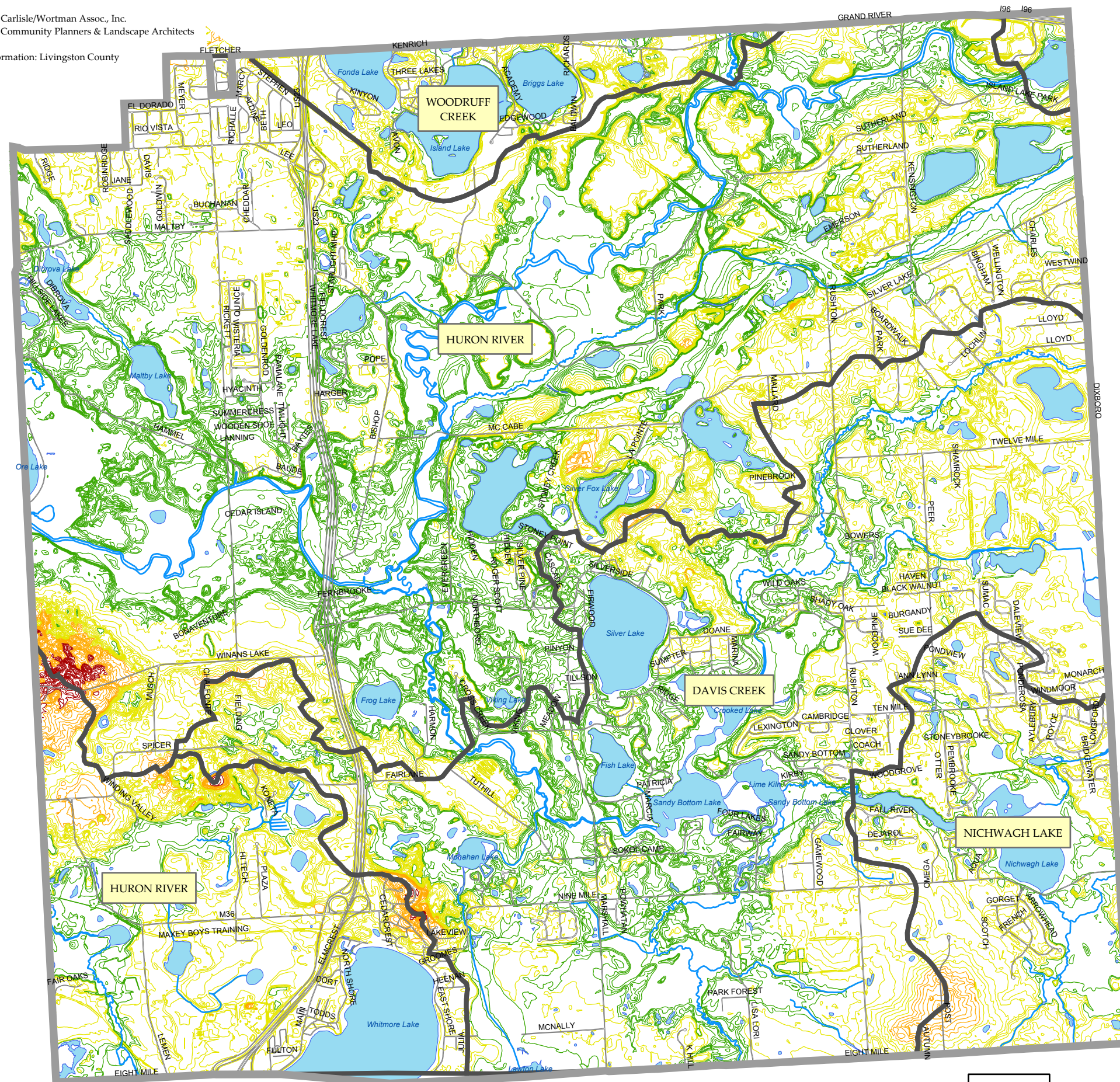
* only 236 acres are located in Green Oak Charter Township.

Source: Livingston County Data Book, 2003; and Green Oak Charter Township, 2006






In addition to the various naturally-occurring glacial lakes throughout the Township, a number of lakes have been created in the Township by extractive operations. In some cases, particularly Hidden Lake in Section 16, these lakes have been utilized to develop

premier waterfront residential developments. That opportunity remains on a number of sites throughout the Township.





The topography, lakes and wetlands, depicted on Maps 2 and 3, define the natural character of much of the Township. It affects the locations of highways, railroads, industry and other land uses. Because roads have generally by-passed steep hills and wet areas, the Township is one of few in southeastern Michigan without a grid line road network.



Legend

-  Lakes
-  Rivers
-  Township Boundary
-  Roads
-  Watershed Boundaries

Contour Elevation

-  860 - 896
-  897 - 939
-  940 - 982
-  983 - 1025

Map 2

TOPOGRAPHY and WATERSHEDS

Green Oak Charter Township
Master Plan

Natural Rivers

The Huron River is one of the key natural features of Green Oak Charter Township. The Township's thirty-six (36) square miles provides important watershed areas which are critical to the maintenance of surface and ground water quality. Green Oak Charter Township is a participating member of the Huron River Watershed Council. The Township supports this agency's efforts in monitoring surface water of the Township and for developing strategies for effective management of this important resource.

Green Oak Charter Township includes rivers and creeks which are designated for protection under Part 305, *Natural Rivers*, of the Natural Resources and Environmental Policy Act (P.A. 451 of 1994) by the Michigan Department of Natural Resources and under the Township's Natural Rivers Overlay Zone. The purpose of this designation is to preserve and enhance the scenic value and quality of rivers. Generally, the area 400 feet from the ordinary high water



mark on each side of and parallel to the Huron River and its tributaries, Davis Creek and Spring Mill Creek, is designated as Natural Rivers District. Regulations include a building setback of 125' from the river or 50' from the tributaries and a minimum lot width of 150'.

The interrelationship of residential home sites within Green Oak Charter Township and the Natural River overlay areas make it necessary for Green Oak Charter Township to adopt specific policies for protecting its surface and groundwater resources. Control of the wastewater effluent discharge – to surface water or groundwater resources – is of central importance to maintaining water quality within the Township and throughout the Township's designated Natural River areas. Therefore, density control and land use restrictions are valid methods which are utilized and incorporated within a comprehensive groundwater protection policy for Green Oak Charter Township and the Natural River watershed areas.

Since February of 2004, Green Oak Charter Township has played a leading role in furthering progressive environmental policy in the region as host of the monthly meetings of the Huron Chain of Lakes (HCOL) and the Upper-2 Shiawassee River (USR) Phase II stormwater sub-watersheds. During this time, the HCOL (which includes the entire Township), developed a Public Education Plan (PEP), Public

Participation Plan (PPP), Illicit Discharge Elimination Plan (IDEP), Watershed Management Plan (WMP) and Storm Water Pollution Prevention Initiative (SWPPI). Each of these identify short, medium and long-term goals for the reduction of pollution due to stormwater runoff and reduce both point and non-point source pollution.

Wetlands and Floodplains

The presence of surface waters, poorly drained soils and low-lying areas gives rise to substantial floodplain and wetland areas within the Township. Once seen as waste lands, wetlands and floodplains are now recognized as vital natural resources. Wetlands are essential to the maintenance of water quality, providing nutrient retention and filtration, sediment removal and groundwater recharge and discharge. With these and other benefits, including the availability of habitat for wildlife and the storing function for flood waters, wetlands and floodplains are essential in maintaining balanced hydrological and ecological systems.

Lands along the Huron River, Davis Creek and portions of other select creeks and tributaries, are within the 100-year floodplain as established by the Federal Emergency Management Administration (FEMA). The 100-year floodplain is the area adjoining a river, stream, or watercourse covered by water in the event of a 100-year flood. These floodplain areas are illustrated on Map 3.

The Township's wetlands have been mapped by the Livingston County Planning Department using data from the U.S. Fish and Wildlife Service's National Wetland Inventory. Map 3 depicts the distribution of wetlands across the Township. As the map indicates, wetlands are prevalent throughout the Township. The majority of the wetlands are associated with the Township's rivers and streams.

In accordance with the Natural Resources and Environmental Policy Act (Act 451 of 1994) as amended, dredging, filling and other activities in regulated wetlands require a permit from the Michigan Department of Environmental Quality (MDEQ). Because of the environmental sensitivity of these lands and because of these regulations, development in wetland areas is discouraged.



Groundwater

The Township is underlain by a geological formation known as a ground moraine which consists of soil fragments deposited as the glaciers – which once covered this area – retreated. These formations are fairly porous and often contain large amounts of groundwater. These groundwater deposits, called aquifers, are recharged by the percolation of surface water through permeable areas of the landscape that are hydrologically connected to the aquifer.

While three (3) primary public or centralized water systems (Livingston Community Water Authority (public), Hidden Lake (private), and the Fonda-Island-Briggs Joint Water Authority (quasi-public)) provide water service to a large number of residents in select areas of the Township, the majority of the Township’s land area and residents continue to be served by individual wells. For this reason, protection of wellheads and groundwater recharge areas throughout the Township is critical to maintaining a safe water supply for the Township’s residents.

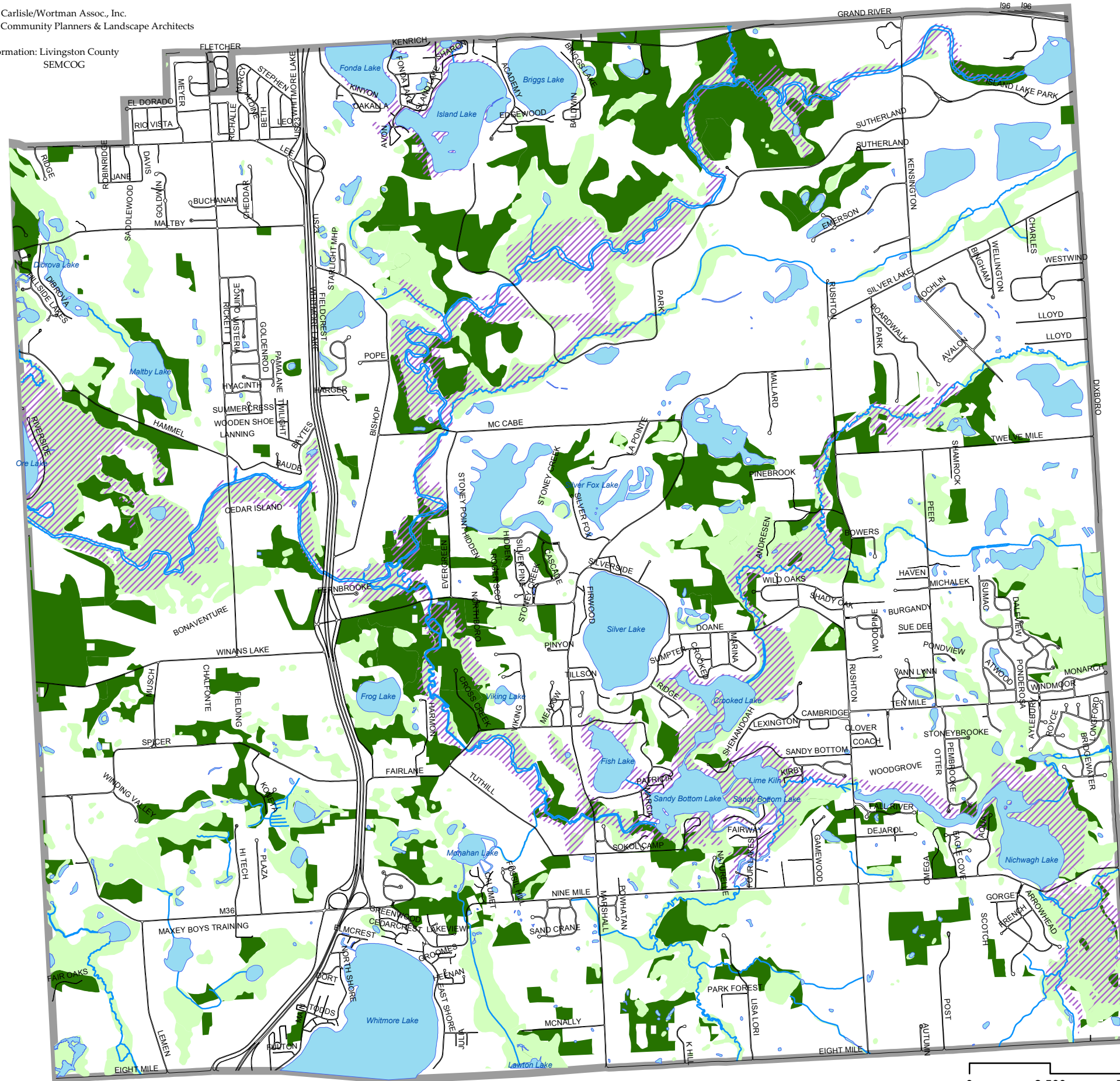
Woodlands

Woodlands are prevalent throughout the Township. This is due in large part to the expansive public land, and the extensive floodplain and wetland areas that were of little agricultural or development value. Woodlands provide wildlife habitat, recreational value, and substantial contribution to the scenery and character of the Township.

Major woodlands, containing mixed hardwoods and pines, have been mapped by the Livingston County Planning Department using data provided by the MDEQ. Map 3 illustrates the general location of these woodlands throughout the Township.



This page is left intentionally blank.



Legend

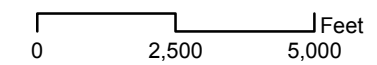
-  Lakes
-  Rivers
-  Wetlands
-  Woodlands
-  Flood Plain
-  Township Boundary
-  Roads

Map 3

NATURAL FEATURES

Green Oak Charter Township

Master Plan



Land Capability Analysis

A detailed inventory of natural resources can be a useful tool in determining the capability of the landscape to support development. By guiding future development into the most suitable areas, problems associated with large-scale grading, flood damage, foundation stability, poor drainage and septic system failures can be avoided.

The resource factors considered in the following land capability analysis include topography, hydrology, and soils exhibiting constraints for septic system use. These natural features were overlaid using Geographic Information Systems (GIS) software. By overlaying these layers, the areas in the Township which are most likely to support development become apparent. Based on this data, a land capability map was produced (see Map 4).

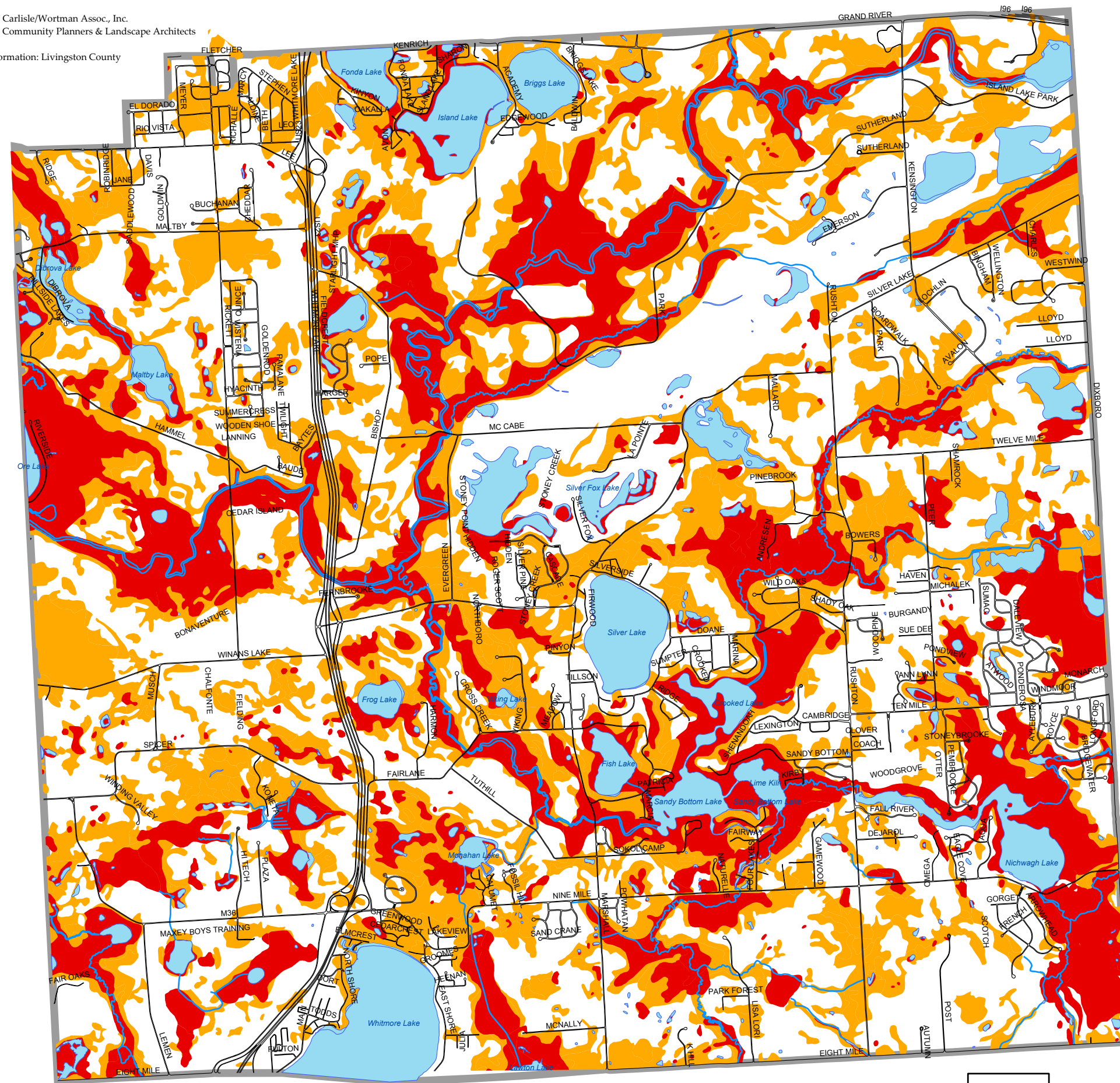


Areas colored red on Map 4 denote the presence of wetlands and other hydrologic features, and are considered unsuitable for development under any circumstance. Areas with no color are land areas capable of supporting development with little or no limitations of the kind considered in this analysis.

Areas colored orange represent land with limited capability for development due to constraints on septic system use posed by the soils found there. Because the sanitary sewer system in the Township is limited, (generally only found throughout the western half of the Township), individual septic systems continue to be a primary means of wastewater disposal for Township residents. Therefore, the location of septic systems on proper soils is extremely important. It is often difficult to site a septic field and adequately protect ground water resources in such areas, and it can be difficult to obtain necessary isolation distances between wells and septic fields. These areas of the Township are only considered developable through the use of large lot sizes or centralized sanitary sewer.

This analysis is meant to highlight the physical constraints of the Township. The map is useful for general planning purposes; however, detailed, site-specific inventory and analysis should be conducted for any proposed development. This map is used as one (1) factor in determining the distribution of land uses and densities shown on Map 12, Future Land Use.

This page is intentionally left blank



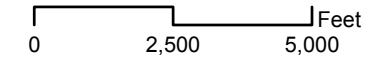
Legend

- Lakes
- Rivers
- Township Boundary
- Roads

Development Limitations

- Unsuitable for Development
- Limited Capability of Development
- Capable of Development

Map 4
LAND CAPABILITY ANALYSIS
Green Oak Charter Township
Master Plan



Areas of Contamination

Map 5 illustrates the distribution of contaminated locations throughout Green Oak Charter Township, as identified by the Michigan Department of Environmental Quality (MDEQ) and mapped by Livingston County. Below, each of the elements shown on Map 5 are described.

Part 201 Sites

Part 201 of the Natural Resources and Environmental Policy Act (P.A. 451 of 1994), administered by the MDEQ, regulates site of environmental contamination in need of remediation (excluding leaking underground storage tanks). The standard for remediation of such sites is generally dependent upon the anticipated use of the property, based upon the expected risk of human exposure to harmful substances.

Open LUST Sites

Unremediated leaking underground storage tanks (LUSTs), as shown on Map 5, are regulated under Part 213 of the Natural Resources and Environmental Policy Act (P.A. 451 of 1994). Part 213 mandates the cleanup of LUSTs, which are referred to as “open” LUST sites until remediated to the standards of the MDEQ, at which point they are considered “closed.”

Elevated Nitrates

The presence of elevated nitrates in groundwater is also shown on Map 5. Nitrates can find their way into groundwater in a number of ways, however failing septs, livestock wastes, and crop and lawn fertilizers are the most common sources. Excessive nitrate consumption can cause illness, and thus wells having high nitrate levels require treatment for safe human consumption.

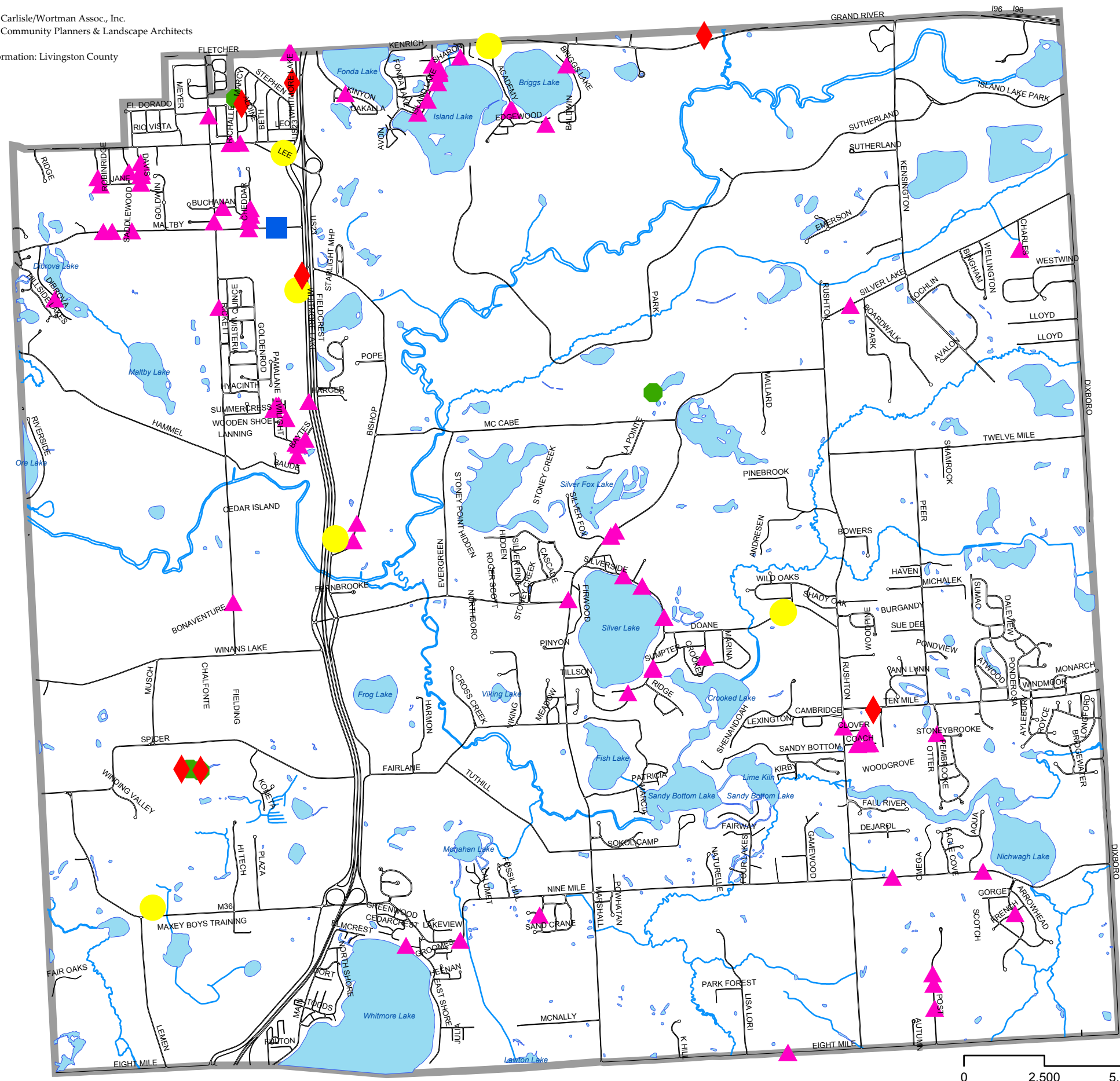
Elevated Barium

One (1) occurrence of elevated barium in groundwater has been identified in Green Oak Charter Township, as shown on Map 5. Barium is a metal used in a range of industrial applications, and can cause short and long-term illnesses when consumed. As with water sources with elevated nitrates, elevated barium requires treatment for safe human consumption.

Closed Landfills

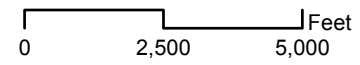
Closed landfills, shown on Map 5, represent challenges for reclamation/reuse at such time as these areas are proposed to be developed/redeveloped. In some cases, Part 201 sites of environmental contamination are found in association with these closed landfills.

This page is intentionally left blank.



Legend

- Lakes
- Rivers
- Township Boundary
- Roads
- 201 Sites
- Open LUST Sites
- Elevated Nitrates
- Elevated Barium
- Closed Landfills



Map 5
**AREAS OF
CONTAMINATION**
Green Oak Charter Township
Master Plan

COMMUNITY FACILITIES & SERVICES

One of the most important public services is the provision of adequate public facilities. Often the impression created by a particular community is directly related to its schools, parks, public buildings, public utilities and police and fire facilities. The adequacy or inadequacy of these public facilities has a direct influence on the Township's ability to serve its residents, businesses, and industries, and its capability to attract new ones. The distribution of community facilities throughout the Township is portrayed on Map 6.

Governmental Structure

The Township is governed by a conventional Township Board consisting of a Supervisor, Clerk, Treasurer and four (4) Trustees. A seven (7) member Planning Commission is responsible for overseeing the planning and zoning functions of the Township, along with a five (5) member Zoning Board of Appeals. Additionally, a Historic District Commission oversees the various historic districts established within the Township. Other than the Board of Review, the Township does not have any additional standing boards, commissions or committees.



Government Offices

The Green Oak Charter Township Hall is located on 10001 Silver Lake Road. The facility, completed in 2000, is centrally located in the Township and has close access to the US-23 / Silver Lake Road interchange. The Township houses the offices of the Supervisor, Clerk, Treasurer, as well as the Assessing and Building Departments.

Police and Fire Services

Police protection is provided by the Township's own police department. Located at 8965 Fieldcrest, the Police Department consists of the Police Chief, one (1) Deputy Chief, two (2) sergeants, ten (10) patrol officers, and two (2)



administrative assistants. Police facilities are in need of upgrading whether renovating the existing building or development of a new station in the future.

Fire protection in the Township is also provided by its own fire department. The Township is served by three (3) fire stations. The main fire station is Station 81, located at 9384 Whitmore Lake Road (north of Winans Lake Road on the west side of US-23). Station 82 is located at 11411 East Grand River (just west of Pleasant Valley) and Station 83 is located at 9863 Rushton Road (just north of Ten Mile Road). The department is also a member of the Livingston County and Washtenaw County Mutual Aid Associations, meaning that neighboring fire departments are available to provide assistance as needed, and when necessary, the Green Oak Department will provide assistance to other communities.



Schools

Green Oak Charter Township is serviced by three (3) school districts; Whitmore Lake, Brighton and South Lyon. Most of the schools are located outside of the Township, though Hawkins Elementary School and Scranton Middle School (of the Brighton School District) are located in the northwest portion of the Township, and Brummer Elementary School (of the South Lyon School District) is located in the southeast portion. Private and charter schools are also available to residents, but none are located within the Township (except as may be associated with area churches).



Other Public Buildings

A public library is not currently located in Green Oak Charter Township, though residents may use public libraries in Brighton, South Lyon and Whitmore Lake. The Township does not have community meeting or senior centers, though the latter is available in Brighton and South Lyon.

Parks and Recreation

A wide variety of recreational opportunities can be found throughout Green Oak Charter Township and its environs. See Map 6 *Community Facilities*

Township Parks

Green Oak Charter Township has one (1) local park, Colman Park, which is located on the southeast side of Silver Lake Road just north of Silver Lake. Colman Park includes nine (9) acres which offers a play structure, multi-purpose field, picnic shelter and other park furnishings such as a seasonal restroom. The Township participates in the Southeast Livingston County Recreation Authority (SELCRA), which provides additional recreational opportunities available to Township Residents.

Regional Parks

Huron Meadow Metropark in Sections 7, 18 and 19 of the Township is also available for recreation use. The park, part of the Huron-Clinton Metropolitan Authority (HCMA) system, is traversed by the Huron River and includes a golf course, picnic areas, food service, canoe rental, hiking and cross country skiing.

Kensington Metropark, also part of the HCMA, is located adjacent to the northern boundary of the Township. In addition to water recreation and hiking, Kensington has a golf course and offers interpretive programs, cross-country skiing and sledding.

State Parks

Over ninety (90%) percent of Island Lake State Recreation Area is located within the boundaries of Green Oak Charter Township. A variety of outdoor activities are available at Island Lake including swimming, fishing, boating, hiking and camping. The park, which spans the majority of the northern portion of the Township, connects to Kensington Metropark, providing an extensive greenway corridor. A path connecting Island Lake with Kensington was established in 2003, further increasing this linkage.

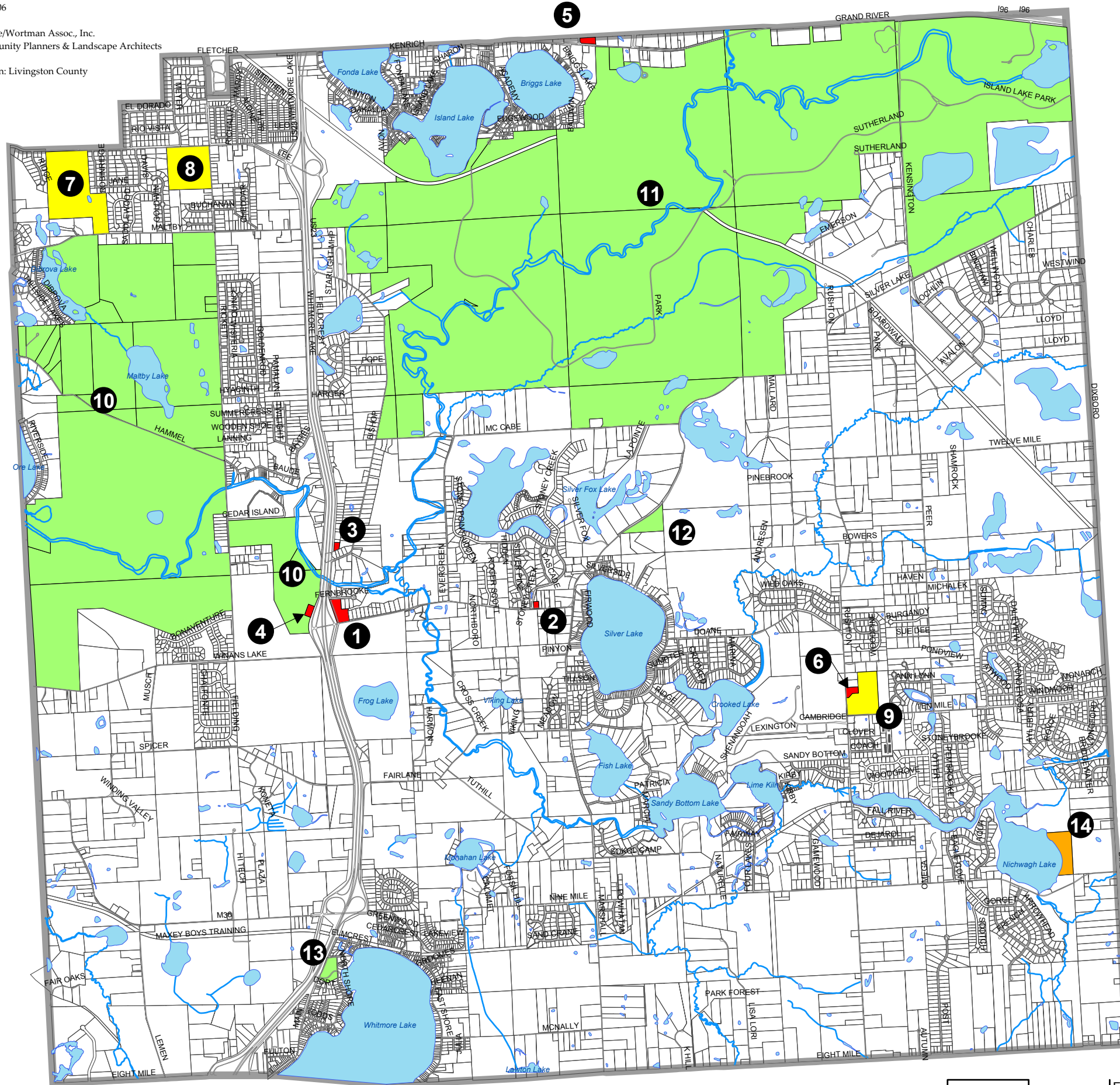


School Facilities

Both Hawkins and Brummer Elementary Schools, as well as Scranton Middle School, have a variety of playground equipment, basketball courts, baseball diamonds and other athletic fields customary to such facilities.

Parkland in Developments

Parkland has been set aside in a number of residential developments throughout the Township. In most cases, this parkland is available only to the residents of each respective development, rather than the community as a whole. Also, much of common parkland preserved in the Township's various developments consists of natural area or turf, often without the provision of any recreational facilities.



Legend

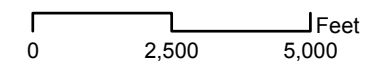
- Lakes
- Rivers
- Township Boundary
- Roads
- Township Property
- School Property
- Recreational Facilities
- Other Protected Land

- 1 - Township Hall
- 2 - Old Township Hall
- 3 - Township Police Department
- 4 - Township Fire Station
- 5 - Township Fire Station
- 6 - Township Fire Station
- 7 - Scranton Middle School
- 8 - Hawkins Elementary School
- 9 - Brummer Elementary
- 10- Huron Meadows Metropark
- 11- Island Lake State Recreation
- 12- Colman Park
- 13- MDNR Access to Whitmore Lake
- 14- SE MI Land Conservancy

Map 6

COMMUNITY FACILITIES

Green Oak Charter Township Master Plan



Utilities

Utility service – namely sanitary sewer and water – is provided to Township residents via several different public and private systems. The extent of major utility systems in Green Oak Charter Township is portrayed on Map 7.

Sanitary Sewer Service

Sanitary sewer is provided to Township residents through two (2) separate public systems – one (1) owned and operated by Green Oak Charter Township serving the northwestern quadrant of the Township, and the other owned and operated by Northfield Township serving the southwestern quadrant of the Township. A number of private systems of various sizes are also found throughout the Township, including Centennial Farms, Holly Hock, Sandy Creek, Evergreen Pond, Woodland Ridge MHC, and Stone Ridge, with the remainder of the Township (essentially the eastern half) being served via individual private septic systems.

The Township’s sanitary sewer system is based upon the treatment plant located within the Hidden Lake development in Section 16, which the Township took over as a result of the consent judgment involving that development. The treatment plant was intentionally oversized to serve areas beyond the development itself. In addition to serving the residences within Hidden Lake, collection lines have been extended to the northwest, serving various residential, commercial and industrial users located primarily along the US-23 corridor. Extension of this system to serve residences surrounding Fonda, Island and Briggs Lakes is currently underway. This is being undertaken primarily to mitigate the impact that the dense concentration of septic systems currently found there (a number of which are old and not operating properly) has had on lake water quality.

The vicinity surrounding Whitmore Lake is provided sanitary sewer service through the Northfield Township sewer system. The treatment plant for this system is in fact located within Green Oak Charter Township, in Section 31 west of Lemem Road. Sewer capacity for areas within the Township is made available by contract with Northfield Township.

Water Service

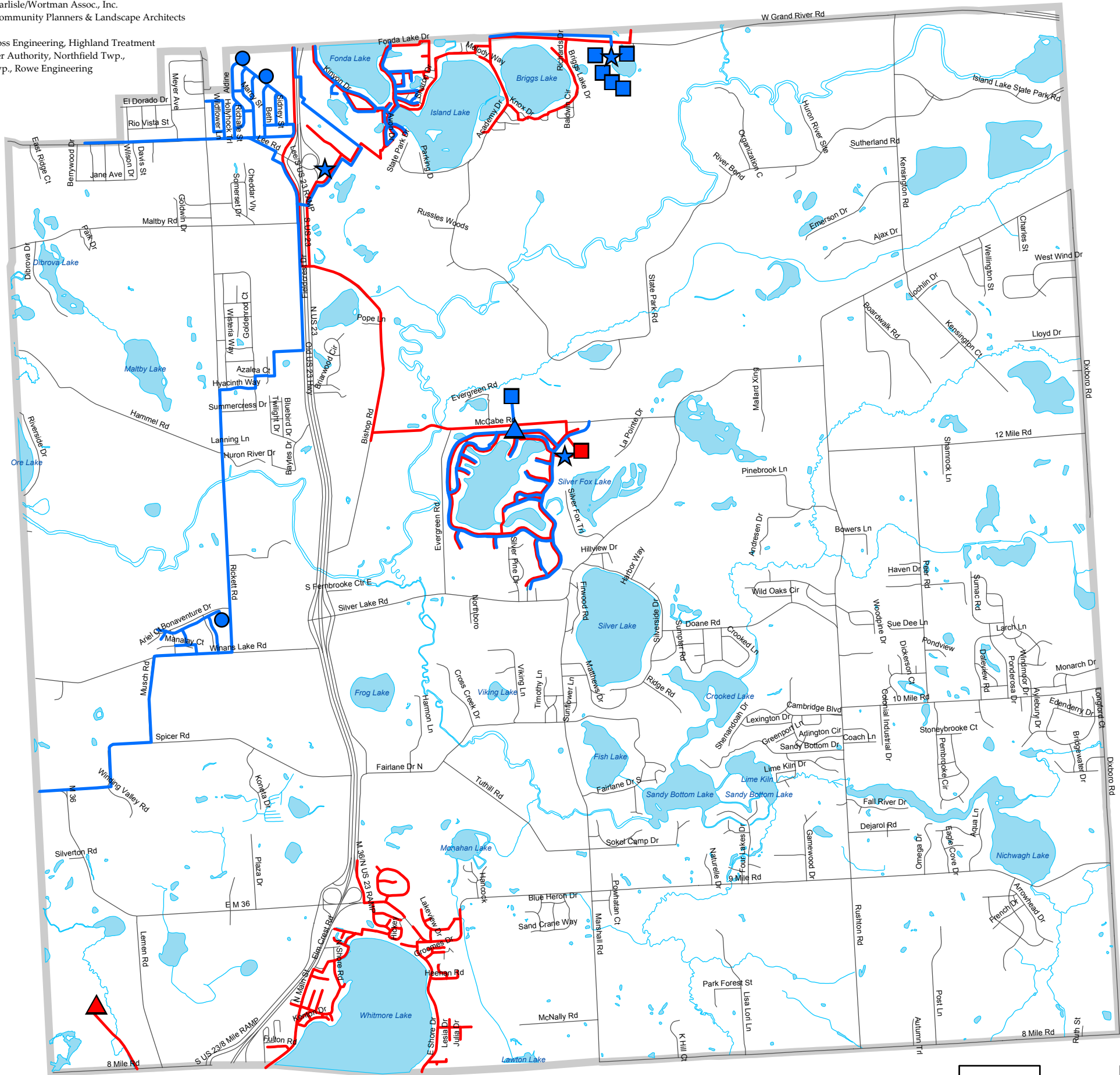
Water is supplied to Township residents via several different sources – the Livingston Community Joint Water Authority, the Fonda-Island-Briggs Joint Water Authority, and various private community wells, in addition to individual private wells.

The Township is part of the Livingston Community Joint Water Authority, which consists of Green Oak, Hamburg and Brighton Townships. This Authority was formed with the cooperative efforts of three (3) Townships and represents long-term, regional solutions to important infrastructure problems. Water for this system is supplied by a

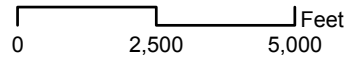
wellhead located west of Rickett Road, north of Winans Lake Road in Section 19. A water main heads west into Hamburg Township via Winans Lake, Musch, and Spicer Roads to M-36. A main also heads north along Rickett Road, crossing over to Whitmore Lake Road at the southwest corner of Section 8, continuing north then crossing US-23 to Fieldcrest Road, where it continues farther north to the water tower located at the Green Oak Village Place shopping center. From the water tower, the main crosses US-23 again to Whitmore Lake Road, heading north into Brighton Township. Connection to the Saxony-Willmor subdivisions is also provided, because of problems associated with the quantity and quality of water previously available through its individual private wells.

The western portion of the Fonda-Island-Briggs Lake area is served by its own centralized water system, commonly referred to as the FIB Joint Water Authority. This system was established in response to saline contamination of many private wells caused by runoff from an MDOT salt storage facility along US-23 that leached into the groundwater there. A number of additional private systems exist in the Township, including Hidden Lake, Centennial Farms, Maxey Boys School, Evergreen Pond, and Stone Ridge. Problems associated with arsenic levels in the water supply serving Centennial Farms may necessitate the Township's assistance in providing treatment.

The remainder of the Township is served by individual private wells. In certain locations, problems associated with the supply of groundwater have occurred (as was the case in the Saxony-Willmor subdivisions). Because of the number of individual wells in the Township, protection of the ground water supplies must be a primary concern to the residents of Green Oak Charter Township.



- ### Legend
- Lakes
 - Rivers
 - Township Boundary
 - Water Main
 - Elevated Storage Tank
 - Production Wells
 - Well House
 - Water Storage Facility
 - Sanitary Sewer Line
 - Hidden Lake Treatment Plant
 - Northfield Township Treatment Plant



Map 7
MAJOR UTILITY SYSTEMS
Green Oak Charter Township
Master Plan

CIRCULATION AND TRAFFIC

Highways and roads are developed to provide the safe and efficient movement of people and goods within and through a community. Adequate transportation facilities are therefore a major consideration in a community's development. Conversely, inadequate transportation facilities are also a factor in a community's development. In the case of Green Oak Charter Township, the road conditions within the Township are a major determinant in the location and intensity of future development.

Road Network

Green Oak Charter Township's road network consists of a combination of public and private roads. The Township's public road system is under the jurisdiction of the Livingston County Road Commission (LCRC), however, a few State routes within the jurisdiction of the Michigan Department of Transportation (MDOT) do exist. As noted previously in this document, the grid network of mile and half-mile roads found in most southeastern Michigan communities is not prevalent in the Township, due to its topography, water features and related features. The main north-south routes within the Township include Rickett, Whitmore Lake, Fieldcrest, Marshall, Rushton and Dixboro Roads, while major east-west routes include Grand River Avenue, Silver Lake Road, Winans Lake Road and Nine Mile Road.

Interstate and State Routes

US-23, a limited access highway, extends north-south along the entire west side of Green Oak Charter Township. US-23 connects the cities of Flint, Ann Arbor and Toledo, among others. There are four (4) interchanges within Green Oak; at Eight Mile Road / Whitmore Lake Road, M-36 / Nine Mile Road, Silver Lake Road and Lee Road.

I-96 is a major interstate which connects Detroit to Lansing and Grand Rapids. The expressway travels just north of Green Oak, crossing the northeast corner of the Township in Section 5. The closest access points onto the highway are Kensington Road, Pleasant Valley Road (access onto I-96 at this location is limited to east bound ingress and west bound egress) or the I-96/US-23 interchange. The connection of US-23 to I-96 makes Green Oak Charter Township accessible to an even wider market region.

The only State trunk line within Green Oak Charter Township is M-36. It begins at the interchange of US-23 in the Township and travels west through Pinckney, eventually connecting to M-52 and US-127. This State route generally serves as a connector between the smaller urban areas in Livingston and Ingham Counties. Approximately two (2) miles of M-36 exists within Green Oak Charter Township.

County Primary and Local Roadways

The Livingston County Road Commission classifies their roads as either “County Local” or “County Primary.” By designating a road as part of the County Primary System, the County can obtain State and Federal weight and gas tax revenue for maintenance. All public roads not classified as Primary are considered Local roads but are still under the jurisdiction of the LCRC. County Primary roads in the Township include the following: Whitmore Lake, Silver



Lake, Doane, Nine Mile, Rushton, Academy, Ten Mile, Marshall, East Shore, Lemen, Winans Lake, Rickett, Lee, Fieldcrest, Kensington and Silverside. In some instances, only sections of these roads are considered Primary while others are considered Local.

Private Roads

Green Oak Charter Township has a significant number of private roads, which can be discerned from the Township’s various public roads through inspection of Map 8. Typically, the Township’s private roads have a single point of ingress and egress (i.e. cul-de-sac) and serve residential subdivisions or condominiums (although several industrial private roads exist in the Township). The Township’s private road development regulations (contained in the Zoning Ordinance) establish minimum standards for private road construction. However, a number of private roads exist in the Township that either pre-date these regulations or have not been adequately maintained, and are in poor condition.

National Functional Classification

National Functional Classification (NFC) is a planning tool which federal, state and local transportation agencies have used since the late 1960's. All public roads are classified according to function - this allows roads to be studied and compared across different regions of the state or the entire country. NFC is also used to determine which roads are eligible to receive federal funds for improvements.

Principal arterials are at the top of the NFC hierarchal system. Principal arterials generally carry long distance, through-travel movements. They also provide access to important traffic generators, such as major airports or regional shopping centers. Examples of primary arterials include Interstates and other freeways; other state routes between large cities; and important surface streets in large cities.

Minor arterials are similar in function to principal arterials, except they carry trips of shorter distance and to lesser traffic generators. Examples of minor arterials include State routes between smaller cities; surface streets of medium importance in large cities; and important surface streets in smaller urban areas.

Collectors tend to provide more access to property than do arterials. Collectors also funnel traffic from residential or rural areas to arterials. Examples of collectors include County, farm-to-market roads; and various connecting streets in large and small urban areas.

Local roads primarily provide access to property. Examples of these include residential streets and lightly-traveled county roads.

All public streets, roads and highways in Michigan have an NFC designation. MDOT and local officials work cooperatively to functionally classify roads. The results of this joint process are submitted to the Federal Highway Administration (FHWA) for final approval. Map 8 illustrates the National Functional Classification of the Township's road network. Grand River Ave, M-36, US-23 and I-96 are the only arterials in the Township – all other roads are considered local or collector roads.

Road Surfacing and Condition

Roads in the Township are a mixture of gravel and bituminous-paved. As of 2002, the Township had almost 113 linear miles of public roadway, thirty-two (32) miles of which was gravel with eighty-one (81) miles paved. Map 9 depicts the extent of paved and gravel roads throughout the Township, as well as their condition (as determined by the Livingston County Road Commission). Portions of a number of County Primary roads received poor to failing ratings, including Whitmore Lake, Bishop, Fieldcrest, Silver Lake, Winans Lake and Marshall Roads, as well as Grand River Avenue. These roads typically need resurfacing, widening, drainage improvements, or some combination thereof.

Traffic Counts

The Livingston County Road Commission conducts periodic traffic studies, in order to monitor and evaluate traffic volumes throughout the County. Those counts taken in Green Oak Charter Township have been compiled and provided in Table 13, some of which have also been portrayed on Map 9.

TABLE 13
TRAFFIC COUNTS

| Road | Location | Date | Two-Way, 24-Hour Count |
|------------------|---------------------------|-------------|-----------------------------------|
| Academy Rd. | S. of Grand River Ave. | 2003 | 1,414 |
| Bishop Rd. | S. of Fieldcrest Rd. N | 2003 | 391 |
| Bishop Rd. | N. of Fieldcrest Rd. S | 2003 | 297 |
| Dixboro Rd. | S. of Silver Lake Rd. | 2003 | 1,056 |
| Dixboro Rd. | N. of Silver Lake Rd. | 2003 | 781 |
| Doane Rd. | W. of Rushton Rd. | 2003 | 3,891 |
| E. Shore Rd. | S. of Nine Mile Rd. | 2003 | 3,952 |
| Eight Mile Rd. | W. of Lemmen Rd. | 2004 | 5,940 |
| Eight Mile Rd. | E. of Lemmen Rd. | 2004 | 8,891 |
| Eight Mile Rd. | W. of Earhart Rd. | 2003 | 1,103 |
| Eight Mile Rd. | E. of Earhart Rd. | 2003 | 1,221 |
| Evergreen Rd. | N. of Silver Lake Rd. | 2003 | 405 |
| Fairlane Rd. | E. of Tuthill Rd. | 2003 | 252 |
| Fairlane Rd. | W. of Tuthill Rd. | 2003 | 569 |
| Fieldcrest Rd. | S. of Fairlane Rd. | 2003 | 383 |
| Fieldcrest Rd. | S. of Silver Lake Rd. | 2002 | 714 |
| Fieldcrest Rd. | N. of Silver Lake Rd. | 2003 | 1,116 |
| Fieldcrest Rd. | N. of Bishop Rd. N | 2003 | 2,219 |
| Fieldcrest Rd. | N. of Bishop Rd. S | 2003 | 1,300 |
| Grand River Ave. | E. of Kensington Rd. | 2004 | 5,050 |
| Grand River Ave. | W. of Kensington Rd. | 2004 | 8,710 |
| Grand River Ave. | W. of Pleasant Valley Rd. | 2004 | 14,833 |
| Hammel Rd. | W. of Rickett Rd. | 2003 | 987 |
| Kensington Rd. | S. of Grand River Ave. | 2003 | 10,306 |
| Lee Rd. | E. of Rickett Rd. | 2003 | 11,422 |
| Lee Rd. | W. of Rickett Rd. | 2003 | 4,113 |
| Lemmen Rd. | S. of M-36 | 2004 | 2,189 |
| Maltby Rd. | E. of Rickett Rd. | 2003 | 3,230 |
| Maltby Rd. | W. of Rickett Rd. | 2004 | 3,264 |
| Marengo Rd. | N. of Lee Rd. | 1992 | 93 |
| Marshall Rd. | N. of Nine Mile Rd. | 2003 | 1,604 |
| Marshall Rd. | S. of Nine Mile Rd. | 2003 | 683 |
| Marshall Rd. | N. of Silverside Rd. | 2003 | 1,307 |
| Marshall Rd. | S. of Silverside Rd. | 2003 | 1,531 |
| Marshall Rd. | S. of Silver Lake Rd. | 2003 | 2,074 |
| McCabe Rd. | W. of Evergreen Rd. | 2003 | 173 |
| McCabe Rd. | E. of Evergreen Rd. | 2003 | 202 |
| McNally Rd. | E. of E. Shore Rd. | 2004 | 658 |
| McNally Rd. | W. of Marshall Rd. | 2004 | 159 |
| Meyer Rd. | N. of Lee Rd. | 1992 | 345 |
| Musch Rd. | N. of Spicer Rd. | 2003 | 504 |
| Nine Mile Rd. | W. of Hickey Rd. | 2003 | 5,570 |
| Nine Mile Rd. | E. of Hickey Rd. | 2003 | 7,947 |
| Nine Mile Rd. | W. of Rushton Rd. | 2003 | 7,534 |
| Nine Mile Rd. | E. of Rushton Rd. | 2003 | 3,851 |

| Road | Location | Date | Two-Way, 24-Hour Count |
|---------------------|-------------------------|------|---------------------------|
| Old Lee Rd. | W. of Whitmore Lake Rd. | 1992 | 1,148 |
| Peer Rd. | N. of Ten Mile Rd. | 2003 | 788 |
| Pleasant Valley Rd. | N. of Grand River Ave. | 2003 | 6,378 |
| Pleasant Valley Rd. | S. of Grand River Ave. | 2003 | 67 |
| Rickett Rd. | N. of Hammel Rd. | 2003 | 6,141 |
| Rickett Rd. | S. of Hammel Rd. | 2003 | 4,723 |
| Rickett Rd. | N. of Lee Rd. | 2003 | 8,408 |
| Rickett Rd. | S. of Lee Rd. | 2003 | 6,881 |
| Rushton Rd. | N. of Nine Mile Rd. | 2003 | 5,487 |
| Rushton Rd. | S. of Nine Mile Rd. | 2003 | 1,677 |
| Rushton Rd. | N. of Ten Mile Rd. | 2003 | 6,582 |
| Rushton Rd. | N. of Twelve Mile Rd. | 2003 | 2,288 |
| Rushton Rd. | S. of Twelve Mile Rd. | 2003 | 2,025 |
| Silver Lake Rd. | W. of Fieldcrest Rd. | 2004 | 11,735 |
| Silver Lake Rd. | E. of Fieldcrest Rd. | 2003 | 7,755 |
| Silver Lake Rd. | W. of Marshall Rd. | 2003 | 7,255 |
| Silver Lake Rd. | E. of Marshall Rd. | 2003 | 6,456 |
| Silver Lake Rd. | W. of McCabe Rd. | 2003 | 1,489 |
| Silver Lake Rd. | E. of McCabe Rd. | 2003 | 1,539 |
| Silver Lake Rd. | @ Rushton Rd. | 2003 | 3,378 |
| Silver Lake Rd. | W. of Kensington Rd. | 2003 | 3,707 |
| Silver Lake Rd. | E. of Kensington Rd. | 2003 | 4,646 |
| Silverside Rd. | N. of Doane Rd. | 2003 | 3,859 |
| Silverside Rd. | S. of Doane Rd. | 2003 | 159 |
| Silverside Rd. | E. of Marshall Rd. | 2004 | 3,078 |
| Spicer Rd. | E. of Musch Rd. | 2003 | 246 |
| Spicer Rd. | W. of Musch Rd. | 2003 | 775 |
| Ten Mile Rd. | E. of Peer Rd. | 2003 | 10,783 |
| Ten Mile Rd. | W. of Peer Rd. | 2003 | 10,633 |
| Tuthill Rd. | E. of Fairlane Rd. | 2003 | 194 |
| Twelve Mile Rd. | W. of Peer Rd. | 2003 | 450 |
| Twelve Mile Rd. | E. of Peer Rd. | 2003 | 540 |
| Whitmore Lake Rd. | S. of M-36 | 2004 | 4,212 |
| Whitmore Lake Rd. | N. of M-36 | 2004 | 10,442 |
| Whitmore Lake Rd. | S. of Spicer Rd. | 2000 | 2,338 |
| Whitmore Lake Rd. | N. of Spicer Rd. | 2004 | 2,755 |
| Whitmore Lake Rd. | S. of Silver Lake Rd. | 2004 | 11,245 |
| Whitmore Lake Rd. | N. of Silver Lake Rd. | 2004 | 5,825 |
| Whitmore Lake Rd. | S. of Lee Rd. | 1999 | 7,377 |
| Whitmore Lake Rd. | N. of Lee Rd. | 2003 | 16,540 |
| Whitmore Lake Rd. | N. of Old Lee Rd. | 2004 | 18,632 |
| Winans Lake Rd. | W. of Musch Rd. | 2003 | 10,564 |
| Winans Lake Rd. | E. of Musch Rd. | 2003 | 11,296 |
| Winans Lake Rd. | W. of Whitmore Lake Rd. | 2003 | 10,174 |

Source: Livingston County Road Commission, 2005

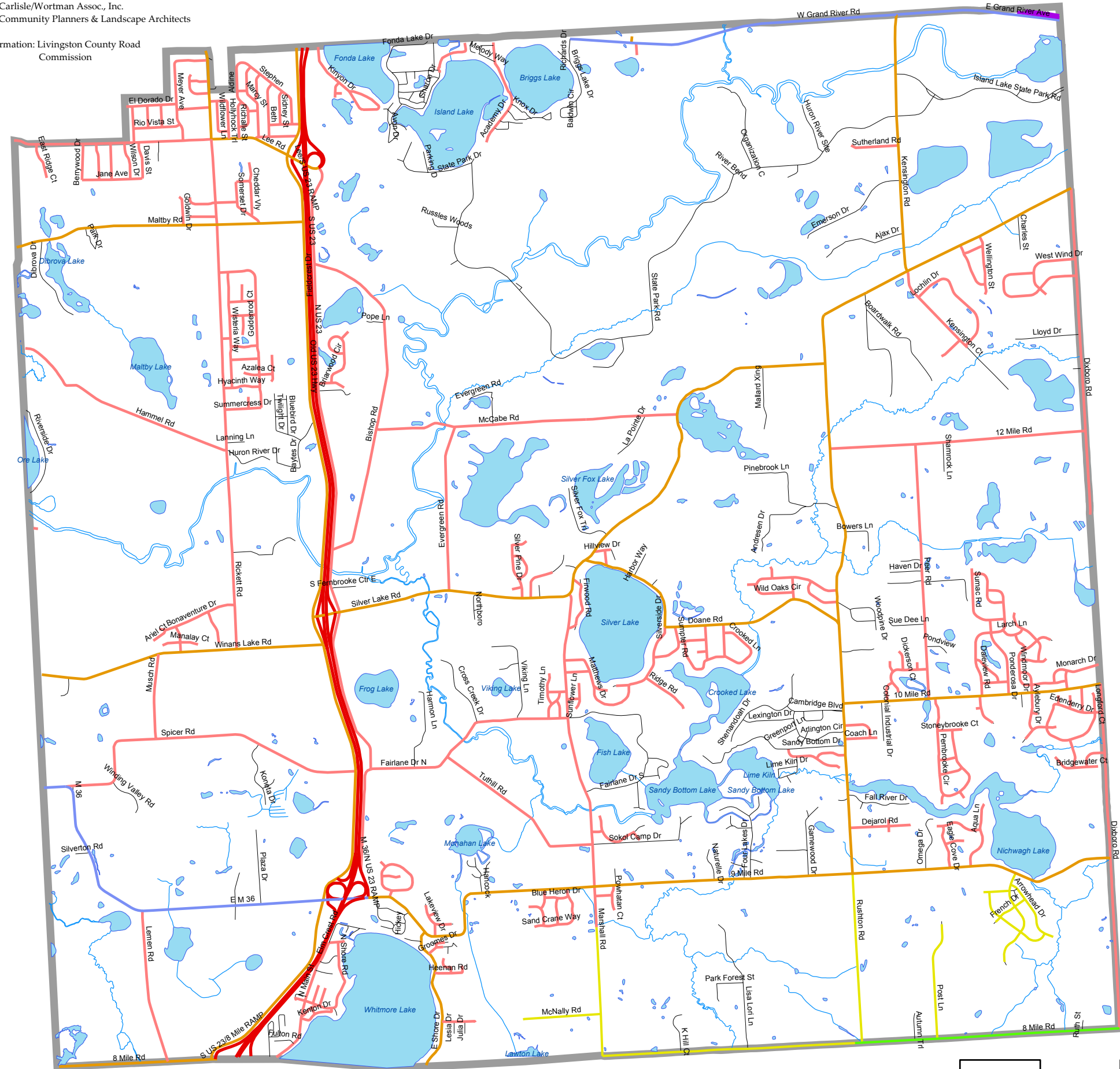
The traffic counts offer a general picture of where traffic flows are the greatest in Green Oak Charter Township. In general, the greatest traffic volumes on County roads in

Green Oak Charter Township are found along Grand River Avenue, Lee Road, Silver Lake Road, Ten Mile Road, Winans Lake Road and Whitmore Lake Road. In regards to roads under State jurisdiction, the segment of US-23 that passes through Green Oak Charter Township accommodated an average of between 53,000 and 64,000 daily trips in 2003, while M-36 had approximately 13,600.

Comparison of traffic volume data to road surfacing can be useful in determining the need to pave certain gravel roads in the Township. As a rule of thumb, 1,000 vehicle trips per day is considered to be the maximum desirable on a gravel road. Beyond that level, significant maintenance and improvement is necessary on a regular basis in order to keep the roads passable. Portions of Silver Lake, Rushton, and Eight Mile Roads already exceed this threshold, and certain other roads, most notably Spicer and Peer, are likely to exceed this threshold in the event of significant further development.

Future Road Rights-of-Way

The Livingston County Road Commission adheres to the future right-of-way widths designated by the Inter-County Highway Commission in the early 1970's, which is depicted on Map 10. As development occurs along major County roads, measures are taken to insure that the planned road right-of-way widths are preserved. Wherever possible, future development should dedicate the necessary road right-of-way width to facilitate future road improvement projects.



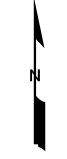
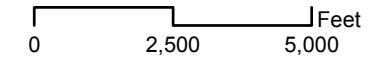
Legend

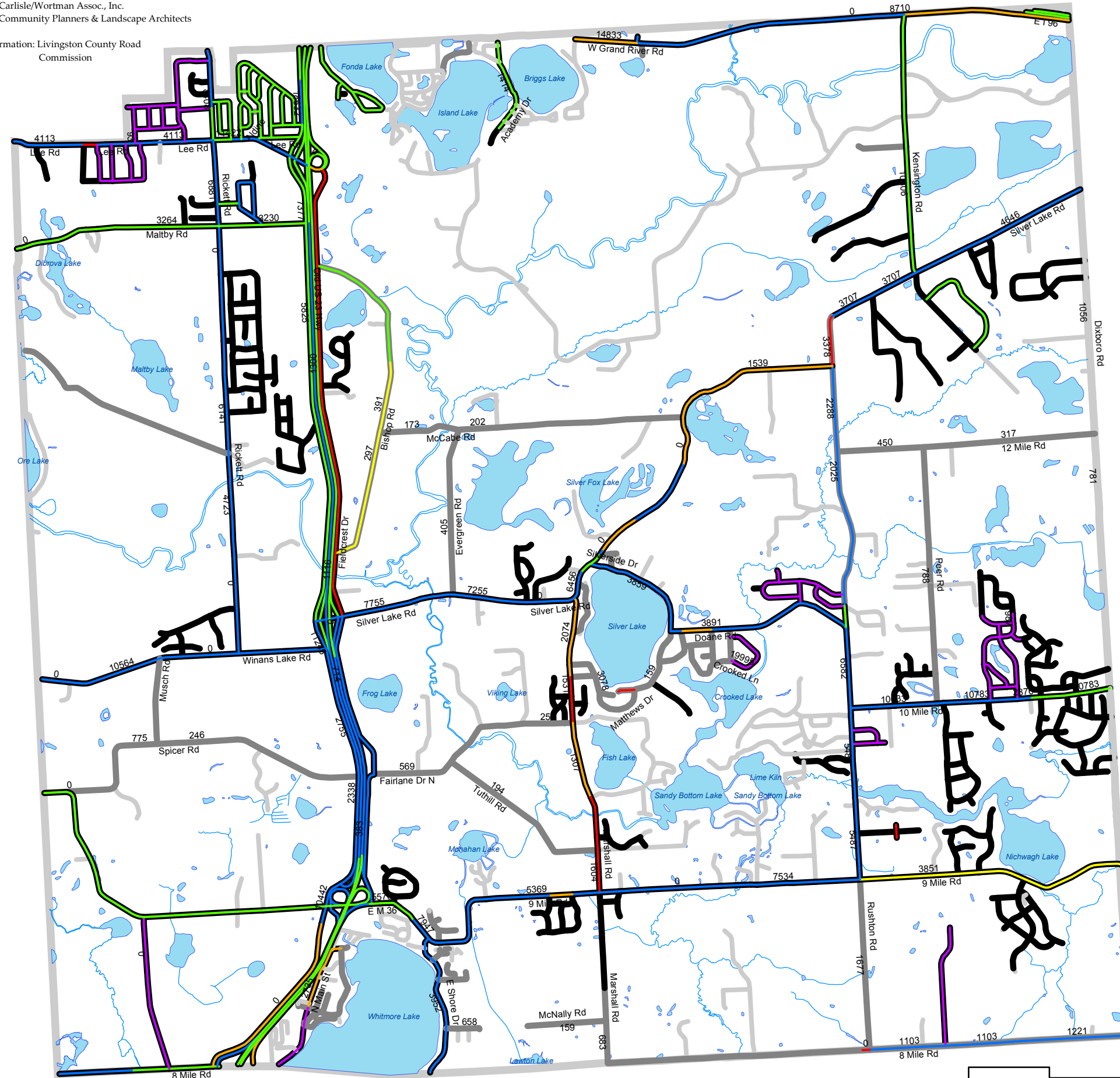
- Lakes
- Rivers
- Township Boundary
- Rural Local
- Rural Minor Collector
- Urban Local
- Urban Collector
- Urban Minor Arterial
- Freeway/Urban Other
Principal Arterial
- Urban Interstate
- Not a certified public road

Map 8

NATIONAL FUNCTIONAL CLASSIFICATION

Green Oak Charter Township
Master Plan



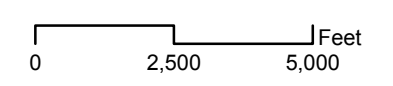


Legend

- Lakes
- Rivers
- Township Boundary
- Gravel Road
- Paved Road
- Unknown Surface
- LCRC Traffic Count (ADT)

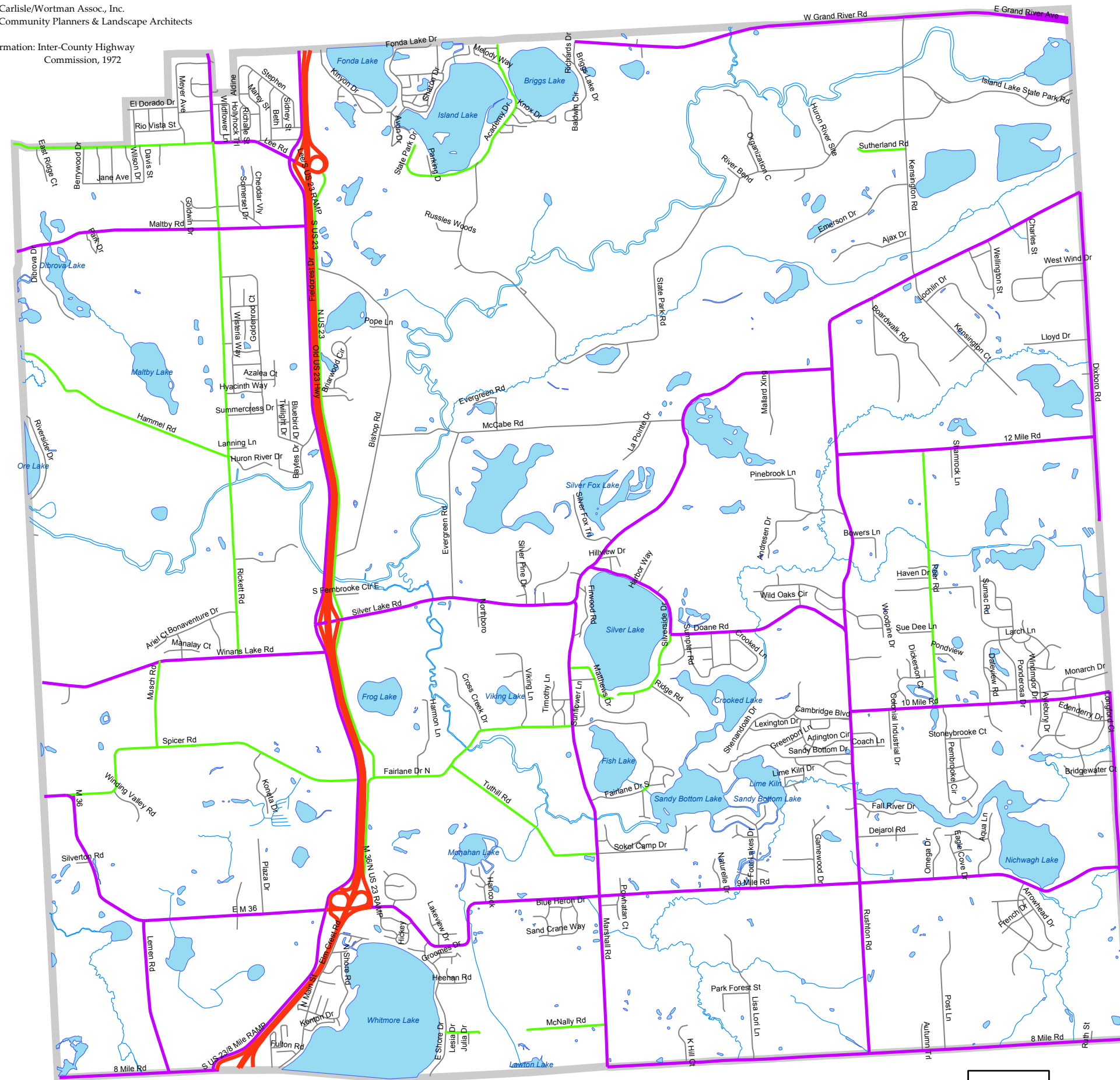
Road Condition Rating

- Excellent
- Good
- Fair
- Poor
- Very Poor
- Failed



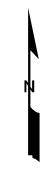
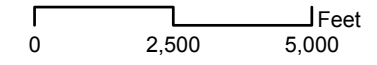
Map 9
**ROAD SURFACE
and TRAFFIC COUNTS**
Green Oak Charter Township
Master Plan





- ### Legend
- Lakes
 - Rivers
 - Township Boundary
 - Freeway
350'+ Right-of-Way
 - Major Thoroughfare
120' Right-of-Way
 - Secondary Thoroughfare
100' Right-of-Way

Map 10
**FUTURE
RIGHT-OF-WAY WIDTH**
Green Oak Charter Township
Master Plan



EXISTING LAND USE

A basic element in planning the future of Green Oak Charter Township is the consideration of existing land use types and patterns. Mapping of existing land use was first prepared in 1970 and revised in 1983, 1988, and 1994. The current survey of existing land uses in Greek Oak Township was prepared in 2008 by field survey, verified using aerial photographs, and is portrayed on Map 11.

Land Use Classifications

In preparing the 2008 land use survey, the following land use classifications were used.

Single Family Residential – This classification is for those land areas containing single-family detached dwelling units and accessory structures.

Multiple-Family Residential – Included in this group are all two-family (duplex), apartments and multi-plex type of units where two (2) or more separate residential units occupy a single building on a lot.

Manufactured Housing – This category identifies licensed manufactured housing communities, as well as any concentration of two (2) or more individual manufactured housing units, including related accessory buildings.

Commercial/Office – Land areas where professional and business offices are found. Retail sales and service businesses are also placed in the commercial/office category.

Research Office – Included in this category are those office and research uses which provide for technical, administrative or laboratory type functions, which may also include testing or prototype manufacturing.

Industrial – This category includes uses with or without buildings where materials are processed, fabricated, assembled, or manufactured, or where equipment, materials, or wastes are stored out-of-doors.

Parkland – Lands for which the primary purpose is outdoor recreation or natural area conservation. This classification includes public or private-owned parks, golf courses, or areas of which the primary purpose is preservation and conservation of undeveloped natural areas.

Public/Institutional – Land areas and facilities such as public schools, libraries, and government buildings are considered public uses. Institutional includes such uses as churches, private schools, hospitals, private cemeteries, utility sites and the like.

Vacant – This category includes all remaining land that is presently unused, idle, or agricultural land in active use or lying fallow. The Township’s few undeveloped active or inactive extractive sites are also included in this category.

In addition to the land uses shown on Map 11, the land area of certain other features has been quantified, such as the area of lakes, the US-23 right-of-way, and certain other road and railroad rights-of-way.

Patterns and Trends

Table 14, below, offers a detailed comparison of the various land uses and land covers identified in the 2005 survey with that of the 1983 and 1994 surveys. Because the 2005 survey utilized geographic information systems (GIS) to portray and analyze the land use information, certain discrepancies are evident between the 2005 and 1983/1994 surveys. Most notably, different values are presented in the 2005 survey for certain types of land cover that would typically be expected to remain constant year-to-year, such as the US-23 right-of-way area, the area of lakes in the Township, and the total Township land area. This is primarily due to the increased accuracy offered by GIS over previous methodologies.

In addition, previous land use surveys did not distinguish manufactured housing from multiple-family residential land use, nor was the area of road rights-of-way identified separately. These have been included in the 2005 survey, and while their inclusion makes for a more complete data set, it does make comparison to previous years difficult. Despite these discrepancies, however, certain overarching trends can still be observed, namely the significant increase in all forms of development, contrasted against a substantial loss of vacant and agricultural lands. Patterns and trends associated with specific land uses are reviewed on the following pages.

TABLE 14
EXISTING LAND USE, 2005

| Land Use | 1983 Acreage | 1994 Acreage | % Change, 1983-1994 | 2005 Acreage | % Change, 1994-2005 | % Change, 1983-2005 |
|-----------------------------|---------------|---------------|---------------------|---------------|---------------------|---------------------|
| Single-Family Residential | 2,942 | 3,980 | 35% | 9,867 | 148% | 235% |
| Multiple Family Residential | 63 | 82 | 30% | 149 | 82% | 137% |
| Manufactured Housing | * | * | N/A | 260 | N/A | N/A |
| Research Office | N/A | N/A | N/A | 26 | N/A | N/A |
| Commercial/Office | 25 | 80 | 220% | 186 | 133% | 644% |
| Industrial | 152 | 790 | 420% | 1,106 | 40% | 628% |
| Extractive | 1,605 | 575 | -64% | *** | N/A | N/A |
| Recreation | 4,732 | 5,400 | 14% | 5,287 | -2% | 12% |
| Public/Institutional | 240 | 733 | 205% | 603 | -18% | 151% |
| Lakes | 1,532 | 1,532 | 0% | 1,808 | 18% | 18% |
| Vacant/Agricultural | 12,223 | 10,342 | -15% | 3,651 | -65% | -70% |
| Road ROW | ** | ** | N/A | 563 | N/A | N/A |
| US-23 ROW | 200 | 200 | 0% | 276 | 38% | N/A |
| Railroad ROW | ** | ** | N/A | 2 | N/A | N/A |
| Total | 23,714 | 23,714 | | 23,758 | | |

Source: Carlisle/Wortman Associates, Inc., 2005

* Manufactured housing was included in the figure for Multiple-Family Residential in 1983 and 1994.

** This category of data was not collected in 1983 or 1994.

*** This category of data was not collected in 2005.

Single Family Residential – In 1970, most of the higher concentrations of residential development were situated on Island, Briggs, Silver, Sandy Bottom, Limekiln and Whitmore Lakes. Residential patterns were largely established seventy (70) years ago when lakefront property was platted for small lot cottage development. Originally, lakefront dwellings were primarily intended for seasonal use, however the post-World War II trend has been to convert them to year-round use. In many cases, small waterfront cottages have been demolished to provide sites for larger year round homes. The year-round occupancy of the dense concentration of small lakefront lots without adequate public utilities has contributed to sanitation problems and overuse of the



lakes. Such issues motivated the residents of the Fonda-Island-Briggs Lake area to seek extension of public utilities in order to reduce the reliance on septic systems there.

Until the 1970's, non-lake residential development was confined to scattered single-family dwellings along road frontages and a few non-lake subdivisions, such as Saxony-Willmor and Horizon Hills. With much of the lakefront property now fully developed, many new subdivisions and site condominiums have spread to other parts of the Township. A particular characteristic in the Township has been “strip” residential development along major road frontages thereby “landlocking” interior parcels by limiting accessibility. Since the 1970's, numerous new subdivisions have been (and continue to be) developed along the Nine Mile, Ten Mile, and Rickett Road corridors, as well as Rushton, Peer and Bishop Roads. Additional residential growth has occurred as a result of lot splits and development of single homes on large parcels not associated with a larger development.



Multiple-Family Residential – A total of six (6) multiple-family housing complexes are found in the Township. While a number of these have existed in the Township for some time, and consist primarily of apartments, all recent multiple-family development (specifically Centennial Farms, Centennial Village, Lake Forest Trails) has consisted of owner-occupied, attached townhome or duplex/multi-plex housing types.



Manufactured Housing – There are six (6) manufactured housing communities located in the Township. With the exception of Woodland Ridge, these have existed in the Township for some time, and in some cases do not meet contemporary standards for manufactured housing development. Individual manufactured housing units located outside of licensed parks were not mapped for the 2005 land use survey. A summary of manufactured housing communities in Green Oak Charter Township is provided below in Table 15:

TABLE 15
MANUFACTURED HOUSING COMMUNITIES, 2005

| Manufactured Housing Community | Size in Units |
|--------------------------------|---------------|
| Collins Trailer Park | 3 |
| Silver Lake Mobile Park | 27 |
| Starlight Trailer Court | 48 |
| University Mobile Estates #1 | 21 |
| University Mobile Estates #2 | 55 |
| Woodland Ridge* | 599 |
| Total | 753 |

Source: Livingston County Data Book, 2003

* Still under development

Commercial/Office – Until recent years, commercial land uses in the Township consisted primarily of local convenience businesses, service stations, banks and restaurants spread at points throughout the Township, particularly the US-23 interchanges, the Grand River Avenue corridor, and the intersection of Ten Mile and Rushton Roads. Many of these businesses have been established for years.

Recently, however, development of retail outlets of a regional focus has occurred at the Lee Road interchange of US-23. Shoppes at Green Oak, located on the west side of US-23 south of Lee Road includes large-format retailers, a membership warehouse, a bank, a fast food restaurant, and a multi-tenant strip plaza (further additions to this shopping center are under consideration upon the updating of this plan). On the opposite side of US-23, Green Oak Village Place, termed a “lifestyle center,” houses over eighty (80) individual tenants in an integrated, pedestrian-oriented shopping center with elaborate and carefully-coordinated architectural and landscape design. Both of these centers are expected to draw from a much wider market area than the older commercial uses in the Township.



Research Office – Two (2) areas are classified as Research Office are currently located within the Township. Lowry Computer Products is located along Maltby Road just

west of U.S. 23. Lowry is a national manufacturer and system integrator providing barcode and data collection solutions. The other, Carl Zeiss, Inc. located on Kensington Road north of Emerson, specializes in high precision industrial measuring machine production, sales and services.

Industrial – Historically, several industrial sites were scattered in various locations throughout the Township, many of which were in proximity to residential areas. The location of the Township’s industrial areas was more formally established with the adoption of the 1973 Zoning Ordinance, in which many of these areas were officially zoned for industrial use.

Concentrated industrial development has occurred in a few primary areas of the Township. The area centered on Kensington and Silver Lake Roads (on both sides of the C&O Railroad) represents the largest of the Township’s industrial areas, and contains some of the most recent industrial development in Green Oak Charter Township. Another significant concentration of industrial development can be found in the vicinity surrounding the Maxey Boys Training School in Section 29, 30, 31 and 32 (off of M-36, Whitmore Lake Road, Eight Mile Road and Lemmen Road). A number of vacant industrial lots can be found in this area, and is likely to see the majority of the Township’s future industrial growth. Smaller industrial areas in the Township can also be found on Whitmore Lake Road south of Maltby; on Grand River Avenue east of Pleasant Valley; and on Ten Mile Road east of Rushton.



Most of the Township’s industrial development has occurred in several industrial parks. Industrial parks offer opportunities for orderly, efficient industrial expansion, while minimizing environmental impacts to adjacent areas. A listing of industrial parks is provided in Table 16, below:

**TABLE 16
INDUSTRIAL PARKS, 2005**

| Facility* | Size in Acres |
|----------------------------------|---------------|
| Colonial Acres Industrial Park | 10 |
| Green Oak Industrial Park | 30 |
| Kensington Road Industrial Park | 160 |
| Kensington Pines Industrial Park | 80 |
| Lemen Industrial Park | 25 |
| Lowry Technical Park | 38 |
| Trout Lake Industrial Park | 15 |
| Zander Industrial Plaza | 120 |
| Total | 478 |

Source: Livingston County Data Book, 2003

* Only facilities over 10 acres.

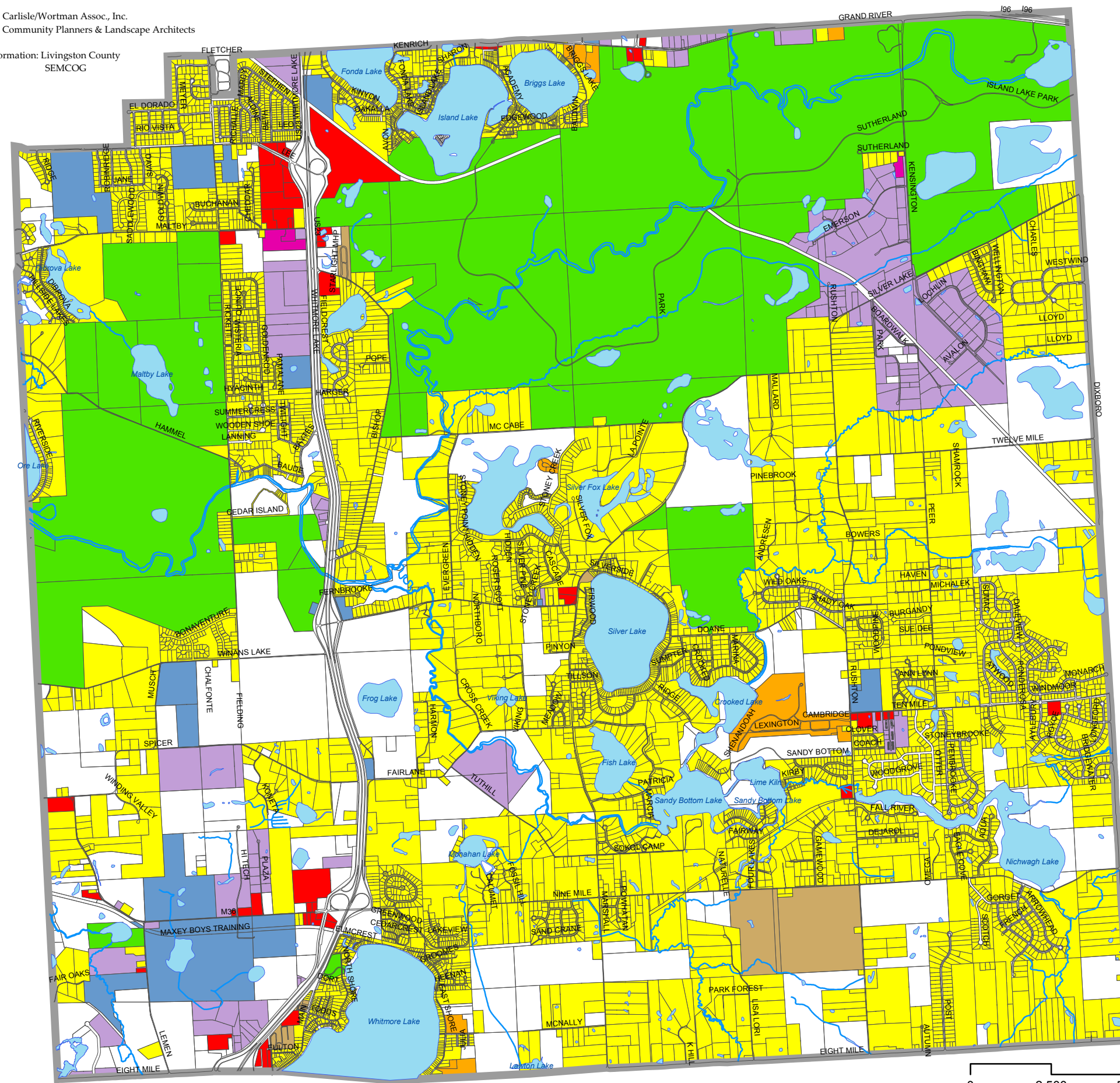
Parkland – A dominant feature on the Existing Land Use Map (Map 11) is the large amount of land devoted to public recreation. The State-owned Island Lake Recreation Area occupies much of the northern portion of the Township. The Recreation Area geographically separates the Island-Briggs-Fonda Lakes area from the remainder of the Township. Additionally, the Huron-Clinton Metropolitan Authority’s Huron Meadows Metropark occupies a substantial amount of land in Sections 7, 18 and 19, west of US-23. With the exception of the development of the first Township park – Colman Park – little change in the extent of the parkland has occurred in the Township in recent years.



Public/Institutional – The largest institutional uses in the Township is the W.J. Maxey Training School and Green Oak Correctional Center on M-36 west of Whitmore Lake Road. The remainder of public uses include Township buildings, public schools, and the Northfield Township Wastewater Treatment Plant. Several churches and cemeteries are also located in the Township. While little change has occurred in the extent of Public/Institutional land in the Township in recent years, anecdotal evidence suggests the possibility of the State of Michigan selling off some or all of their correctional facilities on M-36, thereby greatly reducing the proportion of this land use category in the Township, and paving the way for significant change along the M-36 corridor.

Vacant – With the continued development of residential areas and other uses throughout the Township, the conversion of vacant, agricultural and former extractive land continues at a fairly rapid pace. Several large vacant properties still remain, however, and the eastern and southern portions of the Township continue to maintain the rural feel created by a large lot, low-density residential pattern nonetheless. Given recent development trends and anecdotal evidence, however, it is very likely that the Township will continue to see development proposals on many of the remaining vacant property.

Extractive – Historically, extractive operations were common in Green Oak Charter Township. Although a number of former extractive sites remain in the Township awaiting reclamation (particularly along the Dixboro Road corridor), very little active extraction continues today. As such, extractive land is no longer distinguished by its own category on the Existing Land Use Map. A substantial portion of the future large-scale development in the Township is likely to occur as a result of the reclamation of extractive sites.



- ### Legend
- Lakes
 - Rivers
 - Township Boundary
 - Roads
 - Single Family Residential
 - Multiple Family Residential
 - Manufactured Housing Community
 - Commercial/Office
 - Research Office
 - Industrial
 - Parkland (Public/Private)
 - Public/Institutional
 - Vacant

Map 11
EXISTING LAND USE
Green Oak Charter Township
Master Plan

Large Land Holdings

A significant portion of Green Oak Charter Township is held in large land holdings by both the public and private sectors. Table 17 illustrates large public and private land holdings within the Township.

The largest landowner in the Township continues to be the State of Michigan due to the Island Lake Recreation Area and Maxey Boys Training School. Combined with Huron-Clinton Metropolitan Authority, public holdings constitute nearly 25% of the Township's land base. For the most part, these lands are likely to remain in public ownership and avoid further development, with the exception of the correctional facilities along M-36, which could be sold off in the future as the State consolidates its resources and land holdings (see above).

Large private land holdings, although declining in number, continue to hold significant potential impact over land use and development in the Township, and will be the most significant determinant of future development patterns. The largest privately held land area is the Mariann Hill Missionary Society property currently owned by BKM Green Oak, LLC. That portion of the former Mariann Hill property to the west of US-23 previously had been proposed for a mixed-use commercial and residential development.

**TABLE 17
LARGE PUBLIC AND PRIVATE LAND HOLDINGS, 2008**

| | Acres | % of Total |
|--|--------------|-------------------|
| Public Ownership | | |
| State of Michigan | | |
| Island Lake Recreation Area | 3,888 | 17.4% |
| W.J. Maxey Boys Training School | 324 | 1.4% |
| Huron-Clinton Metropolitan Authority | | |
| Huron Meadows Metropark | 1405 | 5.9% |
| Sub-Total | | |
| Private Ownership | | |
| BKM | 286 | 1.3% |
| Mariann Hill | 148 | 0.7% |
| Demaria Investment | 172 | 0.7% |
| Lloyd Tuthill | 194 | 0.8% |
| American Aggregates (Edward C. Levy Co.) | 120 | 0.5% |

Source: Livingston County and Carlisle/Wortman Associates, Inc., 2005 and 2008

There remains a number of other private parcels ranging in size from forty (40) to one hundred (100) acres. The suitability of these parcels for development will be dependent upon a number of factors including accessibility to roads, natural resource conditions, environmental factors, development costs, and market conditions.

GOALS AND OBJECTIVES

The adoption of community goals and objectives is a vital step in the planning process. The desires and needs of the people must be properly interpreted so that workable solutions can be achieved. It therefore requires careful analysis of the various factors which characterize Green Oak Charter Township and the specific problems to be faced.

CITIZEN INPUT

Citizen input is the core of any planning effort. In order for the goals of the plan to be achievable, general consensus regarding the vital issues to the community must be reached. Many techniques exist which facilitate the gathering of citizen input, and Green Oak Charter Township has had the opportunity to utilize two (2) different methods in this Master Planning endeavor, which are:

Prior Planning Surveys

The development of community goals is based upon input received from Green Oak Charter Township Board members, Planning Commissioners and Township residents. The goals are also developed in part from input received from prior citizen surveys. The survey is an excellent means of determining citizen attitudes on growth and development. It also measures the level of satisfaction for community services, roads, fire and police safety as well as the quality of life for residents of Green Oak Charter Township.

Visioning Workshop

Another method utilized to collect citizen input is a Visioning Workshop. The goal of conducting Visioning Workshop is to attempt to gather citizen input on a variety of topics and to encourage conceptualization of a desired future for the community. The visioning process provides a vehicle for people of diverse viewpoints to identify and agree upon the common dreams they have for their community, and encourages people to express with words a desired future.

The Township held a Visioning Workshop in December 1996. Approximately eighty (80) people attended the workshop, including Township Board members, Planning Commissioners, and others interested in future planning for the Township. The Workshop started with a brief overview of the evening's agenda, an explanation of the current Master Planning efforts, and a presentation of the role of visioning in the Master Planning process. After this introduction, participants chose a group based upon a topic which interested them. Ten (10) topics were included and were broken down into five (5) small groups, therefore each group addressed two (2) topics each. The topics and groups were as follows:

-
- ◆ Community Facilities/Governmental Services and Big Picture
 - ◆ Environmental Planning and Natural Rivers Planning
 - ◆ Commercial Corridor and Industrial Uses
 - ◆ Density/Lot Sizes and Open Space Preservation
 - ◆ Roads and Public Utilities

The small groups, entitled "break out" groups, were facilitated by Planning Commissioners. The facilitators generated and guided the discussion, and recorded vision statements. The groups brainstormed vision statements regarding the future of the community based upon the following principles:

- ◆ Visions should generate new and bold ideas for the future
- ◆ All ideas and visions are welcome
- ◆ No ideas or visions will be criticized
- ◆ Participation from all is encouraged

Following the above principles, each group generated lists of vision statements which reflected individual ideas regarding the group topics. After brainstorming, each group was asked to vote on the top five (5) vision statements, deemed "Priority Vision Statements."

After each group had voted, the larger group reconvened and each group facilitator presented the "Priority Vision Statements" from their group. The large group was then asked to vote on all the "Priority Vision Statements" from all five groups.

Overall, concerns regarding the pace of development and the decreasing amount of open space and farmland were prevalent themes. These ideas were summarized by one (1) participant's statement that they wanted to preserve the "Green of Green Oak Township." The vision statements generated that evening assisted the Planning Commission in formulating the Master Plan's goals and policies.

VISION STATEMENT

Green Oak Charter Township is a residential community defined by its rural characteristics. The residents and their governing body are committed to:

- ◆ the preservation of open space and rural characteristics
- ◆ protection of the Township's natural resources
- ◆ managing growth
- ◆ providing residents with recreational areas, quality services and appropriate infrastructure to meet social needs.

Green Oak Charter Township seeks to maintain its natural beauty by identifying sensitive environmental areas, establishing goals, objectives, and strategies, formulating a thorough plan review process and enacting appropriate ordinances.

GOALS AND POLICIES

In terms relevant to community planning, goals and policies give the Master Plan the philosophical guidance it needs to address the present issues and advance plans into the future. They are defined as follows:

- | | |
|-------------------|---|
| Goals | are broad statements that provide an overall focus for future discussions. |
| Objectives | are more specific planning statements used to qualify the goals and provide more detailed direction for planning efforts. |
| Strategies | are very specific, action-oriented statements that would help achieve the goals and objectives. Such policy statements provide justification to revise or draft new ordinances or regulations or finance specific capital improvements. |

COMMUNITY IDENTITY

GOAL: Green Oak Charter Township's community identity should underscore the Township's rural atmosphere, the diverse natural beauty, its historic significance and the resident's commitment to maintain these attributes while effectively managing growth.

Objective 1

Promote the Township's natural beauty and provide accessibility to these assets for Township residents and visitors.

Strategies:

1. Promote the Huron River as a symbol of the Township.
2. Evaluate feasibility of the Township acquiring land along the River.
3. Coordinate efforts with the Huron Clinton Metro Authority and the Michigan Department of Natural Resources to promote the Natural River District and existing parks.
4. Recognize and promote the importance and significance of non-active open space in all planning activities.
5. Maintain the natural features of the Township which are significant to its image such as wetlands, woodlands, and water bodies.
6. Coordinate with and support the Greenway efforts in Livingston County.

Objective 2

Highlight and preserve the Township's historic significance and its historic resources.

Strategies:

1. Continue to support the Historic District Commission in their efforts to educate the community regarding the Township's historic heritage in order to promote civic pride.

-
2. The Historic District Commission shall continue to maintain an inventory of all historic sites, homes and buildings in the Township.
 3. The Historic District Commission may recommend historic sites to be designated by Township markers for the education, pleasure and welfare of the citizenry. The Historic District Commission shall be responsible for design of the markers.
 4. The Historic District Commission will be available to advise property owners in recognizing and protecting their historic resources.
 5. The Historic District Commission shall continue to nominate properties meeting the established criteria to the State and National Registers of Historic Places.
 6. The Township shall protect historic sites, homes and buildings through enforcement of zoning regulations.
 7. Development affecting historic sites and structures shall be coordinated with the Historic District Commission.
 8. The Township may create specific historic districts to safeguard sites and protect the exterior of buildings.
 9. The Historic Commission may inform and educate the citizens of Green Oak concerning the historic and architectural heritage of the Township by publishing information and by sponsoring historic programs open to the public.
 10. The Historic Commission may promote historic site tours.

Objective 3

Develop and nurture community involvement, community pride and community awareness.

Strategies:

1. Develop a signage program which highlights significant community sites such as rivers, historic homes, and “Welcome” signs at entrance points signaling the Township boundaries.

-
2. Support Township sponsored events celebrating the heritage of Green Oak Charter Township.
 3. Promote awareness of civic identity through involvement of churches and schools.
 4. Increase communication of Township activities and ongoing services via newsletter, cable access, and/or web site development.
 5. Continue coordination and communication between Township officials, Commission, Committees, citizen organizations, Planning Commission, Environmental Research Council, and Historic District Commission.
 6. Identify the major and minor entry points into the community and treat these areas with special consideration during the site plan review process. Review the Zoning Ordinance and consider more stringent setbacks and landscaping requirements for these areas.

ENVIRONMENTAL PROTECTION

GOAL: Preserve and enhance the Township's abundant natural resources, including lakes, rivers, wetlands, woodlands, and rolling topography. Green Oak Charter Township should protect its vast groundwater and aesthetic surface water resources by continuing to be progressive in its leadership toward groundwater protection and establishing a future legacy.

Objective 1

Protect the Township's groundwater to ensure quality drinking water.

Strategies:

1. Consider development of an overlay zone to protect groundwater recharge areas.
2. Site commercial and industrial land uses which use or process hazardous materials away from environmentally sensitive lands or aquifer recharge areas.
3. Incorporate groundwater protection measures into Site Plan Review standards.
4. Adopt a wetlands ordinance to protect those wetlands in their role of providing filtration and aquifer recharge.
5. Coordinate groundwater protection efforts with the Environmental Research Council, Livingston County Health Department and MDEQ.
6. Develop a wellhead protection program for community wells.
7. Consider establishment of Septic System Maintenance Districts for those lake areas served by drain fields to ensure proper operation, inspections, regular pump outs, and education of homeowners.

Objective 2

Protect the Township's surface water resources including lakes, rivers, streams, tributaries, and wetlands.

Strategies:

1. Promote the minimization of impervious surfaces which contribute to increased runoff; this may include evaluating Zoning Ordinance requirements for parking, etc.
2. Require isolation buffers between industrial or other potential polluting uses and recharge areas.
3. Establish programs and appropriate land use regulations to reduce or eliminate the impact of failing septic fields on nearby surface waters.
4. Promote the extension of the Township's sanitary sewer system to serve lakefront areas having water quality problems associated with failing septic.
5. Actively pursue implementation of the Phase II stormwater permitting process. Such actions should include, but not be limited to:
 - a. Control the volume, rate, temperature, turbidity, salinity and nutrient content of stormwater runoff through the adoption of innovative stormwater management regulations.
 - b. Educate residents on the water quality issues, particularly the impact of fertilizers and pesticides on the Township's watercourses and wetlands.
 - c. Discourage mass grading and encourage selective grading practices for development.
6. Adopt stormwater design and maintenance ordinance and specifications manual.
7. Adopt a local wetlands ordinance to regulate those wetlands not under MDEQ jurisdiction.

Objective 3

Protect the Township's land resource features, including topography, steep slopes, wildlife habitat, flora and fauna.

Strategies:

1. Coordinate with the Michigan Natural Features Inventory (MNFI) to identify natural features and habitat areas of significance in order to facilitate their protection.
2. Discourage development in areas of steep slopes and consider greater setbacks for bluff areas.
3. Encourage the preservation of coordinated open space systems that are contiguous between developments projects.
4. Revise the Township's PUD regulations to address the preservation of "non-contiguous open space" in PUD developments, pursuant to P.A. 228 of 2003.
5. Consider programs for donation or purchase of conservation easements to protect significant natural features.
6. Encourage the use of P.A. 116 Farm and Open Space agreements.
7. Consider the use of purchase of development rights as a method of preserving natural features.

Objective 4

Protect the Township's air quality. Ensure protection from excessive noise, light or visual intrusion.

Strategies:

1. Attract clean industries such as hi-tech or research related uses.
2. Enforce industrial performance standards for noise, vibration, fumes, gases, glare, etc.
3. Coordinate protection strategies with MDEQ, EPA, and MI-OSHA.

NATURAL RIVERS

GOAL: It is the goal of Green Oak Charter Township and its residents to preserve, protect and enhance the Huron River and its tributaries.

Objective 1

Continue existing management programs and develop new management techniques designed to protect and enhance the resources of the Natural Rivers and tributaries.

Strategies:

1. Promote the protection of natural vegetation along shoreline areas and prohibit the dredging and filling of wetlands areas adjoining river front property.
2. Encourage activities of Lake Associations and River Associations and their efforts to maintain water quality, lake management, and lake loading studies.
3. Encourage lake or river front property owners to control application of pesticides, fertilizers and other forms of nutrient loading.
4. Promote the preservation of a twenty-five (25) foot wide vegetative buffer along the lakes and rivers to help filter sediment and contaminants.

Objective 2

Continue existing regulatory controls and develop new zoning regulations or other Township regulations useful in efforts to protect and enhance watercourse assets.

Strategies:

1. Limit density in lakeside areas and enforce State and Natural River Overlay District regulations in regards to setbacks and zoning, particularly in areas not served by sanitary sewer.
2. Maintain existing RF (5 acre) zoning where it overlaps with the Natural River Overlay District.
3. Consider expansion of Natural River Overlay District to include more of the Huron River's tributaries and flood plain areas in the Township.

-
3. Reduce the allowable percentage of impervious surfaces in the Natural River Overlay District.
 4. Identify view sheds and promote sensitive development in those areas via scenic easements.
 5. Enforce the Township's anti-keyholing regulations to minimize the overcrowding of rivers and lakes and limit public access.
 6. Develop more stringent stormwater management requirements along rivers and tributaries.
 7. Identify areas that warrant protection through conservation easements, purchase of development rights, or fee simple purchase for public ownership.

GROWTH MANAGEMENT: RESIDENTIAL

GOAL: Develop residential growth management techniques useful in maintaining the Township's rural character, protecting its natural resources, and providing a range of housing options necessary to meet the physical and financial needs of its residents.

Objective 1

Protect existing rural residential areas by preventing incompatible adjacent development which detracts from rural character.

Strategies:

1. Maintain low density or very low density residential uses in agricultural and livestock areas to prevent land use conflicts.
2. Support existing large lot development patterns, where appropriate, by maintaining existing RF (5 acre) zoning in such areas.
3. Provide land use buffers or transitional land use areas between existing or proposed single family residential areas and areas of commercial and industrial uses.
4. Provide sufficient open space to serve each dwelling unit either by larger lot sizes or large common open space areas.
5. Plan higher density residential development only in areas that are properly serviced with public utilities and adequate roadway networks.

Objective 2

Manage new residential development to retain the rural character of Green Oak Charter Township.

Strategies:

1. Establish utility service districts with distinct boundaries.
2. Consider programs such as purchase or donation of development rights, conservation easements, and scenic easements.

-
3. Support the maintenance of horses and other farm type animals through zoning regulations and other Township policies.
 4. Support greenways efforts and coordinate with planned open space in existing and proposed residential areas.

Objective 3

Support the development of a diversity of residential housing types to meet the physical and financial needs of Township residents.

1. Promote the development of multiple-family and attached single-family residential housing in appropriate areas.
2. Encourage the development of ranch-style condominium developments suitable for the Township's aging population.
3. Promote residential development consisting of a diversity of pricepoints affordable to Township residents in various stages of life or economic circumstances.

Objective 4

Limit the impact of residential development in proximity to valuable natural resources. (See *Natural Rivers* and *Environmental Protection Goals*.)

GROWTH MANAGEMENT: COMMERCIAL AND INDUSTRIAL

GOAL: Manage commercial and industrial development necessary to provide adequate services, employment and tax base to support the Township and its rural residential character.

Objective 1

Limit industrial and commercial expansion to established areas or future designated areas.

Strategies:

1. Promote attractive and clean industrial or office research uses within the Kensington Road industrial corridor.
2. Ensure that industrial and commercial uses are well separated/buffered between residential and industrial uses.
3. Identify re-development alternatives for existing industrial uses currently located in residential areas.
4. Discourage the introduction of new commercial areas which by their location and method of development may encourage the creation of new "strip commercial" zones.
5. Develop design guidelines to encourage quality design and architecture.
6. Promote shared service drives to minimize number of curb cuts along major roadways.
7. Coordinate implementation of the M-36 Corridor Plan with the Hamburg Township M-36 Plan.

Objective 2

Within designated areas, cluster industrial and commercial uses to minimize impacts on less intensive land uses.

Strategies:

1. Explore ways to cluster and/or stack commercial and industrial uses.
2. Promote placement of shared parking behind buildings.
3. Consider development of a Commerce Park to cluster commercial, industrial, and research uses and to prevent "strip commercial" type developments.

Objective 3

Promote economic development efforts within the Township's commercial and industrial areas that align with the Township's community character, growth management and resource protection concerns.

Strategies:

1. Establish relationships with the Economic Development Council of Livingston County and similar groups to explore opportunities for development and redevelopment of designated commercial and industrial areas.

COMMUNITY FACILITIES AND SERVICES

GOAL: All facilities or services such as schools, library, police, fire and parks must be functional, safe and accessible to all residents. The facilities should be designed with one (1) major goal — providing the best service possible to the residents.

Objective 1

The Township should explore options for shared services agreements with adjoining communities for such services as library, recreation, and other governmental services.

Strategies:

1. Coordinate Library services with adjoining communities.
2. Provide opportunities for a variety of recreation activities, both active and passive, throughout the Township and explore joint service relationships with adjoining communities.
3. Coordinate with schools in providing recreational opportunities.

Objective 2

The Township shall provide quality and efficient governmental services.

Strategies:

1. Provide convenient access and one (1) stop service for residents.
2. Explore using computer kiosks to display information.
3. Maintain an up-to-date Township website for residents to access information via the Internet.
4. Regularly evaluate Township services rendered in terms of the value or efficiency achieved in relation to tax dollars spent.

Objective 3

Provide quality facilities for Township residents.

Strategies:

1. Consider creation of a Master Recreation Plan for Green Oak Charter Township.
2. Maintain a Recreation Committee to assess needs and develop recommendations for future park development and recreation programs.
3. Provide adequate facilities and equipment for Police and Fire protection.

COMMUNITY INFRASTRUCTURE

GOAL: Provide quality infrastructure to safely and effectively service the residents of Green Oak Charter Township.

Objective 1

Discourage expansion beyond the capabilities of the current infrastructure. Development should not be allowed without the prior or simultaneous completion of the infrastructure improvements necessary to support the growth.

Strategies:

1. Infrastructure enhancements should parallel growth in order to maintain the health and safety of the Township.
2. Establish utility service districts with distinct boundaries in advance of further extension of municipal sewer and water systems.
3. Coordinate infrastructure improvements with adjoining communities to increase efficiency and save funds.
4. Consider development of a Capital Improvements Plan process to ensure needed improvements are completed.
5. Do not allow "leap-frogging" or inappropriate extension of infrastructure improvements.
6. Adopt the Subdivision, Rules and Drainage Policies of the Livingston County Drain Commissioner and the Soil Erosion and Sedimentation Control Rules for Livingston County.

Objective 2

Promote the development of a safe and efficient road system and circulation network.

Strategies:

1. Promote managed transportation plan/road improvements.
2. Pursue available grant resources for needed improvements.

-
3. Monitor the installation and maintenance of private roads to ensure their long term quality.
 4. Actively pursue implementation of the goals and strategies outlined in the Township's Pathway and Greenway Plan.
 5. Maintain the Township's Road Committee to assess the Township's road and transportation needs.

RURAL CHARACTER

GOAL: Maintain the rural character of the Township by ensuring that existing and future development is in harmony with Green Oak Charter Township's unique natural resources and that abundant open space is preserved.

Objective 1

Promote the rural residential character of the Township by promoting design guidelines which foster open space within existing and future development.

Strategies:

1. Protect agricultural and like uses from the impact of residential subdivisions by encouraging residential dwelling units to be clustered and surrounded by dedicated open space.
2. Preserve parcels of land large enough for viable wildlife habitat, small scale agriculture, recreation and woodlot management through clustered residential development and dedicated open space.
3. Support the keeping of horses in low density residential areas.
4. Encourage greenbelts along roadways, incorporating existing trees and vegetation and preserving existing tree canopy.
5. Discourage frontage splits along roadways to preserve rural roadway character.

Objective 2

Promote the preservation of rural character through institutional and regulatory techniques.

Strategies:

1. Consider programs such as purchase or donation of development rights, conservation easements, scenic easements P.A. 116, and the creation of a land trust.

-
2. Identify areas of the Township where zoning may need to be altered in order to maintain rural character such as Livingston County “PEARL” zoning or an overlay district with open space provisions.
 3. Continually evaluate the Master Plan as conditions change in the Township and in adjacent communities. This shall include a complete re-evaluation of every section within a five year period.
 4. Work with the Environmental Research Council to identify preservation measures.
 5. Develop Sub-Area plans for rural areas in order to guide proper development and preserve vital components of rural character.
 6. Promote flexible road standards which preserve natural features.
 7. Adopt zoning ordinance regulations which will assist in the maintenance of the Township's rural character.

LAND USE PLAN

The Land Use Plan, presented in this section, establishes future land use categories, illustrates the location of proposed land uses and community facility improvements within the Township, and provides actions for implementation. This section also provides a descriptive rationale as to the arrangement of preferred land uses and density. The Plan is formulated to serve as the primary policy guide to local government regarding future land use decisions, investment in public improvements, and coordination of public improvements and private development.

In one sense, the Plan presents an idealized view of future growth patterns in the Township. However, the Plan must also provide practical guidance to local decision-makers regarding today's issues. It is the intent of this Plan to be a working document which will provide for the orderly development of the Township, assist the community in its effort to maintain and enhance a pleasant living environment, and spark a vision towards the future.

GENERAL PLANNING CONSIDERATIONS

A positive influence on growth is the existing rural and natural character of the Township. The lakes, streams, woodlands and wetlands provide a pleasant natural environment. Low residential densities, which are prevalent in most of the Township, portray a rural ambiance which will continue to lure new residents seeking refuge from urban living.

Green Oak Charter Township has a number of opportunities and limitations which will influence future growth. Among the most significant influences are U.S. 23 within the Township and I-96 directly to the north. The north-south and east-west accessibility represented by the two (2) expressways will continue to make Green Oak Charter Township an attractive place to reside.



The development of the U.S. 23 corridor will continue to have a direct impact on the Township. A developable land base with moderate resource constraints, proximity to available utilities, and accessibility to expressway interchanges make the U.S. 23 corridor attractive to development. The proximity of I-96 will primarily affect the Kensington Road-Silver Lake road area.

The expanses of publicly-owned recreational land both encourage and inhibit new growth. The domination of public land in the north and west part of the Township serve as a barrier between various portions of the Township. In addition, it is unlikely that such lands will ever be put to an economic use which adds to the tax rolls. However, the location of public recreational lands adds to the uniqueness of Green Oak Charter Township as a residential community with a large variety of recreational opportunities. A limitation on growth is the frequent occurrence of flood prone and wetland areas within the Township. The designation of flood prone and wetland areas and the restriction of their development is a measure designed to protect life, health, and property. In addition to providing fish and wildlife habitat, flood prone and wetland areas also maintain and stabilize groundwater supplies, reduce the dangers of flooding, and contribute to the improvement of water quality. Federal and State laws regulate encroachment, dredging, and filling within flood prone and wetland areas.

Another limitation on growth is the abundance of soils which are unsuitable for septic systems due to slow permeability, high water table, or excessive slope. In some cases, limitations may be overcome with more sophisticated and costly septic systems or central sanitary sewers. In cases where poor soils are associated with flood prone and wetland areas, development should be located elsewhere.

GUIDING FACTORS

It is important to consider various factors when arranging land uses. The Land Use Plan should guide the future development pattern of the community into a logical arrangement which maintains the integrity and character of the community, protects the environment, ensures that adequate services exist, and provides for the general health, safety and welfare of the citizens. Other issues to consider are population, market trends, economic factors, and other more elusive goals such as "community character." The criteria are meant as a guide for considering as many issues as possible prior to designating land uses and densities. The Land Use Plan should be based upon clear and factually supported rationale.

Roads

The proximity and access to roads is important in locating land uses for the following reasons:

- ◆ It is more efficient and less disruptive to natural features to utilize the existing transportation network than to develop in areas where the system is not complete or does not have the capability;
- ◆ The costs of sprawl can impact negatively upon a community as funds are used to build infrastructure in new places as opposed to maintaining the existing infrastructure;
- ◆ Higher densities are generally more appropriate in proximity to US-23 and major arteries, but those higher densities will require significant infrastructure investment to repair, realign and upgrade existing feeder roads to support higher vehicular frequencies.

Sewer and Water

Proximity to services such as sewer and water is an important element in determining density because higher densities should be placed in areas where services are currently available. This allows for a more efficient system which is cost effective. Furthermore, siting lower densities in areas where services are not available prevents an undue burden on the Township to provide services to areas which are difficult to serve.

Watersheds, Rivers, Tributaries and Drains

The Huron River, Davis Creek, Spring Mill Creek and other tributaries in the Township are defined as sensitive environmental features. These water courses and their accompanying watershed areas are indispensable and fragile resources that provide public benefits including maintenance of surface and groundwater quality, fish and wildlife habitat, stormwater runoff control, and aesthetic resources. The Township has recognized their importance by designating these streams within Natural River Areas (P.A. 231 of 1970).

It is inappropriate to consider these fragile resource areas for high or suburban density development. Smaller lots within these areas can degrade natural resources. Clear cutting, dredging, filling and other activities associated with higher density development can be harmful to natural systems. It is therefore recommended that areas within close proximity of streams and watercourses be reserved for medium to very low density development.

Natural Features

Natural features play a vital role in the health of Township residents and the natural systems of the Township. Overall density and lot size should be closely related to natural features. In general, the Township may consider larger lots for environmentally sensitive areas and smaller or moderate size lots in areas more suitable for development. Large lot sizes can allow the following:

- ◆ Greater flexibility in siting the home, septic system, and well for each lot. This is important in considering the isolation distance requirements between the well and the septic system, where unsuitable soils exist, such as high water table or steep slopes, or where groundwater recharge areas exist which are unsuitable for development;
- ◆ Reduction of impervious surfaces which reduces runoff and protects water quality (particularly when low-density areas are clustered to protect significant open space);
- ◆ Greater setbacks for septic systems and homes from water bodies or ground water recharge areas;
- ◆ Provision of buffers for runoff filtration of sediment and pollutants;
- ◆ Less soil erosion and disturbances from construction activities because the density is lower;
- ◆ For larger areas to be preserved which contain woodlands or wildlife habitat;
- ◆ Protection from hazards such as flooding, wet basements, and sagging foundations.

It is recognized that large lots are not always a guarantee of environmental preservation. Large lots consume more land and may diminish local control of wetlands, woodlands, or other environmental features. Small lots or cluster residential developments may be sensitively planned to preserve natural features and may be more appropriate than some large lot development. In general, however, large lot development has the potential of creating fewer environmental impacts as noted in the above listed criteria.

Adjacent Zoning and Land Use

Adjacent land uses and zoning are important factors to consider. Increasingly, the separation of land uses is no longer the prime objective of zoning, rather, zoning objectives include allowing for a logical transition of land uses, and, in carefully selected areas, application of Village Mixed-Use concepts and practices. There are land uses which are incompatible, for example, residential uses and intense agricultural production are not always compatible. Residential uses adjacent to heavy industrial facilities or commercial uses are also incompatible. Land use planning theory proposes an orderly transition of more intensive land uses to less intensive land uses.

LAND USE CATEGORIES

The Future Land Use Plan is portrayed graphically on Map 12. The following describes the key elements of the Plan by land use category.

Residential Land Use

Land in the Township is land used predominantly for residential purposes. The Plan calls for various categories of residential land use including single-family (very low, low, medium, suburban and high density), multiple family, and mobile home parks. In keeping with the Community Goals, the Future Land Use Plan will permit a range of housing types and development concepts.

The following residential land use categories and densities are accommodated within the Future Land Use Plan. Corresponding zoning which is applicable to the proposed land use designation is illustrated in Table 18.

**TABLE 18
RESIDENTIAL LAND USE CLASSIFICATIONS
AND CORRESPONDING ZONING DESIGNATIONS**

| Residential Land Use Category | Residential Lot Density | Applicable Zoning District(s) |
|--------------------------------------|--------------------------------|--------------------------------------|
| Very Low Density | 1 unit/5 acres | Residential Farming RF |
| Low Density | 1 unit/2 acres | Rural Estates RE |
| Medium Density | 1 unit/1 acre | Single Family R-3 |
| Suburban Density | 1 unit/1/2 acre | Single Family R-2/R-2A |
| High Density | 1 unit/less than 1/2 acre | Single Family R-1 |

The recommended residential lot densities shall be considered to be net density and shall exclude public road right-of-ways or private road easements, wetlands, steep slopes, open bodies of water, and/or flood plains. For all residential building sites, adequate building area must also be set aside to accommodate a house, garage, driveway, primary and reserve septic fields, and well. The following residential land use categories are further described:

Very Low Density Single Family Residential

Very Low Density Single Family Residential is planned for areas with existing and very low density development and certain lands in proximity to the Huron River and its tributaries, and is intended to provide for the continued preservation of open space, natural areas, and the rural atmosphere of the Township. Many of these areas contain

floodplains and wetlands, and are therefore considered to be least capable of supporting additional development due to natural resource and road conditions. Furthermore, it is unlikely that these areas will be served by paved roads or sewers which could allow more dense development. Very low density is also common in areas designated by the Livingston County Soil Survey as having heavy soils not suitable for on site septic use. Larger lot sizes are preferred in these areas in order to protect groundwater.

Very Low Density Residential areas are planned primarily in Sections 14 and 15 of the Township (and in select areas along the Huron River) where natural resource conditions, proximity to paved roads and other factors preclude higher density development, or where the current pattern of large lots prevail.

As indicated in Table 18, Very Low Density areas as designated on the Township's Future Land Use Plan would allow an overall density of one (1) dwelling unit for every five (5) acres. Presently, density in these areas may be reduced to one (1) unit for every two and one half (2 1/2) acres if a proposed development is incorporated within a Planned Unit Development (PUD) Open Space Community or cluster option. Within these types of developments, large amounts of open space are set aside for protection of significant natural resources and for the preservation of rural character. The granting of higher density is allowed under a Planned Unit Development, or a cluster housing option as specified within the Green Oak Charter Township Zoning Ordinance. While overall density may be calculated at one (1) dwelling unit for every two and one half (2 1/2) acres, the effective minimum lot size for building envelope areas shall not be less than one half (1/2) acre in size.

Low Density Single Family Residential

Low Density Single Family Residential is planned for areas with existing and adjacent low density development. Although road conditions in such areas are not ideal, existing population densities are sufficient to warrant road improvements. The areas designated for low density uses include large portions of land where soils and groundwater conditions warrant larger lots. Soils are often heavy in these areas and are often not suitable for smaller size lots. The proximity to natural river areas and tributaries make these areas sensitive to watershed resources and groundwater quality and are therefore only moderately capable of supporting additional development due to these natural resource conditions.

Low density and very low density designations are also preferred for the location of large acreage horse or livestock operations. These rural residential uses, in conjunction with optional livestock use, help preserve the preferred rural residential character of the Township.

Low density residential development occurs primarily within the southeast quadrant of the Township and the Dixboro Road corridor, and select additional areas of established large lot development.

Medium Density Single Family Residential

Medium Density Single Family Residential is planned for areas with existing medium density development and areas that are more capable of supporting additional development due to lack of constraining natural resource conditions. Such areas are located primarily throughout the southern half of the Township. The central portion of the Township contains a large portion of the Township's fragile resources. This includes the Huron River, Davis Creek, Spring Mill Creek and the chain of lakes. Lots less than one (1) acre in size are deemed to be inappropriate for these areas because of the need to protect these valuable resources.

There is a high consideration factor for medium density (1 acre lots) for land areas having direct access to paved roads, land areas most capable of supporting development and for areas which are compatible with existing zoning/land use. Larger lots (1 acre and greater) are also more appropriate for those areas containing sensitive environmental features.

Suburban Density Single Family Residential

Suburban Density Single Family Residential is represented in areas with moderate density upon lands which are most capable of supporting development due to adequate natural resource conditions and roads. It is recognized that there are existing areas of the Township where one-half (1/2) acre lots are the dominant land use. This includes portions of the Ten Mile Road corridor, Silver Lake area, Rickett Road corridor, areas southeast of the City of Brighton, and select additional areas. However, no additional one-half (1/2) acre lot areas are planned due to concerns regarding impacts to natural resources and concerns that one-half (1/2) acre lots provide insufficient land area for house, garage, septic field and necessary isolation distance of a well. In order for additional lands to be designated for one-half (1/2) acre zoning, sewer and water shall be available.

High Density Single Family Residential

High Density Single Family Residential is represented in areas with existing high density development and where lands are most capable of supporting additional development due to the availability of utilities, suitable natural resource conditions, and the adequacy of roads. These areas are located in proximity to the City of Brighton and around Whitmore Lake. No additional high density areas are planned with this designation in the Township. Rather, sewer and water service is intended to assist or

rectify existing developed areas where failing septic systems, or ground water contamination necessitate extension of water and or sewer services. Location criteria for these high density areas includes availability of utilities, emergency services, fire protection, schools, proximity to U.S. 23 and land capability.

Multiple Family Residential

Multiple Family Residential is represented in areas with existing multiple family development, proximity to available sanitary sewers, and existing adequate roads. A new area of approximately ten (10) acres is planned along M-36 in the southwest portion of the Township. This area has suitable natural resource conditions, is in close proximity of paved roads and commercial services, and is in an area contemplated for possible sewer service extensions.

Manufactured Housing Communities

The Township currently has six (6) licensed manufactured housing communities within the community. Considered in conjunction with the substantial number of manufactured housing communities located in adjacent communities, it is believed that sufficient sites for manufactured housing exist – locally and regionally. An inventory of these sites is presented below in Table 19. Given the large size of the Woodland Ridge community recently established in Green Oak Charter Township, the Township is expected to have a surplus of manufactured housing stock for many years.

**TABLE 19
EXISTING MOBILE HOME PARKS
IN THE VICINITY OF GREEN OAK TOWNSHIP**

| Name | Location | Number Of Units |
|---------------------------------------|--------------------|-----------------|
| Collins Trailer Park | Green Oak | 3 |
| University Mobile Estates #1 | Green Oak | 21 |
| University Mobile Estates #2 | Green Oak | 55 |
| Starlight Trailer Court | Green Oak | 48 |
| Silver Lake Mobile Park | Green Oak | 27 |
| Woodland Ridge | Green Oak | 599 |
| Woodland Lake | Brighton | 65 |
| Pine Lodge | Brighton | 46 |
| Childs Lake Estates | Milford | 619 |
| Country Estates | Lyon | 336 |
| Kensington Place | Lyon | 488 |
| South Lyon Woods | City of South Lyon | 211 |
| Northville Crossing | Salem | 784 |
| Northfield Estates | Northfield | 648 |
| Hamburg Hills | Hamburg | 152 |
| Coventry Woods | Hamburg | 195 |
| Brighton Village | Genoa | 196 |
| Sylvan Glen | Genoa | 482 |
| Fairlane Estates | Genoa | 60 |
| Red Oaks of Chemung * | Genoa | 248 |
| Suburban Mobile Home Estates * | Genoa | 103 |
| Brighton Trailer Court | City of Brighton | 9 |
| Total | | 5,395 |

Source: Livingston County Data Book, 2003; SEMCOG, 2005; Green Oak Charter Township 1997

* Not Licensed by the Manufactured Housing Commission

It is the Township's preference that any future petitions for manufactured housing communities be submitted in the form of a PUD. This will allow the Township and developer to work in cooperation on a specific parcel.

Consideration and successful siting will also be influenced by a determination that the site is appropriate and that sufficient analysis of site features has been conducted.

Criteria used to evaluate a proposed manufactured housing community site will be based upon the following factors:

- ◆ Frontage on paved roads
- ◆ Capacity of roads and/or intersections to handle additional traffic
- ◆ Proximity to existing or anticipated sanitary sewer service districts
- ◆ Proximity to commercial services
- ◆ Proximity to U.S. 23 or a freeway interchange in order to facilitate traffic flow and provide quick access to freeways
- ◆ Consideration for impact on the school district capacity
- ◆ Central water or availability of quality groundwater in sufficient quantity
- ◆ Hydrogeologic conditions where central wells will not have a negative impact on residential surrounding wells
- ◆ Lack of sensitive natural features such as unique wetlands, woodlands, steep slopes, groundwater re-charge areas
- ◆ Proximity to Township Fire stations
- ◆ Proximity to emergency services including police and ambulance services
- ◆ Consideration of a Planned Unit Development Manufactured Housing Community with specified limits on density, setbacks, buffers and land use controls

Commercial Land Use

The extensive use of the personal automobile has brought many drastic changes to lifestyles and the physical makeup of communities. The most vivid change has been to shopping habits and patterns. In suburban and rural areas, such as Green Oak Charter Township, an automobile is required for most types of shopping.

Commercial development in Green Oak Charter Township is predominantly found in a linear or "strip" pattern on major roadways as opposed to planned clustered commercial areas or shopping centers. With the recent development of the Shoppes at Green Oak and Green Oak Village Place shopping centers, this trend is changing in favor of more consolidated, coordinated commercial development. However, it remains the Township's desire that further commercial development should have a local focus, not intended to compete with the larger regional shopping centers in Brighton, Novi or Ann Arbor, and should be coordinated in shopping centers rather than haphazard strip development. Factors favoring clustered commercial vs. strip commercial are listed below:

STRIP COMMERCIAL DEVELOPMENT

- ◆ Dangerous disruption of traffic flow as a result of uncontrolled turning and parking maneuvers.
- ◆ Frequently inadequate parking facilities.
- ◆ Lack of coordination of commercial functions and activities.
- ◆ Haphazard arrangement of buildings.
- ◆ Difficult to service.
- ◆ Does not support "one stop" shopping.
- ◆ Often has blighting effect, particularly on contiguous residential land.
- ◆ Loud, unattractive signs.

COORDINATED COMMERCIAL CENTERS

- ◆ Functional and attractive grouping of buildings.
- ◆ Controlled entrance and exit points.
- ◆ Controlled interior circulation
- ◆ Access from more than one major traffic route.
- ◆ Overflow area for future expansion.
- ◆ Adequate parking spaces.
- ◆ Economical and effective service facilities.
- ◆ Can be effectively buffered from contiguous residential areas.
- ◆ Uniform, attractive signs.

Commercial areas can be classified according to the function they serve. The following descriptions are generalized to allow a contrasting picture of the various types of commercial areas:

- ◆ Convenience commercial areas usually deal with goods that represent daily needs such as goods, medicine, laundry service, and beauty and barber shops.

Convenience commercial activities may be located either individually or in small centers which serve one (1) or more neighborhood trade areas.

- ◆ Comparison commercial areas provide commodities that are purchased less frequently. Therefore, there is a desire on the part of the consumer to compare price and quality at more than one (1) store. Uses typically found in comparison shopping areas include larger supermarkets and drugstores, discount stores, department stores, appliance and furniture stores, and specialty shops. Comparison commercial activities also may be individually located but are more typically found in shopping centers. Hence, comparison centers are normally larger than convenience centers, and have larger trade areas.
- ◆ General commercial areas are often highway oriented and individually located. Such activities include gas stations, auto service and sales, eating and drinking establishments, motels, and similar uses. General commercial activities are frequently located in a strip commercial pattern.

The conclusion from this commercial zoning analysis is that zoned land for commercial development is available both now and in the future. It is anticipated that much of the comparison commercial shopping needs will continue to be met outside of the Township in Brighton, South Lyon and Ann Arbor, and within Green Oak Charter Township at the Lee Road interchange. It is likely that there will be continued expansion for local business and general business development in response to an increase in residential building activity, particularly along the US-23 corridor. These establishments could provide important residential service needs for local neighborhood areas. The commercial market analysis (provided as an addendum to this document) includes additional information related to current and future commercial development in the Township.

The Master Plan calls for maintaining existing commercial uses which are currently scattered in individual locations around the Township. The further development of the Township's US-23 interchanges for commercial purposes should be restricted to those areas designated for commercial uses, in close proximity to the interchange itself, and should generally serve the day-to-day needs of the local market area. Commercial development within the M-36 Corridor should also be consistent with long range goals and studies which promote traffic management, driveway access, landscaping and potential sewer district service areas.

Further, given the size of property available for development at the Silver Lake Road interchange (primarily along Winans Lake Road), this Plan envisions a mixed-use

development pattern containing residential development of various densities, with commercial development sufficient to meet the day-to-day needs of Township's residents.

Three (3) land use categories supporting commercial development are set aside in the Master Plan, as described below:

Local Commercial

This designation is planned to provide commercial uses to support existing residents and local business needs. Local commercial uses would include stores, offices or other commercial activities which are small in nature generally serving Township residents rather than regional markets. Consideration factors include accessibility to water and sanitary sewers, paved roads, and lands capable of supporting development. Local commercial is appropriate in selected areas near Silver Lake Road and Ten Mile Road as designated on the Future Land Use Map.

General Commercial

General Commercial uses are larger in scale and cater to a regional market. These areas have a closer relationship with highway uses and could include automobile related services, restaurants, shopping centers, etc. The criteria for location of these uses includes accessibility to water and sewers, proximity to paved roads and lands capable of supporting development. General commercial is appropriate near U.S. 23 and M-36, U.S. 23 and Eight Mile, and U.S. 23 and Lee Road, and at select locations along Grand River Avenue, as designated on the Future Land Use Map.

VILLAGE MIXED-USE

The area to the west and south of the Silver Lake Road interchange has significant potential for development, due to the large property size and immediate highway access available. However, it is not desired that this entire property be developed for commercial purposes, given the likely traffic and other impacts associated with a large scale commercial development. Instead, the Village Mixed-Use designation contemplates developing the designated area as a single comprehensively-coordinated mixed-use development. Through the careful integration of both residential and non-residential uses (namely commercial and office), the opportunity to produce a noteworthy “node” of development at this location with a strong “sense of place” can be realized.

Figure 9. Village-Mixed Use



Development within the Village Mixed-Use designation requires

- 1) maintaining historical features of the landscape,
- 2) realignment of Winans Lake Road between Rickett Road and Whitmore Lake Roads, and
- 3) solving traffic-related issues at the intersections of Winans Lake, Rickett, Silver Lake and Whitmore Lake Roads.
- 4) rezoning and site plan consideration by way of a Planned Unit Development.

Additionally, traffic density issues at these intersections and entrance / exit traffic issues at Silver Lake Road and US-23 traffic ramps, require solutions concurrent with development. These solutions must provide for safe pedestrian and bicycle travel under/over US-23 adjacent to Silver Lake Road, as well as providing safe passage for pedestrian and bicycle traffic crossing surface roads/ramps in the area.

The intent of the Village Mixed-Use district is to create a “village-like” atmosphere with areas of various uses that are interconnected, pedestrian-friendly, and blend community-oriented business development with single-family residential, attached multiple-family residential and senior citizen housing/services. Commercial uses shall be of neighborhood scale and shall not include intensive commercial uses which are incompatible with surrounding residential uses. Development shall be aesthetically appealing and use best practices for construction, energy efficiency and environmental impact. A new zoning district for Village Mixed-Use shall be considered to accomplish the intent of this land use category. Specifically, it is envisioned that land within this approximately 286-acre designation be used as described on the following page.

Preferred Land Use: Village-Mixed Use

- Ten (10) to twenty (20) contiguous acres for senior citizen housing including “meditation” gardens, walking trails, and connectivity to other areas within the larger Village Mixed-Use area.
- Twenty (20) contiguous acres for neighborhood commercial-serving retail, service and office businesses with the aggregate square footage of rentable space not exceeding 125,000 square feet and no more than one (1) tenant occupying a total 20,000 square feet.
- Fifty (50) acres for public type use, private open space, including land suitable for a new school, increased right-of-way for a realigned Winans Lake Road, pathways, and local community parks and recreation facilities.
- No less than one hundred twenty-five (125) - one hundred thirty-five (135) acres for single-family homes on varying lot widths.
- Seventy (70) - eighty (80) acres for multi-family housing including apartments, condominiums, townhouses and/or garden apartments

The following opportunities and design policies are established for this area of the Township.

Figure 10. Conceptual Development Plan



Land Use Distribution

- 10-20 Acres: Senior Housing
- 20 Acres: Neighborhood Commercial/Office
- 50 Acres Minimum: Wetlands/School/Park/ROW/Stormwater
- 125-135 Acres: Single Family Residential
- 70-80 Acres: Multi-Family Residential

OPPORTUNITIES/CONSTRAINTS

- The area is currently under single ownership allowing cohesive, comprehensive development of the site which lends itself for Planned Unit Development (PUD).
- Redevelopment must be sensitive to surrounding residential areas and public lands.
- Wetlands and woodlands are significant features within this area.
- Development at this location will necessitate the relocation of Winans Lake Road.



SITE DESIGN POLICIES

Overall Site

- Generous setbacks should be provided adjacent to Winans Lake and Whitmore Lake Roads.
- Non-residential uses shall be restricted to a small portion of the site.
- Types of non-residential development shall be consistent with the uses allowed in the Village-Mixed Use zoning district.
- Uses such as large-format retail, entertainment establishments, gas stations and 24-hour uses shall be prohibited.



Preferred Land Use: Mixed Use / Planned Development

- Mixed-use development with first floor commercial and second floor residential is encouraged.
- Transit Oriented Development should be considered at this intersection in anticipation of future changes to the US-23 corridor and the opportunities for mixed-use, pedestrian-friendly center.
- Civic and cultural amenities may be considered at this location and may include a future library, and or senior center.
- No single commercial tenant shall exceed 20,000 square feet of area.
- Buildings shall not exceed 2 stories for commercial uses and 2 ½ stories for residential uses.
- New development proposals will be evaluated by the appropriateness of land use and site design.

Site Access/Traffic

- Realignment of Winans Lake Road shall take precedence when contemplating development of the site.
- Intersection improvements at Whitmore Lake Road, Winans Lake Road and Silver Lake Roads shall be prioritized, and include measures to alleviate increased traffic volumes, traffic safety and sight visibility.
- Future development and any anticipated increase in traffic shall be sensitive to adjoining residential areas.
- Pedestrian activity and pedestrian connectivity to the adjoining Silver Lake Road / US-23 interchange is encouraged



to promote safe non-motorized travel to the development.

- A gateway or entrance plaza shall be considered with an open space feature near Whitmore Lake Road which utilizes and preserves a portion of the mature trees

Infrastructure

- The availability of adequate central water and sanitary sewer facilities shall be determined prior to the approval of new development.

Natural Resources

- Preservation of the mature trees along Winans Lake Road should be assured.
- Preservation of significant wetlands and woodlands is required along with innovative stormwater controls and riparian buffers.
- Future development shall consider sidewalk or safety path connections to the Huron Clinton Metropolitan Authority property to the west and north.

Design Guidelines

- Extensive landscaping shall be provided to soften the visual impact of the development and screen adjacent uses from parking lot lighting.
- Commercial developments shall be generously landscaped with perimeter plantings and interior landscape areas.
- Site lighting shall be controlled to preserve night sky.



Design Guidelines

- A significant portion of parking fields shall be located in the rear or side and screened from views along major roadways.
- Shared parking and driveways are encouraged.
- Pedestrian connections shall be provided along all frontages.
- High quality architecture shall be emphasized with generous window areas, recesses, projections, and architectural details.
- Masonry building materials such as brick and stone are encouraged to maintain a permanent, clean and attractive image.
- Primary building entrances shall be clearly defined with sheltering elements such as an awning, arcade, or portico.
- First floor architecture shall be compatible with sidewalk areas and provide an attractive interface between buildings and pedestrian areas.
- Architectural components including HVAC unit shielding, dimensional shingles, and attractive signage/awnings shall be demonstrated in all non-residential building design.
- Adjoining residential uses shall be buffered by appropriate setbacks, landscaping limited building height and compatible architecture.



Industrial Land Use

Key conditions in the location of industrial lands are the accessibility to adequate roads, availability of rail (where needed), availability of adequate water supply and wastewater disposal, and compatibility with neighboring land use. A large industrial use area exists along the Kensington Road corridor. This is an ideal industrial location due to its proximity to I-96 and its relative isolation from existing residential areas. Other limited industrial areas include existing individual uses found in scattered locations around the Township. At some locations in the Township, older isolated areas of existing industrial uses exist which are incompatible with adjacent residential uses. These areas will be planned for residential uses in the future once these industries close. However, other less intense uses may be appropriate for these areas as well such as local commercial or office.

Two (2) categories of industrial land uses are set aside in the Master Plan, described below:

Light Industrial

Light industrial areas are designated to accommodate uses enclosed mainly within a building whose external effects are not experienced beyond their own property lines. Such areas are intended at Rushton and Silver Lake Road; along Park Place and Boardwalk; in the Kensington Pines Industrial Park; south of Maltby Road on Whitmore Lake Road; along Grand River Avenue; and along the central portions of the M-36 corridor. It is worth noting that should the State correctional facilities along M-36 ever be sold and redeveloped, it is the Township's intent that these areas be put to light industrial use (see Appendix "A").

General Industrial

General industrial areas are for industries whose influence or environmental effects are sometimes experienced beyond their own property line. General industrial areas are largely confined to areas of existing general industrial use. The largest general industrial area is located on the west side of Kensington and Silver Lake Roads. Future expansion of general industry will likely occur in this area.

Research-Office Land Use

Research-Office is a category that provides areas for research and office uses which are clean, attractive, and developed in a campus-type setting. The area planned for research/office activities is focused at the southwest corner of Whitmore Lake and Maltby Roads, to provide maximum visibility from and accessibility to the expressway.

Public/Semi-Public Land Use

Areas set aside for public, semi-public, and institutional uses are confined to those existing uses in the Township. This would include schools, state facilities, cemeteries, fire stations, police and Township offices.

If lands should ever be converted from public ownership to private ownership, the zoning of this property shall automatically convert from Public Land PL to the lowest density residential or Residential Farming RF.

Recreation-Conservation Land Use

The abundance of recreational lands provided by HCMA and the State of Michigan has already been discussed. The greatest expanse of planned open space is found in the Island Lake Recreation Area. The preservation of the Huron River corridor in open space will be afforded through its designation under the Michigan Natural River Program and the Township Natural Rivers Overlay District. This also includes the southeast tributary and Davis Creek.

Recreation-Conservation uses are also appropriate for designated or future *greenway* corridors. These corridors could include connecting recreation areas utilized for bike paths, pedestrian easements, horse trails or scenic easements. The intent is to link Township open space or conservation areas within an entire greenway system. Future development is encouraged to provide greenway linkage incorporated within subdivision, site condos or site plans.

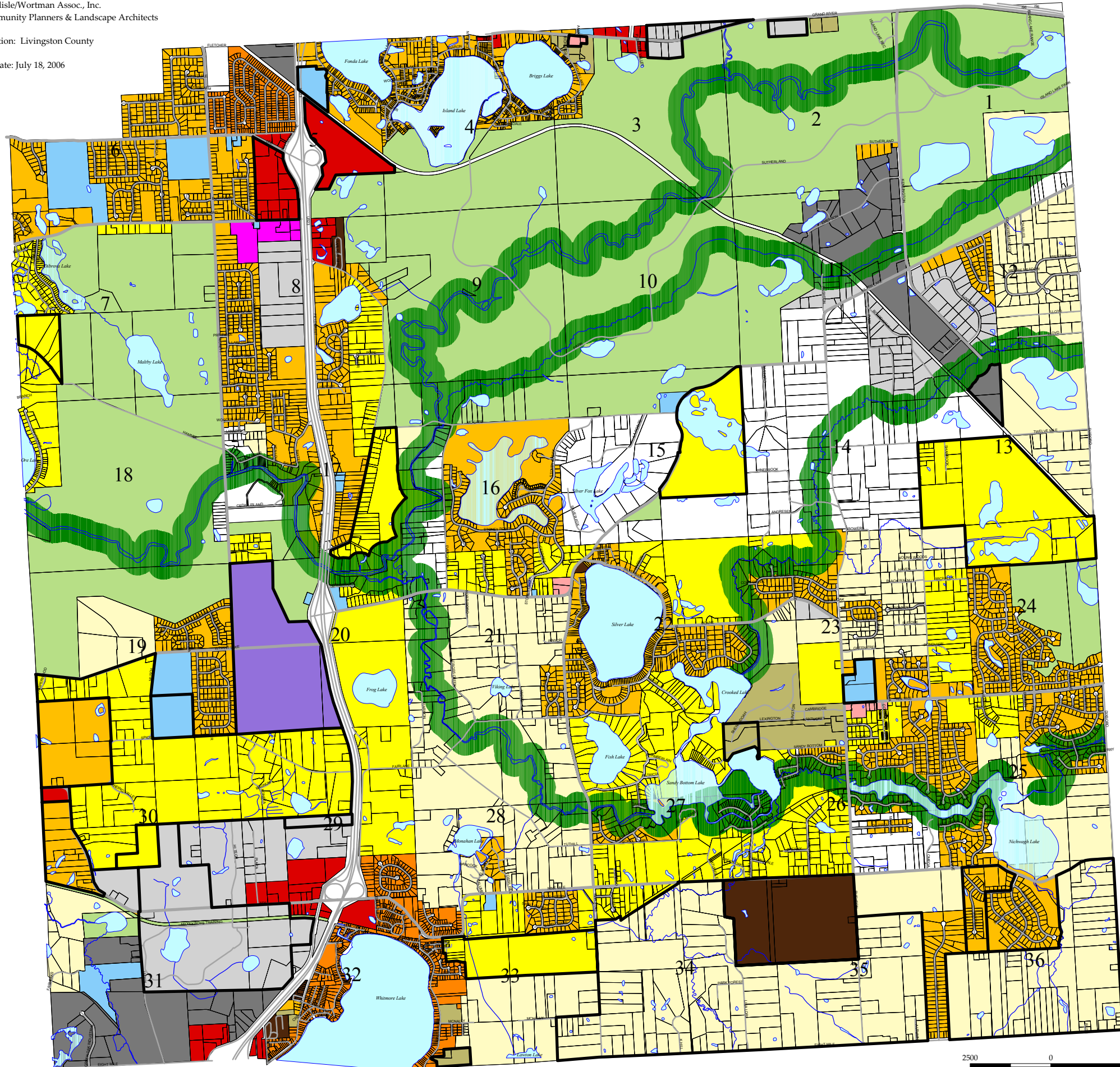
Natural River Areas

Green Oak Charter Township includes rivers and creeks which are designated for protection under the Natural River Act (Act 21, P.A. 1970) by the Michigan Department of Natural Resources and under the Township Natural Rivers Overlay District. Generally, the area four hundred (400) feet from the ordinary high water mark on each side of and parallel to the Huron River and its tributaries, Davis Creek and Spring Mill Creek, is designated as Natural Rivers Overlay District. Regulations include a building setback of one hundred twenty-five (125) feet from the river or fifty (50) feet from the tributaries.

This page was intentionally left blank.

Legend

-  Very Low Density Residential, 1 d.u./5 ac.
-  Low Density Residential, 1 d.u./2 ac.
-  Medium Density Residential, 1 d.u./1 ac.
-  Suburban Density Residential, 2 d.u./ac.
-  High Density Residential, 4 d.u./ac.
-  Multiple Family
-  Mobile Home Park
-  Local Commercial
-  General Commercial
-  Research - Office
-  Light Industrial
-  General Industrial
-  Public/Institutional
-  Recreation - Conservation
-  Village Mixed Use
-  Natural River



Map 12

FUTURE LAND USE

Green Oak Charter Township

Master Plan

SPECIAL STUDY AREAS

Certain areas of the Township have received additional planning attention intended to supplement the guidance set forth in this Master Plan. Specifically, these areas include the Grand River Avenue Corridor and the M-36 Corridor. Both of these special study areas are discussed below.

M-36 Corridor Plan

Recognizing the significance of the Township's only state trunkline, and the diverse set of land use and design challenges it presents, the Planning Commission prepared a detailed analysis of the M-36 corridor. M-36 is one of the most trafficked roads in the community, and contains diverse environments from both an aesthetic and land use perspective. For these reasons, the Township has long recognized that this corridor deserves special attention to insure that it evolves in a positive fashion. The M-36 Corridor Plan articulates the Township's detailed vision for land use, vehicular and pedestrian circulation, and amenities and aesthetic treatment along the corridor.

East Grand River Project

Prompted by the Livingston County Road Commission's plan to rebuild and widen Grand River Avenue from US-23 to Pleasant Valley Road, Green Oak and Brighton Townships embarked upon the development of a corridor design plan. The East Grand River Avenue Project was adopted jointly by the Planning Commissions and Township Boards of both communities in January of 2006, and seeks to improve the land development, circulation (both vehicular and pedestrian) and aesthetics of the corridor.

In particular, the plan sets forth various goals and objectives and a design plan geared to the implementation of physical improvements to the corridor that are coordinated with the LCRC's road widening effort. Specific routes for pedestrian travel, as well as associated amenities, are specified throughout the corridor. In addition, recommendations for land use, circulation and parking, open space and landscaping, architectural design and stormwater management are made to improve the appearance, function, and safety of the corridor for all users and stakeholders.

In addition to physical improvements to the corridor prompted by Green Oak and Brighton Townships, the plan contemplates the adoption of zoning mechanisms to support the objectives set forth in the plan. Such mechanisms could include the establishment of a corridor overlay zone, specifying uniform landscaping, signage, and other land use and site design elements. To insure consistency between communities, Green Oak and Brighton Townships may wish to develop such standards jointly.

COMMUNITY FACILITIES AND ROAD PLAN

The impression created by a community is often directly related to its public buildings, parks, and roads. The adequacy of these public facilities has a direct influence upon the Township's ability to attract new residents, businesses and industry. At the time this Plan was first adopted (in 1997), there was an acknowledged gap between the facilities that existed and those which residents desired. This was a result of rapid population growth, increased expectations of new residents, costs of public improvements, and constrained public budgets. However, since this Plan's first adoption, many advancements have been made in the provision of public facilities and services, including the development of a new Township Hall, a community park, key utility extensions, and a Township website, to name a few. This is not to say that further enhancement of the Township public facilities and infrastructure is unnecessary – a number of further improvements are articulated in the following portions of this Master Plan.

The presentation of an overly ambitious Plan will not contribute to a solution of the problem. Too many plans have been developed which are nothing more than a “wish list.” Rather, the Plan attempts to identify broad areas of need and priority, not specific projects. Such an approach is intended to provide guidance to decision-makers in the allocation of tax dollars towards public improvements. The Community Facilities Plan is strongly coordinated with the Land Use Plan so that scarce dollars are devoted to projects benefiting the greatest number of residents.

Community Facilities and Services

Efforts should be directed at the following areas of need:

- ◆ Water and Sewer Extensions - The growth and development of the US-23 and M-36 corridors as articulated in the Plan will depend in large part on the availability of adequate water supply and sewage disposal. While utility extensions have been achieved in the vicinity of the Lee Road interchange and the northwest corner of the Township, as well as the Fonda-Island-Briggs Lake areas, much of the remainder of the US-23 and M-36 corridors remain unserved by at least sanitary sewer.

- ◆ Township Wide Solid Waste Collection and Recycling - The Township should consider soliciting bids for Township wide solid waste collection. This would maximize efficiency in collection, provide cost savings for residents, increase recycling and reduce illegal dumping of household materials.

-
- ◆ Schools - The Township incorporates three (3) school districts. These include the Brighton, South Lyon and Whitmore Lake School Districts. This Master Plan recommends that any future schools be carefully sited and that location criteria be established which would consider the following: First, school districts should explore options for expansion at existing school sites – some of these sites have adequate room for additional school facilities. Second, any future school sites should be located on paved roads and in close proximity to residential or neighborhood areas. Preferred locations for new facilities within Green Oak Charter Township includes the Nine Mile/Rushton area or the Winans/Rickett road areas. School officials and Township officials are encouraged to maintain open communication regarding long range planning in order to properly plan future school facilities.
 - ◆ Police Station – An upgrade of the police facilities will be needed in the near future. Renovation of the existing facility or development of a new facility should be considered.

Roads

The road network proposed by the Plan is a hierarchy based upon the function each road serves. The four (4) road classifications which are defined below include major thoroughfares, minor thoroughfares, collector roads, and local streets or roads. It is the intent of this plan to provide guidance regarding the allocation of future road improvement dollars towards roads which function to benefit the greatest number of Township residents. For example, it makes little sense to improve a collector road which empties onto a major thoroughfare in a state of disrepair. No attempt is made to propose costly road relocations or alter basic road patterns which have been established for years. In addition, no attempt is made to identify specific improvements projects.

- ◆ Major Thoroughfares - The function of major thoroughfares is to carry larger volumes of traffic either between activity areas within the Township or through the Township. They also provide access to the expressways which serve the Township. The improvement of major thoroughfares rate the highest priority within the Township.
- ◆ Minor Thoroughfares - The function of minor thoroughfares are much the same as major thoroughfares although more moderate volumes of traffic are carried. The improvement of minor thoroughfares rate the second highest priority within the Township.

-
- ◆ Collector Roads - The function of collector roads are to collect traffic from residential areas and carry it to major or minor thoroughfares. Traffic volumes are generally low. The improvement of collector roads rate the third highest priority within the Township.
 - ◆ Local Streets or Roads - The function of local streets or roads are to provide direct access from individual properties. Traffic volumes are very low. The improvement of local streets or roads rate the lowest priority within the Township.

The Master Plan also establishes long range road improvements for the Township. These projects are intended to upgrade the Township's road system and provide safe and convenient passage through the Township. A listing of long range improvements are listed as follows:

1. Work with the Livingston County Road Commission to prioritize and attempt to fund improvements to four (4) major problem intersections in Green Oak Charter Township which are:
 - ◆ Eight Mile Road and North Main Street interchange with Whitmore Lake Road and U.S. 23,
 - ◆ Silver Lake and Kensington Road intersection,
 - ◆ Silver Lake and Silverside Drive intersection (because of the intersection geometrics), and
 - ◆ Doane and Rushton Road intersection (because of the intersection geometrics and significant change in grade).
2. Several bridges have inadequate load bearing capacity and must be replaced as County, State and Federal funds become available. These bridges over the Huron River and the Southeast Branch of the Huron River include:
 - ◆ the McCabe Road bridge
 - ◆ the Fairlane Road bridge
3. As County Road Commission funds or as special assessment districts can be formed the following road segments should be paved:
 - ◆ Maltby Road from Rickett Road west to the Township line;
 - ◆ Silver Lake Road from Silverside Drive to Boardwalk in Section 11 (2.2 miles);
 - ◆ Rushton Road between Silver Lake Road and Doane Road (2.1 miles).

-
4. The west shore neighborhoods of Whitmore Lake have had their access severely restricted by the construction of U.S. 23. The only outside access to the neighborhoods (some 200 homes and two mobile home parks) is from the south via the North Main Street/Eight Mile Road/U.S. 23 interchange. This intersection is very congested at present. Extension of North Main Street (old U.S. 23) north to the Nine Mile/U.S. 23 interchange could occur, but environmental and traffic impact on the Nine Mile/U.S. 23 interchange may rule out such an alternative. Therefore, redesign of the North Main/U.S. 23 intersection must occur before approval of additional housing units in the area is given. Future residential densities shall be directly influenced by the design capacity of the intersection.

 5. The Briggs-Fonda-Island Lakes neighborhoods were developed as summer resort/second home communities. The road right-of-ways are very narrow and winding. Although significant sanitary sewer extension projects have been completed in these areas in order to replace failing septic, further extensions may be necessary or desirable. As the neighborhoods have converted to year-round residences the infrastructure has become insufficient to serve the area. Efforts to resolve one problem area must contend with (and seek to resolve) the various other problems facing this vicinity. These problems include:
 - ◆ Need for properly paved roads, engineered to an acceptable public road standard,
 - ◆ Lack of coordinated stormwater facilities,
 - ◆ Need for public sanitary sewer service in unserved areas, and
 - ◆ Longterm need for an improved source of water.

 6. U.S. 23 Intersections - The Township has four (4) freeway interchanges within its governmental limits. These interchanges include:
 - ◆ Eight Mile Road
 - ◆ Nine Mile Road
 - ◆ Silver Lake Road
 - ◆ Lee Road

When this Plan was first drafted, all four (4) of these interchanges had inherent safety concerns. However, with the recent development of the Green Oak Village Place shopping center at the Lee Road interchange, significant improvements have been installed. At the remaining interchanges, however, issues such as excessive ramp speed, turning movements, sight visibility and driveway access continue to present serious problems. These concerns also have an interaction with adjoining land use. For example, if additional or new

commercial uses are developed at these interchanges, these land uses will generate additional traffic with accompanying congestion. This congestion may further exacerbate traffic problems at these intersections.

Given the success achieved through the partnership with the developer of the Green Oak Village Place project, the Township shall seek to follow a similar approach to improvement of the Township's other interchanges. This is particularly necessary because of the severe budget constraints experienced by both County and State road agencies. Nonetheless, coordination with the Livingston County Road Commission and the Michigan Department of Transportation to evaluate these interchanges and develop long range traffic safety improvements should be pursued. Likewise, the Township should carefully study the impacts of future land use, and devise access management strategies to reduce traffic safety hazards.

7. Other Intersections - In addition to the freeway interchanges, the Township has other intersections which are problematic. The Township should continue to monitor these intersections and encourage long range improvements by the Road Commission which will increase capacity, and traffic flow. At some intersections lane widening, signalization or adjustment of traffic light phasing will also be needed to handle increased traffic flow.

IMPLEMENTATION

Once adopted, the Green Oak Master Plan is the official policy guide to be used by the Township Board and Planning Commission to solve the existing and anticipated community development problems, and take advantage of the opportunities identified in this document. Through text and maps, the Master Plan illustrates the attitude and desire of the community toward future growth and development. Further, the Plan also promotes continuity in development policy as memberships on the Planning Commission and Board change over the years. To implement the Master Plan, the following specific recommendations are made:

TOWNSHIP POLICY

The Master Plan is the official policy document regarding the development of the community. It establishes an idealized goal toward which the entire community can work. The Plan establishes the foundation against which private and public development proposals can be based. Too often, local officials and citizens find themselves in a reactive role to development proposals within their community. Without a firm base of information, communities must either yield to development pressures or be criticized for arbitrary denials. In addition, decisions regarding public improvements are often made incrementally and not related to any overall concept.

ZONING

The Land Use Plan reflects long-term desired growth patterns and land uses. The chief tool used to implement the land Use Plan is the Township Zoning Ordinance. Future rezoning requests should be reviewed for agreement with the basic proposals of this Plan.

CLUSTER HOUSING/OPEN SPACE PLANNING

Various methods of cluster housing and planned unit development offer the potential of setting aside tracts of open space while allowing the property owner some potential for development. This is desirable for both the property owner and the Township. The property owner is able to develop portions of the site while maintaining significant areas of open space helping to maintain the rural character of the Township. Preservation of open space promotes the general ambiance and property values for current and future residents. There are existing methods available and several methods currently proposed by the State to help ensure the maintenance of open space.

The following are examples of existing methods that can be utilized to ensure the maintenance of open space. It is emphasized that these methods are options only and will require incorporation or adjustments within the Zoning Ordinance. This Master Plan, in conjunction with Township Board concurrence, authorizes the Planning Commission to explore new open space zoning options. These options are described as follows:

- ◆ **Zoning Regulations** - Zoning standards can be written to include and promote open space in development. A Cluster Housing Option included in the Zoning Ordinance encourages developers to set aside areas of open space in subdivision development. The open space would then be restricted pursuant to the Zoning Ordinance (i.e., special use permits) and could be developed only under circumstances agreed upon by the developer and Township during site plan review. Clustering with agreements for open space preservation are the most important technique for open space preservation and should receive priority attention for zoning implementation.

A second method used to maintain open space is the Planned Unit Development (PUD). A PUD is a rezoning that is tied to a specific plan. If an open space element is included as a part of the PUD, an amendment of the PUD, or a rezoning, would be required to alter the open space. The Township can then, of course, either approve or deny the amended PUD.

A development which proposes the use of Planned Unit Development or the Cluster Housing Option is eligible for a density bonus. For example, areas that are designated very low density residential with a corresponding density of one (1) dwelling unit for every five (5) acres would be allowed to increase density calculated at a rate of one dwelling unit for every two and one half (2 1/2) acres if the development is incorporated within the Planned Unit Development/Open Space Community or Cluster Housing option. It is believed that this density bonus is warranted due to the amount of open space that would be required to be set aside in order to make such development eligible for PUD or cluster option development.

- ◆ **Restrictive Covenants and Deed Restrictions** - These types of regulations can be used when open space is included as a part of residential subdivision. Depending on how these documents are written, restrictive covenants and deed restrictions can be effective, requiring both Township, subdivision association or individual parcel owner approval for any

substantial changes to the approved plan. These restrictions, though effective, can be somewhat difficult to monitor and enforce.

- ◆ **Land Trust** - Open space created through cluster housing, sliding scale or a PUD can be placed into a land trust. A land trust is an organization that holds the development rights for a given piece of property through a recordable agreement with the property owner and, in some cases, the Township. Land Trusts are normally non-profit organizations that work directly in protecting land for its natural, agricultural, scenic, historic and productive uses.

Land Trusts may acquire development rights through donation and, in rare cases, may purchase those rights. It should be noted that enrollment of lands in a Land Trust is a serious proposition as it is unlikely that the Trust will relinquish development rights except under extreme circumstances. Land Trusts can use conservation easements as a tool for preservation and can also offer long range tax incentives for property owners. Within Livingston County, the Livingston Land Conservancy (810-229-4141) is available to help property owners and Township officials implement open space preservation with appropriate funding.

- ◆ **Conservation Easement** - Conservation easements are legal instruments executed between two (2) or more parties where the property owner “gives up” the right to develop to the other party (or parties). Traditionally, the property owner receives something in return. This may be a payment, a tax break, a service, or anything agreeable to the parties. The easement remains in effect for the period agreed upon and cannot be broken unless all parties agree. This is one of the most powerful tools for protecting open space because the term of the agreement can be long or short, the agreements are less subject to changes in township government, and they are more readily identified during a sale. The inclusion of a third party to the agreement in addition to the property owner and the community, such as an environmental conservancy group, might strengthen the long-term probability that the agreements would be maintained. The State of Michigan authorizes conservation easements under Act 197 of 1980, the Conservation and Historic Preservation Easement Act.
- ◆ **Public Act 116 Open Space Provisions** - Act 116 of the Public Acts of 1974 provides for a development rights agreement for locally designated open space. This technique is similar to the conservation easements discussed

earlier. It requires both local and state approval of the application. No subsequent development can occur without the permission of the community. No minimum acreage is required to enroll land in the State Open Space program. There is a forty (40) acre minimum requirement for the enrollment of farmlands under a farmland agreement. The tax benefits realized are through a reduction in value of the dedicated open space land due to relinquishment of the development rights by the property owner(s). The term of open space easements ranges from a minimum of ten (10) years to as long as ninety-nine (99) years.

Local units of government may terminate an open space agreement at any time if they determine that development of the land is in the public interest and the property owner(s) agrees. The property owner(s) may request termination of an open space agreement by applying to the local governing body. The petitioner is required to pay a penalty plus interest on the development rights during the period it was held by the local unit of government.

The primary purpose of these agreements is the permanent dedication of open space. Some agreements have a spin-off advantage of a tax benefit; the taxing benefit is a windfall for the property owner and should not be viewed as the primary reason for the dedication of open space.

- ◆ **Purchase of Development Rights** - Purchasable Development Rights (PDR's), are used to compensate a landowner for value of lost development rights in exchange for maintaining the property at a desired use and density. PDR programs can be used to preserve resources, open spaces, and even affordable housing areas. A PDR can be used to buy some or all of the development rights of a landowner.

NON-CONFORMING ZONING

In some areas of the Township, the Master Plan recommends larger lots and lower densities than what is currently recorded. This non-conformity is especially prevalent around lake areas where the Master Plan and zoning regulations require larger lots than what is currently provided. Larger lots and lower densities are preferred because of environmental concerns and overcrowding. The Planning Commission recognizes that the current non-conforming status may place limitations on property owners who wish to re-build or expand. It is recommended that the Township consider Zoning Ordinance amendments which would modify regulations pertaining to non-conforming

lots and/or structures, thereby easing current regulations and making it easier for property owners to utilize non-conforming lots or structures.

CAPITAL IMPROVEMENTS PROGRAM

The Township's role in providing and financing community facilities will undoubtedly increase in the future. An orderly procedure for planning and financing such facilities can be achieved through the adoption of a Capital Improvements Program (CIP) attached to the annual budgeting process. The CIP is a schedule of projects developed for a six (6) year period and contains estimated costs and sources of funding. The CIP should be updated annually in conjunction with the preparation of the Township budget. The Planning Commission has resolved to have the CIP formulated by the Township Board.

FEDERAL/STATE FUNDS

Given the high cost of public improvements, many local units of government have become reliant on outside sources of funding. Green Oak Charter Township has already enhanced its ability to secure grant funds by adopting a Master Plan. The Plan not only sets priority for public improvements but should also be used to justify the need for such improvements to funding agencies.

LOCAL FUNDS

The potential availability of grant funds does not eliminate the necessity to finance all or portions of projects with local funds. It is the rule rather than the exception that federal grants require the local unit of government to fund a portion of the project. Local funding can be raised through the following sources:

1. General Fund - The Township Board may make an appropriation from the general fund to finance certain improvements. However, this method is not considered entirely feasible because general funds are usually needed to finance essential services, leaving little available money for additional projects.
2. Revenue Sharing - Again, the Township Board may choose to appropriate a portion of federal and state revenue sharing funds for improvement projects. However, federal revenue sharing cannot be used as a local match to federal grants.

-
3. General Obligation Bonds - With the approval of the voters, the Township can sell general obligation bonds, usually having a long payback period and low interest rates. General Obligation bonds enjoy the backing of the full faith and credit of the Township. However, the sale of General Obligation bonds usually results in a millage increase.
 4. Revenue Bonds - Revenue bonds are paid off through revenues generated by a project. For example, most municipal water systems are financed through revenue bonds with user charges paying off the bond. Revenue bonds are not necessarily backed by the full faith and credit of the Township, do not require voter approval, and usually are sold at higher interest rates than General Obligation bonds.
 5. Special Millage - The Township Board may ask for voter approval to earmark increased millage for a specific improvement project.
 6. Special Assessment - Many projects which benefit only a segment of the community rather than the community at large are financed through special assessments to the benefit of property owners. Drainage and street improvements are projects frequently financed through special assessments.
 7. Impact Fees / Congestion Fees / and other forms of revenue generation that can lawfully be imposed on development activities to offset costs of capital improvements required as a consequence of the development activity.

MASTER PLAN UPDATES

This plan should not become a static document. The Township Planning Commission should attempt to re-evaluate and update portions of it on an annual basis. The land use portion should be updated at least once every few years and the Planning Commission should set goals for the review of various sections of this Plan on a yearly program.



This page was intentionally left blank.

ADDENDUM

This page was intentionally left blank.



Green Oak Township

Commercial Market Analysis

February 11, 2008

INTRODUCTION

There are three types of analysis that can be utilized to determine the demand for commercial development and future growth within a community, comparative analysis, sector analysis and market analysis. Each type has distinctive characteristics from which conclusions about current and future commercial demands can be drawn.

A comparative analysis is utilized to evaluate the current amount of commercial development in surrounding communities in order to compare commercial growth by jurisdiction. This report will provide a brief synopsis of the commercial development available in Hamburg, Lyon and Brighton Townships in comparison with Green Oak Township.

A sector analysis will indicate the types of commercial uses that are prevalent or lacking in a community. For example, a large number of food service establishments exist, but there is little or no commercial space utilized for groceries. This report will briefly discuss relevant sectors that may influence future growth.

A market analysis, estimates future commercial demands by relating household spending power and population within a specific trade area to determine the level of commercial development which can be supported within the trade area. This analysis type encompasses the majority of this report.

COMMERCIAL MARKET ANALYSIS

Commercial demand is highly influenced by the level of residential growth and household affluence within a community. The following commercial market analysis estimates future commercial demand and provides a useful tool for planning for Green Oak Township's commercial growth. While it is not possible to forecast actual future retail sales, the commercial analysis estimates the level of commercial demand the township may generate at specific times in the future and to translate that demand into acres of commercial land development. In the final analysis, the ability of the Township to attain its economic goals or potential can be strengthened or weakened by such issues as access, physical limitation, commercial area aesthetics, and competing opportunities in neighboring communities.

Classification of Trade Area and Commercial Activities

Trade area is defined as the geographic area from which prospective customers are expected to be drawn. Trade areas tend to be a dynamic phenomenon; therefore several commercial areas may draw portions of their business from the same trade area. Market penetration and accessibility are key issues in the determination of the share of trade area. Commercial activities are generally categorized as serving three general areas and thereby catering to different needs: the neighborhood, the community center and the regional center. The following table provides the standard trade area radii for the three primary types of commercial activities.

Retail Trade Area

| Type | Primary Trade Area | Secondary Trade Area |
|--------------|--------------------|----------------------|
| Neighborhood | 2 miles | 3 miles |
| Community | 5 miles | 7 miles |
| Regional | 7 miles | 10 miles |

Neighborhood Commercial

Neighborhood commercial activities (also referred to as convenience commercial) provide for the sale of convenience goods and personal services. Neighborhood commercial activities can be built as either individual sites or as small shopping centers. Neighborhood centers are often built in conjunction with a grocery store. Gross leasable floor area can range from 10,000 to 60,000 square feet and cover one to five acres. Typically, a neighborhood center serves a trade area of 3,000 to 15,000 persons.

While the overall Township is well served by neighborhood commercial activities, there are areas of Green Oak Township that are not within 2 or 3 miles of a neighborhood commercial center. Figure 1 provides a map showing a 2-mile radius from commercial centers within Green Oak Township. While the majority of the Township is within a two-mile drive of neighborhood commercial, there are some areas of the Township that are beyond this radius. If small convenience stores/party stores are included as neighborhood commercial, the radius and

coverage within the Township is expanded. This would include the convenience store located on Silver Lake Road (Cheers Party Shoppe).

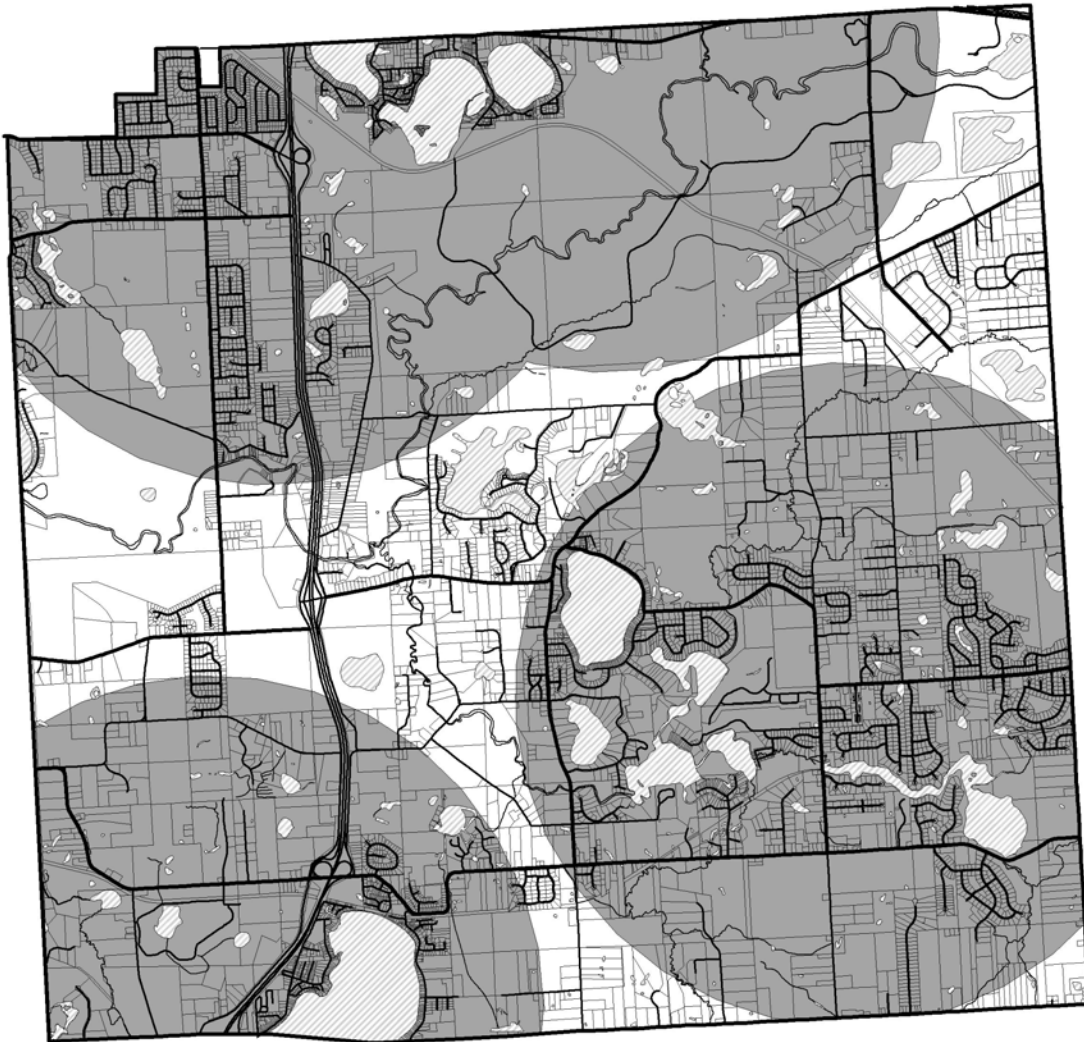


FIGURE 1

**Neighborhood Commercial
Primary Trade Area - 2 Mile Radius**

Green Oak Township
Livingston County

Community Commercial

Community commercial activities provide for the sale of comparison goods, as well as convenience goods and personal services. Comparison goods may include soft lines such as apparel and hard lines such as electronics and furniture. In general, community commercial activities are built in centers providing an increased depth of merchandise. Such centers are often built around a junior department store. Hybrids of community shopping centers have become more prevalent in recent years. For example, “power centers” and “lifestyle centers” offer more anchor tenants than typical community shopping centers. They also tend to have a more regional draw.

Typically, a community commercial center serves a population of 25,000 to 100,000 persons. The Charter Township of Green Oak is projected to reach a population over 34,000 by the year 2030. While this analysis is designed to provide the amount of commercial suitable for the Township, an overview of the current and projected populations for the Township and the neighboring jurisdictions is provided in Table 1. Population statistics were generated from the 2000 Census and SEMCOG projections for years 2007 and 2030.

Table 1
Current Population and Projections

| | 2000 | 2007 | 2030 |
|---------------------------|---------------|----------------|----------------|
| Green Oak Township | 15,618 | 18,954 | 34,104 |
| Hamburg Township | 20,627 | 24,382 | 36,331 |
| Lyon Township | 11,041 | 13,786 | 49,076 |
| Brighton Township | 17,673 | 19,694 | 24,409 |
| Genoa Township | 15,901 | 21,012 | 29,083 |
| City of Brighton | 6,701 | 7,580 | 7,365 |
| Total | 87,561 | 105,408 | 181,088 |

Regional Commercial

A regional center provides for the sale of general merchandise, apparel, furniture and more. Regional centers are usually built around one or more full-line department stores. Gross leasable area averages 400,000 square feet with a range of 300,000 to 1,000,000 square feet and may cover thirty or more acres. The population served is between 250,000 and 400,000 persons. Green Oak Village Place is an example of a regional center.

A basic assumption of the commercial demand analysis is that the population in a trade area will choose to make their purchases within that trade area. While this may not hold true for some retail purchases, it is a reasonable assumption when describing the purchase of convenience goods and personal services. This is particularly true when the goods and services available in an adjacent or nearby trade area are similar to those of the primary trade area. A corollary to this assumption is that the amount of purchases made by local residents out of the trade area will be balanced by the amount of purchase made within the trade area by non-residents. For the purpose of this study, the Township was designated as the trade area. No attempt has been made to desegregate the trade area into primary and secondary. It is acknowledged that this approach does not recognize potential cross-over shopping patterns which will occur between communities. However, limiting the trade area boundaries to the Township is justified when considering that the analysis will assist in:

- Understanding the “buying power” of Township residents.
- Identifying gaps in the market place which may be served within the Township.
- Evaluating whether duplicate enterprises located within the Township can compete with similar enterprises located outside of the Township.

Basis of the Commercial Demand Analysis

The commercial market analysis was prepared using the spending power of current and projected number of households within the Township to determine the level of commercial development which can be supported. The need for commercial development is calculated as a function of the average disposable family income and retail trade characteristics, translated into acreage by general commercial category. Acreage is calculated using sales data per square foot of store type and converting floor area to land area based on ratios typical in the

community. For example, the floor area to site area ratio for a typical shopping center is 1:5. Actual ratios will vary according to site specific characteristics.

Baseline figures for 2007 are calculated using SEMCOG estimates. The projection for 2030 was prepared using household growth projections from the *Green Oak Township Community Profile* (SEMCOG). The household income figure of \$75,173 is the median household income reported for Green Oak Charter Township in the 2000 Census. A conservative adjustment of 2% per year for inflation was calculated. Therefore, the household median income for 2007 was estimated at \$86,350. Household income was not adjusted for inflation or growth in buying power through 2030, therefore household income is a constant given in estimated 2007 dollars.

The total expenditure is divided into categories of retail trade according to documented percentages for actual retail sales from previous years. The figures of percentage of retail sales by retail type, sales from study area and sales per square foot are interpolated from a review of retail statistics in *Sales and Marketing Management, 2005 Survey of Buying Power and Media Markets, census.gov – Selected mid-western metropolitan statistical areas; Average annual expenditures characteristics, Consumer Expenditure Survey, 2005-2006* and *Dollars and Cents of Shopping Centers 2006, Urban Land Institute / International Council of Shopping Centers*.

Township-wide Market Potential

The results of the analysis determining the commercial market demand for the Charter Township of Green Oak for 2007 and 2030 are presented in Tables 2 and 3.

Table 2
Charter Township of Green Oak Commercial Land Demand 2007

| Retail Type | Percent of Retail Sales¹ | Retail Sales from Study Area | Sales Per Square Foot² | Square Feet Supported by Study Area | Equivalent Commercial Acreage |
|-----------------------------|--|-------------------------------------|--|--|--------------------------------------|
| Building Materials/Hardware | 5.25% | \$12,544,755.30 | \$314.85 | 39,844 | 3.7 |
| General Merchandise | 14.40% | \$34,408,471.68 | \$128.21 | 268,376 | 30.8 |
| Food | 4.50% | \$10,752,647.40 | \$338.67 | 31,750 | 3.6 |
| Automotive | 24.20% | \$57,825,348.24 | \$265.70 | 217,634 | 20.0 |
| Gasoline | 4.60% | \$10,991,595.12 | \$265.70 | 41,368 | 3.8 |
| Clothing & Accessories | 6.10% | \$14,575,810.92 | \$168.39 | 86,560 | 9.9 |
| Food Service | 10.70% | \$25,567,406.04 | \$233.31 | 109,586 | 12.6 |
| Drugs | 6.30% | \$15,053,706.36 | \$513.07 | 29,340 | 3.4 |
| Furniture | 7.70% | \$18,398,974.44 | \$163.49 | 112,539 | 12.9 |
| Other | 16.25% | | | | |
| Totals | | \$200,118,715.50 | | 936,996 | 101 |

2007 Assumptions: 6,918 households, \$86,350 average household income of which 40% is spent on retail goods.

¹ Figures interpolated from Sales & Marketing Management 2005 Survey of Buying Power / census.gov - Selected mid-western metropolitan statistical areas: Average annual expenditures characteristics, Consumer Expenditure Survey, 2005-2006

² Dollars and Cents of Shopping Centers, 2006 Urban Land Institute / International Council of Shopping Centers

Example of retail sales calculation for Building Materials / Hardware: Number of Households x (Average Household Income x 40% (Disposable Income)) x Percentage of Retail Sales = Retail Sales from Study Area
6,918 (86,350 x 40%) 5.25% = \$12,544,755.30

Table 3
Charter Township of Green Oak Commercial Land Demand 2030

| Retail Type | Percent of Retail Sales¹ | Retail Sales from Study Area | Sales Per Square Foot² | Square Feet Supported by Study Area | Equivalent Commercial Acreage |
|------------------------|--|-------------------------------------|--|--|--------------------------------------|
| Building | | | | | |
| Materials/Hardware | 5.25% | \$24,964,389.45 | \$314.85 | 79,290 | 7.3 |
| General Merchandise | 14.40% | \$68,473,753.92 | \$128.21 | 534,075 | 61.3 |
| Food | 4.50% | \$21,398,048.10 | \$338.67 | 63,183 | 7.3 |
| Automotive | 24.20% | \$115,073,947.56 | \$265.70 | 433,097 | 39.8 |
| Gasoline | 4.60% | \$21,873,560.28 | \$265.70 | 82,324 | 7.6 |
| Clothing & Accessories | 6.10% | \$29,006,242.98 | \$168.39 | 172,256 | 19.8 |
| Food Service | 10.70% | \$50,879,803.26 | \$233.31 | 218,078 | 25.0 |
| Drugs | 6.30% | \$29,957,267.34 | \$513.07 | 58,388 | 6.7 |
| Furniture | 7.70% | \$36,614,437.86 | \$163.49 | 223,955 | 25.7 |
| Other | 16.25% | | | | |
| Totals | | \$398,241,450.75 | | 1,864,647 | 200 |

2007 Assumptions: 13,767 households, \$86,350 average household income of which 40% is spent on retail goods.

¹ Figures interpolated from Sales & Marketing Management 2005 Survey of Buying Power / census.gov - Selected mid-western metropolitan statistical areas: Average annual expenditures characteristics, Consumer Expenditure Survey, 2005-2006

² Dollars and Cents of Shopping Centers, 2006 Urban Land Institute / International Council of Shopping Centers

Example of retail sales calculation for Building Materials / Hardware: Number of Households x (Average Household Income x 40% (Disposable Income)) x Percentage of Retail Sales = Retail Sales from Study Area 13,767 (86,350 x 40%) 5.25% = \$24,964,389.45

Based on Tables 2 and 3, Table 4 summarizes the commercial demand through the year 2030. Currently, the Township population can support 101 acres of commercial acreage. By the year of 2030, projections indicate demand will grow to support 200 acres.

Table 4
Commercial Market Demand

| Year | No. of Households | Acreage |
|-------------|--------------------------|----------------|
| 2007 | 6,918 | 101 |
| 2030 | 13,767 | 200 |

Table 5 presents an inventory of the current amount of existing commercially zoned land by zoning category. As indicated in Table 5, there are currently approximately 359 acres of commercially zoned land within the Township. The Green Oak Township Assessor's Office has confirmed that there is 1,091,985 square feet of developed commercial / office space within the Township currently.

Table 5
Commercial Zoning Inventory Summary

| Category | Acreage |
|-----------------------------------|----------------|
| LB – Local Business | 84 |
| GB – General Business | 72 |
| HC – Highway Commercial | 87 |
| PUD – Planned Unit Development | 116 |
| Total | 359 |

* Current zoning classification acreage is based on calculations by Carlisle/Wortman Associates, Inc., and is up to date as of January 2008.

Table 6 demonstrates an inventory of the amount of land currently planned for commercial use by land use category. As indicated in Table 6, there are currently 336 acres of land planned for commercial use within the Township in the proposed Master Plan (2006). This number may be slightly higher considering the Village Mixed Use Category, may contain a commercial component, while it is unlikely, however, that the majority of a development at this location would be commercial in nature.

Table 6
Summary of Land Planned for Commercial Use
(2006 DRAFT Master Plan)

| Category | Acreage |
|--------------------|----------------|
| Local Commercial | 21 |
| General Commercial | 315 |
| Total | 336 |

* Future land use classification acreage is based on calculations by Carlisle/Wortman Associates, Inc., and is up to date as of January 2008.

Of the 359 acres currently zoned for development, approximately 217 acres are developed leaving 142 acres vacant and available for immediate commercial development.** The existing developed commercial land clearly exceeds the 101 acres that the market currently demands. Sites such as Kohl's, Costco and Green Oak Village place encompass the following square footages / acreages alone.

| | | | |
|-------------------------|-----------------|--------------|---------------|
| Kohl's | (approximately) | 97,500 s.f. | 11 ac. |
| Costco | (approximately) | 135,450 s.f. | 16 ac. |
| Green Oak Village Place | (approximately) | 447,894 s.f. | 63 ac. |
| TOTAL ACREAGE | | | 90 ac. |

Additionally, the 2030 projection of market demand indicates that the amount of commercial, like the population will double to approximately 200 acres. The

currently zoned commercial acreage of 359 acres exceeds the Township's market demand projected through 2030 and beyond.

** Approximately 1.2 acres is industrially zoned (M-36 / Hi Tech Drive), however, commercial businesses are located in the building fronting M-36.

SECTOR ANALYSIS

As previously described, a sector analysis divides retail uses into specific classifications. Major sectors for discretionary retail spending include:

- Building Materials / Hardware
- General Merchandise
- Food
- Automotive
- Gasoline
- Clothing & Accessories
- Food Service
- Drugs
- Furniture

Of these above listed uses, Green Oak Township is well represented with general merchandise, clothing, gasoline service stations, and food service. Many of these items are available at retail centers near the Lee Road corridor. However, Green Oak Township does not have a major grocery store or a major pharmacy. There are exceptions to this generalized statement, such as convenience food items which can be purchased at Cheers Party Shoppe or at the convenience store located at Ten Mile and Rushton Road. A small grocery store (Whitmore Market) is also located near Eight Mile Road and U.S. 23. A pharmacy is encompassed within the Costco shopping warehouse, and a new CVS Pharmacy has recently been constructed near the Village of Hamburg. While these services are not conveniently available within the Township, they can be found in adjacent communities or a few miles from Green Oak Township. It is acknowledged that Green Oak Township has adequate acreage for commercial uses; however, certain sectors of commercial uses are under represented. This forces Green Oak residents to drive outside of the Township for certain retail items.

As measured from the Green Oak Township Hall, the following lists specific commercial business, their direction and distance of travel:

| Commercial Business | Direction / Distance from Green Oak Township Hall |
|----------------------------|--|
| Home Depot | Northeast 7.4 mi. |
| Lowes | Northeast 11.62 mi. |
| Kroger | North 3.7 mi. / Southeast 5.9 mi. |
| VG's | North 3.8 mi. |
| Meijer | North 5.2 mi. |
| Busch's | West 8.9 mi. |

COMPARATIVE ANALYSIS

In comparison with Green Oak Township, Brighton, Lyon and Hamburg Townships have a similar amount of existing commercially zoned and utilized land. Table 7 on the following page demonstrates each communities existing utilized commercial land for the year 2000. The figures are based upon the most recent SEMCOG land use cover data. It is important to note that these figures do not include newer developments such as Green Oak Village Place, Kohl's and Costco, developed since 2000. If these newer developments are added, Green Oak Township's commercial acreage is approximately 203.2 acres.

**Table 7
Comparative Commercial Land Use - 2000**

| Community | Existing Commercial Acreage (Developed) |
|---------------------------|--|
| Brighton Township | 279.8 |
| Genoa Township | 404.4 |
| Green Oak Township | 87.1 |
| Hamburg Township | 39.2 |
| Lyon Township | 159.2 |

* Information gathered from SEMCOG Land Use Layer 2000.

Table 8 demonstrates the current utilized commercial areas for each community. This information was obtained from the Township Planning and Assessing Departments.

Table 8
Comparative Commercial Land Use – 2007
Assessing Data / Land Use Data Provided by Area Townships

| Community | Existing Commercial Acreage (Developed) |
|---------------------------|--|
| Genoa Township | 521 |
| Green Oak Township | 344 |
| Hamburg Township | 40 |
| Lyon Township | 308 |
| Brighton Township | 829 |

SUMMARY / CONCLUSION

This report can be summarized by four main points. First, there are gaps within Green Oak Township in regard to the placement of neighborhood commercial centers. The placement of these neighborhood centers will require some residents to drive more than two miles for daily necessities. This extra driving distance may or may not be considered as an inconvenience depending upon individual preference and rural life styles.

Second, it is demonstrated that the current commercial development within Green Oak Township is roughly three times the amount that the residents of the Township alone can support. This is based upon discretionary spending habits of Township residents and is an indicator that the Township is a regional destination for commercial shopping. Green Oak Village Place, Costco and Kohl’s are all regional shopping facilities which attract shoppers from a considerable distance.

Third, commercial business sectors are not all represented within Green Oak Township. The absence of a major grocery store, pharmacy and building materials / hardware store may be a driving inconvenience to some residents. This inconvenience will vary according to individual preferences or lifestyle.

Finally, on a comparative basis, SEMCOG data and compiled township information maintains that Green Oak Township's commercial acreage is within a similar range of other area Townships. Brighton, Genoa and Lyon Townships have approximately similar commercial acreage as Green Oak Township after adjustments are made for office space, and commercial recreation facilities.