

Bruce Township Master Plan

Proud Heritage – Planned Future



Adopted January 28, 2009
Amended September 23, 2009
Amended October 27, 2010
Amended May 25, 2016

TABLE OF CONTENTS

	Page
<u>Section 1.0</u> <u>Regional Analysis</u>	1
Introduction	1-3
Historical Background	1-3
Regional Location	1-3
Regional Development Influences	1-4
<i>Traditional Southeast Michigan Development Corridors</i>	1-4
<i>Macomb County Development Corridors</i>	1-4
<i>M-59 Growth Corridor</i>	1-7
<i>Conclusions</i>	1-7
Regional Planning Influences	1-8
<i>Southeast Michigan Council of Governments</i>	1-8
<i>Sewer Service Area Map</i>	1-8
<i>Transportation Planning</i>	1-9
<i>Regional Development Forecasts</i>	1-9
<i>Macomb County Planning</i>	1-10
<i>Macomb County Trailways Plan</i>	1-10
Local Planning Influences	1-11
<i>Washington Township</i>	1-11
<i>Village of Romeo</i>	1-11
<i>Armada Township</i>	1-11
<i>Almont Township</i>	1-12
<i>Addison Township</i>	1-12
<i>Conclusion</i>	1-12
<u>Section 2.0</u> <u>Population Analysis</u>	2
Introduction	2-3
Population Change	2-3
Regional Trends	2-4
Local Trends	2-4
Age	2-5
<i>Median Age</i>	2-5
<i>Population by Age</i>	2-5
Households	2-6
<i>Household Growth Trends</i>	2-6
<i>Household Size</i>	2-6
<i>Household and Family Characteristics</i>	2-7
Projections	2-8
<i>Constant Proportion</i>	2-8
<i>Growth Rate</i>	2-8
<i>Arithmetic Method</i>	2-8
<i>Southeast Michigan Council of Governments Small Area Forecasts</i>	2-8
Housing Characteristics	2-10
<i>Number of Units/Housing Type</i>	2-10
<i>Housing Tenure</i>	2-10

<i>Vacancy Rates</i>	2-10
<i>Housing Value</i>	2-11
<u>Section 3.0</u> <u>Environmental Analysis</u>	3
Introduction	3-3
Geology	3-3
Topography	3-4
Soils	3-6
Septic Limitations.....	3-7
Water	3-10
Wetlands.....	3-10
Woodlands.....	3-14
Michigan Natural Features Inventory	3-15
Floodplains	3-18
Conclusion	3-18
<u>Section 4.0</u> <u>Existing Land Use</u>	4
Introduction	4-3
Methodology	4-3
Land Uses.....	4-4
<u>Section 5.0</u> <u>Goals and Objectives</u>	5
Introduction and Methodology	5-3
Master Plan Goals.....	5-3
Policy Basis.....	5-4
Master Plan Objectives	5-5
<i>Objectives for Residential Development</i>	5-5
<i>Objectives for Natural Environment</i>	5-5
<i>Objectives for Commercial Development</i>	5-5
<i>Objectives for Industrial Development</i>	5-6
<i>Objectives for Thoroughfares</i>	5-6
<i>Objectives for Public Facilities</i>	5-6
<i>Objectives for Recreation and Open Space</i>	5-7
<u>Section 6.0</u> <u>Agricultural Areas Plan</u>	6
Introduction	6-3
Issues with Farmland Preservation	6-3
Agricultural Data	6-4
<i>Prime Agricultural Land</i>	6-4
<i>Land that Produces 100 Bushels of Corn per Acre</i>	6-10
<i>Soil Classification II</i>	6-10
<i>Public Act 116</i>	6-10
<i>Current Farmland and Open Space</i>	6-10
<i>Parcels Over 40 Acres</i>	6-11
Agricultural Preservation Districts	6-11
Implementation Techniques	6-13

<u>Section 7.0</u>	<u>Development Plan</u>	7
Introduction		7-3
Basis for Planning Areas		7-3
Local Planning Area Designations		7-3
Planning Areas		7-5
<i>Central Planning Area</i>		7-5
<i>Transitional Planning Area</i>		7-8
<i>Peripheral Planning Area</i>		7-12
Planning Implementation and Best Management Practices		7-15
<i>Residential Uses: Goals and Recommendations</i>		7-15
<i>Nonresidential Uses: Goals and Recommendations</i>		7-16
<u>Section 8.0</u>	<u>Green Infrastructure Plan</u>	8
Introduction		8-3
Sidewalks and Pathways		8-3
<i>Macomb County Trailways Plan</i>		8-3
<i>Regional Connections</i>		8-3
<i>Local Connections</i>		8-4
<i>Existing System</i>		8-4
<i>Planned Pathway System</i>		8-4
Destinations		8-7
Green Connections		8-9
<i>Identification</i>		8-9
<i>Greenways Initiative</i>		8-10
<i>Greenways Plan</i>		8-10
Implementation		8-12
<i>Open Space Zoning</i>		8-12
<i>Conservation Easements</i>		8-13
<i>Trail and Pathway Easements</i>		8-13
<i>Voluntary Stewardship Programs</i>		8-14
<i>Land Acquisition</i>		8-14
<i>Purchase of Development Rights (Open Space)</i>		8-14
Conclusion		8-15
<u>Section 9.0</u>	<u>Watershed Plan</u>	9
Introduction		9-3
Watersheds		9-5
<i>North Branch Clinton River Watershed</i>		9-5
<i>East Pond Creek Watershed</i>		9-8
<i>Middle Branch Clinton River Watershed</i>		9-11
<i>Stony Creek Watershed</i>		9-13
<u>Section 10.0</u>	<u>Community Facilities</u>	10
Introduction		10-3
Schools		10-3
Community Facilities		10-5
<i>Township Facilities</i>		10-5
<i>Police, Fire, and Emergency Services</i>		10-5
<i>Municipal Water Systems</i>		10-7
<i>Municipal Sanitary Systems</i>		10-7

<i>Libraries</i>	10-10
Parks and Recreation	10-11
<i>Bruce Township Park Sites</i>	10-11
<i>Planned Projects</i>	10-12
<i>Long Range Improvements</i>	10-13
<u>Section 11.0</u> <u>Thoroughfare Plan</u>	11
Introduction	11-3
Concepts and Standards	11-4
<i>Transportation Planning Concepts</i>	11-4
<i>Roadway Standards</i>	11-6
Existing Conditions	11-6
<i>Street Inventory</i>	11-6
<i>Traffic Volume</i>	11-9
Master Plan Recommendations.....	11-11
Access Management	11-19
Conclusion	11-22

LIST OF ILLUSTRATIONS

	Page
Illustration 1-1	Regional Location..... 1-3
Illustration 1-2	Southeast Michigan Development Corridors..... 1-4
Illustration 1-3	Sewer Service Area Map 1-8
Illustration 1-4	Regional Development Forecast 1-9
Illustration 1-5	Macomb County Trailways Plan 1-10
Illustration 3-1	Quaternary Geology 3-3
Illustration 3-2	Topography 3-5
Illustration 3-3	Generalized Soils 3-8
Illustration 3-4	Soil Suitability 3-9
Illustration 3-5	Generalized Wetlands 3-12
Illustration 3-6	Generalized Woodlands 3-13
Illustration 3-7	Michigan Natural Features Inventory..... 3-16
Illustration 3-8	One-Hundred-Year Floods 3-17
Illustration 4-1	Existing Land Use Map..... 4-6
Illustration 6-1	Prime Farmland 6-5
Illustration 6-2	Soils Which Produce Over 100 Bushels of Corn/Acre..... 6-6
Illustration 6-3	Class II Soils..... 6-7
Illustration 6-4	P.A. 116 Properties..... 6-8
Illustration 6-5	Current Farmland and Open Space..... 6-9
Illustration 6-6	Agricultural Preservation Areas..... 6-12
Illustration 7-1	Planning Areas..... 7-4
Illustration 7-2	Central Planning Area 7-7
Illustration 7-3	Transitional Planning Area 7-11
Illustration 7-4	Peripheral Planning Area 7-14
Illustration 7-5	Residential Development Layout Options..... 7-15
Illustration 7-6	Illustration of Recommended Greenbelt 7-17
Illustration 8-1	Macomb County Trailways Master Plan 8-6
Illustration 8-2	Greenways Initiative..... 8-10
Illustration 8-3	Greenways Master Plan 8-11
Illustration 9-1	Generalized Watersheds..... 9-4
Illustration 9-2	North Branch Subwatershed 9-7
Illustration 9-3	East Pond Creek Subwatershed 9-10
Illustration 9-4	Middle Branch Subwatershed..... 9-12
Illustration 9-5	Stony Creek Subwatershed..... 9-14
Illustration 10-1	School Districts 10-4
Illustration 10-2	Community Facilities 10-6
Illustration 10-3	Water District 10-8
Illustration 10-4	Sanitary Sewer District 10-9
Illustration 11-1	Road Classification System..... 11-4
Illustration 11-2	Macomb County Road Commission Standards 11-5
Illustration 11-3	Roadway Conditions 11-8
Illustration 11-4	Traffic Volume..... 11-10
Illustration 11-5	Right-of-Way Master Plan 11-12
Illustration 11-6	Planned Road Improvements – Short Term 11-14
Illustration 11-7	Planned Road Improvements – Mid to Long Term 11-15
Illustration 11-8	Scenic Roads..... 11-16
Illustration 11-9	Planning Areas..... 11-17
Illustration 11-10	Driveway Spacing and Location 11-20

LIST OF TABLES

	Page
Table 1	Population Growth by Corridor 2000-2010 1-5
Table 2	Housing Unit Growth by Corridor 2000-2010 1-6
Table 3	M-59 Growth Corridor 2000-2010 1-7
Table 4	County Growth Trends 1980-2010..... 2-4
Table 5	Local Growth Trends 1960-2010 2-4
Table 6	Median Age 1980-2010 2-5
Table 7	Population by Age Group 2000-2010 2-5
Table 8	Total Households 1980-2010 2-6
Table 9	Household Size 1980-2010 2-6
Table 10	Population and Household Projections 2010-2030 2-9
Table 11	Local Median Housing Value 2000-2010 2-11
Table 12	Macomb County Road Commission Planned Improvements 2004-2030..... 11-13
Table 13	MDOT Driveway Spacing Requirements..... 11-21

LIST OF PHOTOS

	Page
Photo 1	Wetland Area in Bruce Township 8-3
Photo 2	Bruce Township Hall..... 8-7
Photo 3	Bruce Township Fire Hall on Van Dyke 10-5
Photo 4	Bruce Township Fire Hall at Township Hall..... 10-7
Photo 5	Kezar Branch Library 10-10

Section 1.0

REGIONAL | analysis

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

The growth and development of a community and its resultant land use pattern depends, in large part, on its position within the region in which it is located. This regional location is important to the understanding of its historical growth pattern and current condition. Further, an understanding of regional influences provides a basis for anticipating future growth patterns and trends.

While control over most land use decisions remains a matter of local choice, development patterns are often strongly influenced by decisions made on a State and regional scale. Frequently, such decisions are not subject to direct local input or control. For this reason, land use policies need to take regional influences into account.

This opening chapter of the Bruce Township Master Plan identifies those factors that influence growth in the southeast Michigan region and how they may impact future development patterns. This presentation will provide the background necessary to understand the dynamics of growth and change and provide a practical regional perspective for formulating future land use policies.

HISTORICAL BACKGROUND

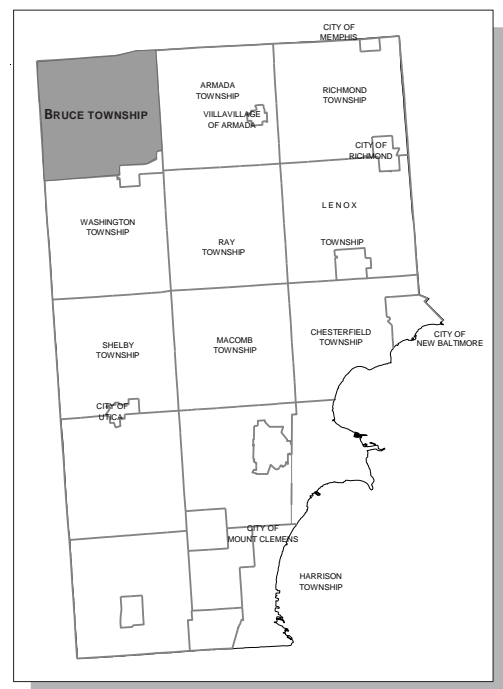
Bruce Township can trace its history to the original formation of Macomb County as part of the Northwest Ordinance. In 1827, Macomb County was divided into five (5) townships (Harrison, Clinton, Shelby, Washington and Ray). Six (6) years later, the northern half of Washington Township was split to form Bruce Township.

From its early beginnings, Bruce Township residents relied primarily on farming as their principal source of income. Livestock production, in particular, has historically been an important agricultural specialty for Township farmers. Today, even though farming is not as prevalent as in the past, these farming and livestock operations provide the basis for the majority of the Township's open spaces.

REGIONAL LOCATION

Bruce Township is located in the northwest corner of Macomb County, approximately 25 miles from downtown Detroit. Lapeer County and Oakland County form the northern and eastern boundaries of the Township, respectively. The incorporated Village of Romeo occupies the southeast corner of

1-1 REGIONAL LOCATION

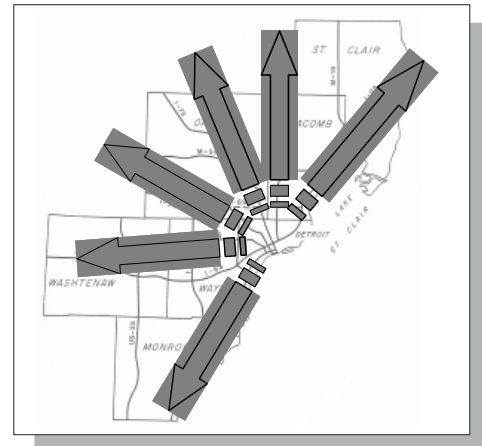


the Township. Armada Township and Washington Township abut Bruce Township on the east and south, respectively. The Township is connected to the region by the M-53 Freeway, which crosses the entire length of the Township in a north-south direction.

REGIONAL DEVELOPMENT INFLUENCES

TRADITIONAL SOUTHEAST MICHIGAN DEVELOPMENT CORRIDORS

Development of the southeast Michigan region has been strongly influenced by several growth corridors. Each of these corridors begins in downtown Detroit, the historic center of the region, and radiates outward into the surrounding communities along established transportation routes. These corridors originally followed major surface streets, like the spokes of a wheel, from downtown Detroit. Today, they largely parallel the interstate freeway system. These historic corridors are identified as follows and shown on Illustration 2.



**1-2 SOUTHEAST MICHIGAN
DEVELOPMENT CORRIDORS**

1. Detroit to Mt. Clemens and Port Huron, along I-94 east and Gratiot Avenue.
2. Detroit to Utica and Romeo, along M-53 north (Van Dyke Avenue) and Mound Road.
3. Detroit to Pontiac and Flint, along I-75 north and Woodward Avenue.
4. Detroit to Brighton and Lansing, along I-96 west, the Lodge Freeway, and Grand River Avenue.
5. Detroit to Ann Arbor and Jackson, along I-94 west and U.S. 12 (Michigan Avenue).
6. Detroit to Monroe and Toledo, along I-75 south and Fort Street.

MACOMB COUNTY DEVELOPMENT CORRIDORS

Population Growth Trends - Within Macomb County, growth traditionally occurred along the Lake St. Clair shoreline communities, which is consistent with historical urban settlement patterns. The establishment of Mt. Clemens as the County Seat also contributed to the predominant early development pattern along the eastern portion of the County.

Following the Second World War, most metropolitan areas experienced a sweeping wave of population migration from traditional central cities into emerging suburban communities. In Macomb County, this migration first occurred within those suburban communities located along the perimeter of Detroit. The second wave of suburban growth in the County also accelerated north along the Van Dyke/Mound Road corridor in the western tier of communities.

During the 2000 Census decade, there was indication of a leveling off of the explosive growth that occurred post World War II within the western corridor. Results from the 2000 and 2010 Censuses illustrate that the western corridor communities have out gained their counterparts in the east in the past two (2) decades. Population changes for these two (2) portions of the County can be seen in Table 1.

TABLE #1
POPULATION GROWTH BY
CORRIDOR 2000-2010

M-53/VAN DYKE/MOUND					I-94/GRATIOT/M-3				
COMMUNITY	POPULATION		CHANGE		COMMUNITY	POPULATION		CHANGE	
	2000	2010	Number	%		2000	2010	Number	%
Bruce Twp.	6,395	6,947	552	8.6	Richmond City	4,896	5,733	837	17.1
Romeo	3,721	3,596	-125	-3.4	Richmond Twp.	3,416	3,665	249	7.3
32 Mile to 38 Mile	10,116	10,543	427	4.2	32 Mile to 38 Mile	8,312	9,398	1,086	13.1
Washington Twp.	17,122	23,296	6,174	36.1	Lenox Twp.	5,362	5,828	466	8.7
					New Haven	3,071	4,642	1,571	51.2
26 Mile to 32 Mile	17,122	23,296	6,174	36.1	26 Mile to 32 Mile	8,433	10,470	2,037	24.2
Shelby Twp.	65,159	73,804	8,645	13.3	Chesterfield Twp.	37,405	43,381	5,976	16.0
Utica	4,577	4,757	180	3.9	New Baltimore	7,405	12,084	4,679	63.2
M-59 to 26 Mile	69,736	78,561	8,825	12.7	M-59 to 26 Mile	44,810	55,465	10,655	23.8
					Fraser	15,297	14,480	-817	-5.3
Sterling Heights	124,471	129,699	5,228	4.2	Clinton Twp.	95,648	96,796	1,148	1.2
					Mt. Clemens	17,312	16,314	-998	-5.7
14 Mile to M-59	124,471	129,699	5,228	4.2	Harrison Twp.	24,461	24,587	126	0.5
Center Line	8,531	8,257	-274	-3.2	14 Mile to M-59	152,718	152,177	-541	-0.4
Warren	138,247	134,056	-4,191	-3.0	East Detroit	34,077	32,442	-1,635	-4.8
8 Mile to 14 Mile	146,778	142,313	-4,465	-3.0	Roseville	48,129	47,299	-830	-1.7
TOTALS	368,223	384,412	16,189	4.4	St. Clair Shores	63,096	59,715	-3,381	-5.4
					8 Mile to 14 Mile	145,302	139,456	-5,856	-4.0
					TOTALS	359,575	366,966	7,391	2.0

Housing Unit Trends – In recent decades, population change alone has proven not to be the most accurate barometer of community growth and vitality. Much of the population decline experienced by the ring of maturing suburban communities surrounding Detroit is the result of declines in household size, rather than an exodus of residents from the community. Population decline should, therefore, not necessarily be interpreted as an indicator of community decline. Frequently, a community will experience an increase in the number of households concurrently with a decline in population. For this reason, housing unit growth trends are considered to be a more valid measure of growth.

As illustrated in Table 2, results from the 2010 Census indicate that during the ten-year span between 2000 and 2010, the housing unit growth rate for the western corridor communities has continued to exceed that of the eastern corridor.

TABLE #2
HOUSING UNIT GROWTH BY CORRIDOR
2000-2010

M-53/VAN DYKE/MOUND					I-94/GRATIOT/M-3				
COMMUNITY	HOUSING UNITS		CHANGE		COMMUNITY	HOUSING UNITS		CHANGE	
	2000	2010	Number	%		2000	2010	Number	%
Bruce Twp.	2,188	2,477	289	13.2	Richmond City	2,062	2,478	417	20.2
Romeo	1,605	1,659	54	3.4	Richmond Twp.	1,060	1,269	209	19.7
32 Mile to 38 Mile	3,793	4,136	343	9.0	32 Mile to 38 Mile	3,122	3,747	625	20.0
Washington Twp.	6,443	9,020	2,577	40.0	Lenox Twp.	1,508	1,822	314	20.8
26 Mile to 32 Mile	6,443	9,020	2,577	40.0	New Haven	1,138	1,695	557	48.9
Shelby Twp.	25,265	30,291	5,026	19.9	26 Mile to 32 Mile	2,646	3,517	871	32.9
Utica	2,005	2,463	458	22.8	Chesterfield Twp.	13,967	17,755	3,788	27.1
M-59 to 26 Mile	27,270	32,754	5,484	20.1	New Baltimore	3,218	4,740	1,522	47.3
Sterling Heights	47,547	52,190	4,643	9.8	M-59 to 26 Mile	17,185	22,495	5,310	30.9
14 Mile to M-59	47,547	52,190	4,643	9.8	Fraser	6,178	6,448	270	4.4
Center Line	3,916	3,920	4	0.1	Clinton Twp.	41,803	45,288	3,485	8.3
Warren	57,249	57,938	689	1.2	Mt. Clemens	7,546	7,582	36	0.5
8 Mile to 14 Mile	61,165	61,858	693	1.1	Harrison Twp.	11,486	12,604	1,118	9.7
TOTALS	146,218	159,958	13,740	9.4	14 Mile to M-59	67,013	71,922	4,909	7.3
					East Detroit	13,965	13,796	-169	-1.2
					Roseville	20,519	21,260	741	3.6
					St. Clair Shores	28,208	28,467	259	0.9
					8 Mile to 14 Mile	62,692	63,523	831	13.3
					TOTALS	152,658	165,204	12,546	8.2

M-59 GROWTH CORRIDOR

The rapid rate of population and housing growth experienced by communities in western Macomb County over the past twenty to thirty (20-30) years has brought the two (2) traditional north/south growth corridors into relative balance in the number of residents and total housing units. The pace of population and housing unit change experienced by these two (2) corridors does not, however, fully explain overall County growth patterns, for an east-west corridor has emerged along M-59. This corridor provides a bridge across the County, linking the east and the west.

The communities most impacted by this corridor include Shelby Township, Clinton Township, Sterling Heights, Utica, Macomb Township and Chesterfield Township. Collectively, these communities experienced a population gain of 50,279 persons during the past decade. More than 27,063 new housing units were constructed in these communities from 2000 to 2010. Communities located proximate to M-59 are clearly positioned to be further impacted by future County development trends.

TABLE #3

M-59 GROWTH CORRIDOR
2000-2010

<u>COMMUNITY</u>	<u>HOUSING UNITS</u>		<u>CHANGE</u>		<u>POPULATION</u>		<u>CHANGE</u>	
	<u>2000</u>	<u>2010</u>	<u>Number</u>	<u>%</u>	<u>2000</u>	<u>2010</u>	<u>Number</u>	<u>%</u>
Chesterfield Township	13,967	17,755	3,788	27.1	37,405	43,381	5,976	16.0
Macomb Township	17,922	27,585	9,663	53.9	50,478	79,580	29,102	57.7
Clinton Township	41,803	45,288	3,485	8.3	95,648	96,796	1,148	1.2
Sterling Heights	47,547	52,190	4,643	9.8	124,471	129,699	5,228	4.2
Utica	2,005	2,463	458	22.8	4,577	4,757	180	3.9
Shelby Township	25,265	30,291	5,026	19.9	65,159	73,804	8,645	13.3
TOTALS	148,509	175,572	27,063	18.2	377,738	428,017	50,279	13.3

CONCLUSIONS

Bruce Township lies directly in the path of the M-53 growth corridor as it extends northward through the western portion of Macomb County. Each of the communities to the south of the Township have been influenced by development trends occurring within this corridor over the past several decades. The influence of this corridor is being strongly felt by Washington Township, in particular that portion of the Township south of 30 Mile Road. Within Bruce Township, the community has already experienced extensive growth pressures at the southern end of the Township, and although overall growth may be felt more subtly over the next five to ten (5-10) years, Bruce will see continued growth, particularly at the southern end of Township.

REGIONAL PLANNING INFLUENCES

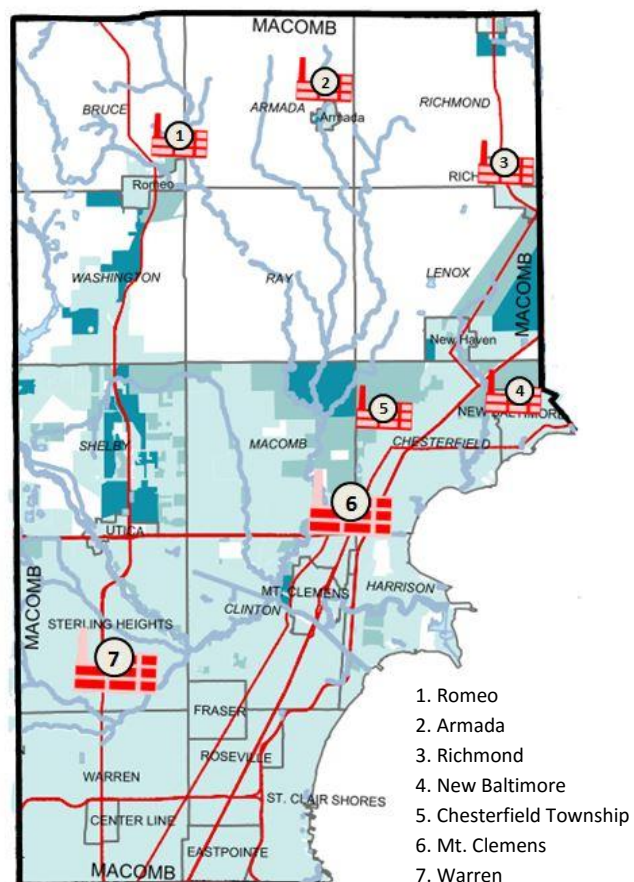
SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS (SEMCOG)

SEMCOG is the principal regional planning agency serving the seven (7) county southeast Michigan region. Its main role is to foster intergovernmental cooperation and to coordinate planning activities that are regional in scope. SEMCOG's principal planning activities involve the following areas: transportation, community/economic development, water/air quality, solid waste disposal, sewage treatment, storm drainage, public safety and land use. SEMCOG also maintains the region's most extensive database used for planning and economic development purposes. Several of SEMCOG's activities have some influence on Bruce Township, either directly or indirectly.

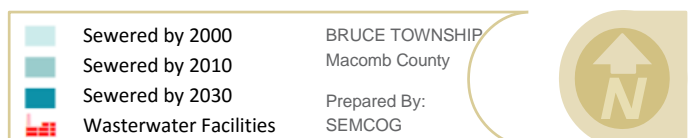
SEWER SERVICE AREA MAP

A revised sewer service area map was adopted by SEMCOG's General Assembly in 2002. This map was prepared in response to increased concerns regarding urban sprawl and the corresponding impact that this growth has on the cost of extending public utilities. The map recognizes that urbanization is highly dependent on the availability of utilities, and seeks to direct growth to areas where existing sewer lines and available treatment capacity are currently available. One of the principal applications of the Sewer Service Map is to evaluate proposals for sewer funding assistance under the Clean Water Act. Funding plans for these improvements are reviewed by SEMCOG for consistency with the Sewer Service Map.

Only a small portion of Bruce Township adjacent to the Village of Romeo is located within a planned sewer service area. Part of this area is already served by sanitary sewers from the Village of Romeo. Bruce Township owns a percentage of Romeo's sewer treatment plant's capacity and recently completed infrastructure improvements in the Township's industrial district, located along 33 Mile Road, allocating the remaining sewer capacity.



1-3 SEWER SERVICE AREA MAP (SEMCOG)



TRANSPORTATION PLANNING

Southeast Michigan's road system provides the physical linkage that ties the region together. By its very nature, this system is regional in scope. SEMCOG plays an important role in coordinating the regional planning process for expanding and improving this system.

SEMCOG's existing 2025 Transportation Plan was approved in June of 2000. This plan considered the region's transportation needs to the year 2025. It focused on existing and projected transportation deficiencies without considering the financial limitations associated with making these improvements.

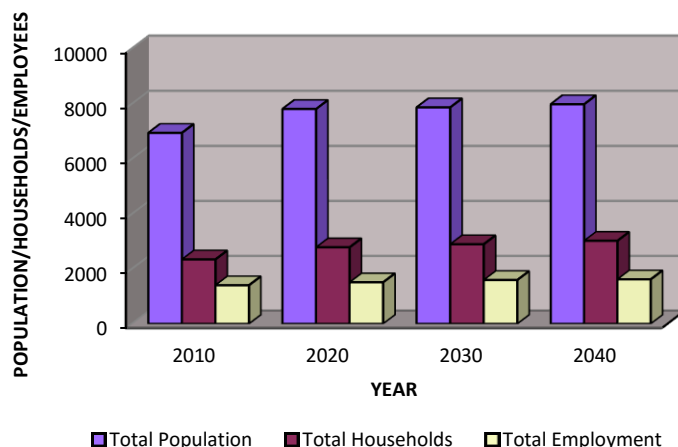
Adoption of SAFETEA - Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 provides for a temporary extension to its predecessor, ISTEA. The Intermodal Surface Transportation Efficiency Act (ISTEA) changed the regional transportation planning process. While the long-range Transportation Plan remained the primary policy document identifying the region's transportation needs, it also added specific projects to address the identified needs. In 2005, the Federal Government signed into law a budget extension to SAFETEA, which guaranteed continued funding for highways, highway safety, and public transportation. Under SAFETEA and ISTEA, the following features were incorporated into the transportation planning process:

- Link highways and mass transit forms of transportation.
- Emphasize the maintenance of existing infrastructure.
- Require plans and programs to be fiscally responsible.
- Require attention to improving air quality in urban areas and examining land use impacts of transportation decisions.
- Move much of the decision-making process from the Federal and State governments to local and regional levels.

1-4 REGIONAL DEVELOPMENT FORECASTS

REGIONAL DEVELOPMENT FORECASTS

Every five (5) years, SEMCOG prepares a series of population, household and employment forecasts on a regional, county, and individual community basis. These forecasts are prepared for each five (5) year interval between 2010 and 2040.



B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

SEMCOG projects reduced population, household and employment growth over the next three (3) decades than previously predicted. By the year 2040, the SEMCOG projections anticipate that the Township will have a population nearing 8,000 persons, roughly 1,000 more than in 2010. Projections of the number of new households are expected to rise from 2,346 in 2010 to 3,023 in the year 2040. The number of persons employed at businesses located in the Township is also expected to rise during the period, from 1,405 in 2010 to 1,620 in 2040.

MACOMB COUNTY PLANNING

The Macomb County Planning Commission and the Macomb County Department of Planning and Economic Development play an important role in the County planning and development process. Rather than developing County-wide plans or growth policies, the Macomb County Planning Commission has traditionally sought to assist local units of government establish their own land use goals and plans. This is accomplished by providing local planning commissions with a range of resources to help facilitate better planning. Among the many services provided by the County are: 1) economic development assistance; 2) coordination of the subdivision review process; 3) aerial photography; 4) mapping and geographic information system resources; and 5) model ordinance development.

MACOMB COUNTY TRAILWAYS PLAN

The Macomb County Trailways Master Plan, which is currently in the process of being updated, includes plans to connect several existing trail segments into a large circular 70 mile trail, called the *Macomb County Loop*. At completion, the *Loop* will connect the Macomb Orchard trail at Richmond, head south to Mt. Clemens and Metro Beach, then return north to the Macomb Orchard trail through Shelby Township.

For residents in Bruce Township the primary trail linkage is the Macomb Orchard Trail that traverses through the Township's southeastern corner. This 24 mile trail travels northeast to Richmond and southwest to the county line at 24 Mile Road and Dequindre Road in Shelby Township.

1-5 MACOMB COUNTY TRAILWAYS PLAN



LOCAL PLANNING INFLUENCES

In addition to the broader regional planning concerns identified in this report, Bruce Township is also influenced by land use activities occurring in neighboring communities. Frequently, the planning policies of neighboring communities can have a significant influence on the future development of property on the opposite side of the municipal boundary. Bruce Township shares a common boundary with the Village of Romeo, Washington Township, Armada Township, Almont Township and Addison Township. The Master Plans of these communities were examined to identify the extent to which these planning policies may influence future land use decisions within the Township.

WASHINGTON TOWNSHIP

Washington and Bruce Townships share a common boundary along 32 Mile Road from the Romeo Village limits west to Dequindre Road. This portion of Washington Township is zoned for single-family residential purposes of varying densities. The western portion of this common boundary, between Mound Road and Dequindre Road, is planned for rural residential purposes, with a recommended lot size of two (2) acres. East of Mound Road, approaching the Village of Romeo, the land is zoned as single-family residential with a recommended density between one (1) and two (2) units per acre. The only area along this common boundary that is not zoned for single-family use is a roughly twenty (20) acre parcel directly west of Romeo along 32 Mile Road. This area is a multiple-family residential district and is developed as duplexes.

VILLAGE OF ROMEO

The common boundary between Romeo and Bruce Township is irregular, with existing roads separating the two (2) communities in only two (2) locations (Gates Street and 33 Mile Road). The planned land uses on the Village side of this boundary is relatively uniform. West of the M-53 Freeway, the Village land abutting Bruce Township is planned for residential purposes; east of the freeway, the abutting property is planned for industrial purposes.

ARMADA TOWNSHIP

Bruce Township and Armada Township share a five (5) mile common boundary between 32 Mile Road and Bordman Road. The majority of this common boundary is planned for Rural Residential which calls for lot sizes equivalent to one and three quarter (3/4) acres. This area has also been planned as the Township's agricultural preservation area. The land area between 33 Mile Road and the existing utility corridor is now planned as a portion of the Township's planned sewer district. Being planned for sewer service, the Township has planned this area for approximately three (3) dwelling units per acre.

ALMONT TOWNSHIP

Bordman Road forms the common boundary between Bruce Township and Almont Township. The north side of Bordman Road, west of Van Dyke, is planned for single-family residential purposes. East of Van Dyke/M-53, the first five (5) lots are zoned for commercial use; the remainder is zoned with a recommended density of one (1) unit per ten (10) acres. West of Van Dyke, the Master Plan recommends a density of one (1) dwelling unit per every two (2) acres. The area on the north side of Bordman Road east of Van Dyke/M-53, other than the commercial strip, is uniformly zoned for Agricultural-Residential purposes, with a minimum lot size of two (2) acres.

ADDISON TOWNSHIP

Dequindre Road serves as the common boundary between Bruce and Addison Townships. This is also the boundary between Oakland and Macomb Counties. The Master Plan recommends that the southern half of this boundary require two (2) acre minimum lot sizes. South of McKail Road is planned for five (5) acre minimums, and the area north of McKail Road to remain rural with ten (10) acre minimum lot sizes.

CONCLUSION

There is an interaction between adjacent communities and the uses they place on one another's boundaries. The influence may be subtle; a corner commercial facility in one community may well spawn a similar use in the adjacent community. If there is not agreement on land use policy, neighboring uses may evoke a transitional or buffer response across boundary lines. As development continues to advance north within the M-53 and Van Dyke corridors, there will continue to be an impact on the Township. At times, this impact may be direct; at others, it may be more subtle. The challenge to the Township is to recognize these regional influences and respond in a way that is consistent with the policies and recommendations of the Master Plan.

Section 2.0

POPULATION | analysis

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

The characteristics of a community's population are among the key ingredients that require consideration in the long-range planning process. Historical and current population trends have several useful applications. They are especially relevant in identifying the need for various types of community facilities. Future land use and public utility demands are also related to demographic trends and characteristics.

The following review considers several items, each of which are important to more fully understand the characteristics of Washington Township's population. These individual topics include the following:

- Population change over time.
- Age characteristics.
- Household characteristics.
- Population projections.

The most current available population data for Washington Township is employed in the examination of each topic listed above. Whenever possible, comparable data for Macomb County is also included. Information for this wider geographic area is provided for the purpose of understanding the relationship of the Township to the larger related geographical areas that it occupies in southeast Michigan. Conclusions and the potential planning policy implications of this data are also noted.

POPULATION CHANGE

At the national level, the U.S. population exceeded the two-hundred (200,000,000) million mark for the first time in 1970. An increase to 226 million was recorded in 1980 and the total for 1990 was just under two hundred and forty nine (249) million persons. In 2000, our nation's population reached two hundred and eighty one (281) million. In the last decade, the U.S. population has surpassed three hundred (300) million, recorded in the 2010 Census at over three hundred and nine (309) million. Michigan's share of the national population has been at or near four (4%) percent since 1930.

During the eighty (80) year period between 1930 and 2010, Michigan's population increased from 4.8 million to almost 9.9 million. The State's greatest periods of population growth over these seven (7) decades occurred between 1940 and 1970. During this thirty (30) year period, Michigan gained more than one million people for each ten (10) year census interval. Between 1970 and 2000, however, population growth slowed considerably. After peaking at just over 10 million, Michigan's population was recorded at just under 9.9 million in 2010, a decrease of less than one (1%) percent.

REGIONAL TRENDS

The modest population decrease described for Michigan is likewise evident across the seven (7) county region of southeast Michigan. Despite this decrease, four (4) of the counties – Livingston, Macomb, Oakland, and Washtenaw – continue to report population gains since 1970. Wayne County continues to remain the only county of the seven (7) that has shown a consistent decline within the last thirty (30) years. Wayne County's loss has largely been the result of Detroit's continued decline.

For the region as a whole, the seven (7) county area has seen a decrease of less than four (4%) percent since the last census, just greater than 100,000 persons. These figures provide evidence of a continuing trend of population migration from the historic center of southeast Michigan in the City of Detroit to the outlying counties.

TABLE #4
COUNTY GROWTH TRENDS
1980 - 2010

County	1980	1990	2000	2010
Livingston	100,289	115,645	156,951	180,967
Macomb	694,600	717,400	788,149	840,978
Monroe	134,659	133,600	145,945	152,021
Oakland	1,011,793	1,083,592	1,194,156	1,202,362
St. Clair	138,802	145,607	164,235	163,040
Washtenaw	264,748	282,937	322,895	344,791
Wayne	2,337,891	2,111,687	2,061,162	1,820,650
Regional Totals	4,682,782	4,590,468	4,833,493	4,704,809

LOCAL TRENDS

Population change for Bruce Township and its neighboring communities was examined over a sixty (60) year period between 1940 and 2010. During this period, Bruce Township's population increased from 785 persons in 1940 to 6,947 persons in 2010. Census data for 2010 indicates a population increase just greater than eight (8%) percent for the period between 2000 and 2010. This is considerably lower than the nearly fifty-three (53%) percent increase between 1990 and 2000 and much more in keeping with the growth rate between 1980 and 1990, just under ten (10%) percent. Of the surrounding communities, only Washington Township exceeds Bruce's population. Until recently, the surrounding townships were experiencing similar population growth. The past decade has exhibited a shift in growth patterns, with increasing populations in only three (3) of the communities – Bruce, Almont, and Washington Township.

TABLE #5
LOCAL GROWTH TRENDS
1960 - 2010

Community	1960	1970	1980	1990	2000	2010
Bruce Township	1,538	2,213	3,823	4,193	6,395	6,947
Addison Township	1,332	2,431	4,184	4,785	6,107	5,948
Almont Township	1,174	1,529	2,267	2,361	6,041	6,583
Armada Township	1,336	1,601	2,495	2,943	3,673	3,649
Ray Township	2,086	2,683	3,121	3,230	3,740	3,739
Washington Township	3,124	5,651	8,637	11,386	17,122	23,296
Village of Romeo	3,327	4,012	3,509	3,520	3,721	3,596
Macomb County	405,804	625,309	694,600	717,400	788,149	840,978

AGE

Age characteristics are among the more important demographic variables. They are useful as an indicator of anticipated demand for various types of municipal services and programs, including parks, employment needs, job training, day-care, schools, and various services for the elderly. A community's future land use requirements are also related to its age characteristics.

MEDIAN AGE

The continued steady aging of this Nation's population was again evident within the 2010 Census. As shown in Table #6, the median age of residents in Bruce Township has continued to rise rapidly over the last thirty (30) years from 27.0 in 1980 to 42.9 in 2010. This mimics the trends of the County, State, and Country as a whole. Also of recognition is the fact that the median age in Bruce Township now exceeds that of the County, the State, and the Country.

TABLE #6
MEDIAN AGE 1980-2010

Geographic Area	1980	1990	2000	2010
Bruce Township	27.0	32.2	36.0	42.9
Macomb County	29.1	33.9	36.9	39.9
Michigan	28.8	32.6	35.5	38.8
United States	30.0	32.9	35.3	37.2

POPULATION BY AGE

By reviewing the various age categories that make up the Township's population, it is possible to determine how various segments of the population have changed and which groups made the largest contribution to Bruce Township's population increases over the past decade. The distribution of Bruce's population into designated age categories for 2000 and 2010 is shown in Table #7. Although no

TABLE #7
POPULATION BY AGE GROUP 2000-2010

Age Group	2000	Percentage	2010	Percentage
Age 0-4	458	7.2%	306	4.4%
Age 5-17	1,431	22.4%	1,449	20.9%
Age 18-34	1,201	18.8%	1,086	15.6%
Age 35-64	2,819	44.1%	3,211	46.2%
Age 65+	486	7.6%	895	12.9%
Total Population	6,395	100.0%	6,947	100.0%

significant shifts have occurred within the last decade, it is evident in 2010 that the population percentages of the age groups of people younger than 35 all have decreased while the population percentages for the age groups of people 35 and older have both increased.

HOUSEHOLDS

HOUSEHOLD GROWTH TRENDS

The U.S. Census Bureau has two (2) categories that it uses to describe living arrangements: households and families. A household is one person or a group of persons occupying a housing unit. The number of households and occupied housing units are, therefore, identical. Families, on the other hand, consist of two (2) or more persons related to each other living in a household.

TABLE #8
TOTAL HOUSEHOLDS
1980-2010

Geographic Area	1980	1990	2000	2010
Bruce Township	1,095	1,324	2,114	2,346
Macomb County	229,805	264,991	309,203	331,667

Household characteristics, in general, and the rate of new household growth have become increasingly important indicators of demographic change within a community. Changes in the number of households and their composition are recognized as a more valid measure of community growth and vitality than absolute changes in the number of persons. Several reasons account for this view.

At the local level, households generate property tax revenues regardless of how many people are living within the household. Households also generate a demand for durable goods, including cars and appliances, as well as energy (electricity, gas and telephone services), which serves to stimulate local and regional economic growth. Local governmental services are impacted by household growth trends, especially the need for public utilities (water and sewage disposal), police and fire services, and solid waste disposal, among others. The number of households also influences traffic levels and the need for future transportation system improvements.

From 2000 to 2010, Bruce Township's total number of households increased from 2,114 to 2,346, an increase of just over ten (10%) percent. While Bruce's household growth rate is lower than the previous decade's nearly sixty (60%) percent, it still remains above the County's rate of new household growth.

HOUSEHOLD SIZE

Accompanying the increases in household growth was a decline in the size of the average household. At the national level, household size declined steadily since 1950, when it stood at a level of 3.37 persons per household. By 1990, it declined to 2.63 persons per household.

TABLE #9
HOUSEHOLD SIZE
2000-2010

Geographic Area	1980	1990	2000	2010
Bruce Township	3.49	3.15	3.01	2.95
Macomb County	3.00	2.68	2.52	2.51

Consistent with broader national and regional trends, average household size in Bruce Township declined over the last several decades. In 1980, the size of the average household was 3.49 persons. This declined to 3.15 persons in 1990, 3.01 persons in 2000 and finally 2.95 in 2010. Similar declines are observed for Macomb County and Michigan.

Several factors are responsible for this decline, which include birth rate patterns, the distribution of the population on the age spectrum, and life style changes. This baby-boom echo is not producing the same number of persons that occurred earlier due to significant declines in the birthrate. Women today are having fewer children than their mothers did. Fewer children mean smaller families and reduced household sizes.

Population distribution patterns also impact household size declines. The aging of the baby-boom generation has begun to increase the proportion of those persons that are no longer considered to be likely candidates for parenthood. Finally, the increasing number of single-person households has contributed to this trend. Improved medical care has resulted in an increasing number of persons over the age of 65, many of whom are widows or widowers creating single- person households. Young persons have also shown a tendency to marry later and delay having children until later in their lives. Another consequence of this delay is a corresponding decision to have fewer children. Increases in the divorce rate has also expanded the number of new households and contributed to the decline in their overall size.

HOUSEHOLD AND FAMILY CHARACTERISTICS

Since 1970, there have been many changes in the American family's composition. The data available for the most recent decade, 2000-2010, shows the continued decline in the "traditional" family.

In Bruce Township, family households account for just over eighty (80%) percent of all households. This is less than a one (1%) percent drop from the 2000 Census. Further, this is higher than the Macomb County total of sixty-seven (67%) percent and the U.S. family household total of sixty-six (66%) percent. Married-couple families represent sixty-eight (68%) percent of all households in Bruce, compared to the Macomb County total of just under fifty (50%) percent and the U.S. total of forty-eight (48%) percent. The Township reports four hundred sixty-seven (467) female-headed households, or fifteen (15%) percent of the total number of all households. This is lower than the County- wide figure, which is just greater than nineteen (19%) percent. Female-headed households account for twenty-one (21%) of all U.S. households.

PROJECTIONS

Projections provide a basis for anticipating future land use and various community service demands. As noted in the previous discussion, the factor that will have the greatest influence on these demands is the anticipated number of new households. While there is no precise way of absolutely predicting the future, past trends offer a useful method of anticipating expected changes in the number of households and the number of residents.

Several different techniques are customarily used to project anticipated household levels for a community. These include the constant proportion, growth rate, and arithmetic method. Each technique is based on certain assumptions regarding previous trends being carried forward into the future. These methods and their results for Bruce Township are summarized as follows:

CONSTANT PROPORTION

The constant proportion method assumes that the number of households in Bruce Township will maintain the same ratio to Macomb County's total households in the years 2020 and 2030 as they did in 2010. SEMCOG projections were used for Macomb County growth trends over the next 20 years. Applying this assumption yields the following projected household levels: 2020 – 7,129; 2030 - 7,307.

GROWTH RATE

The growth rate method is an alternative technique which assumes that Bruce's household growth rate between 2010 and 2020 will be similar to that which occurred between 2000 and 2010. This method further assumes that the Township's 2010-2030 household growth rates will be identical to what occurred between 1990 and 2010. Based on these assumptions, the anticipated number of households for the year 2020 is 2,603, and 4,156 for 2030.

ARITHMETIC METHOD

The arithmetic method is similar to the growth rate method, except that actual numbers rather than percentages are used. This method projects future household levels of 2,578 and 3,368 in the years 2020 and 2030, respectively.

SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS (SEMCOG) SMALL AREA FORECASTS

Every five (5) years, SEMCOG prepares a series of Small Area Forecasts for each of 233 local units of government in the southeast Michigan region. The forecasts include the anticipated number of persons, households and jobs within each community for each five (5) year interval between 2010 and 2040. The most recent series of projections were adopted by SEMCOG's General Assembly in March 2012.

These forecasts anticipate Bruce Township's population and number of households to increase by roughly fifteen (15%) percent during the thirty (30) year period between 2010 and 2040. SEMCOG's projections suggest that Bruce Township's population will likely plateau after the year 2020.

Future population projections depend, in large part, on the rate of household growth and the size of the average household. Forecasts prepared by SEMCOG anticipate continued declines in the size of Bruce Township's average household from 2.95 in 2010 to 2.63 by the year 2040.

Widely varying population projections like these can assist the Township in determining its land use policies. If the Township chooses to provide smaller lots and more services, the high end population and household projections may be more accurate. However, if the Township wishes to remain rural in character, the lower end projections will be a more accurate representation. These projections will be reevaluated in relation to the Township's proposed land use pattern and policy objectives expressed in subsequent chapters of the Master Plan.

TABLE #10
POPULATION AND HOUSEHOLD PROJECTION
2010-2030

Method	2010	2020	2030
Constant Proportion	6,947 (per)	7,129 (per)	7,307 (per)
Growth Rate	2,346 (HH)	2,603 (HH)	4,156 (HH)
Arithmetic Method	2,346 (HH)	2,578 (HH)	3,368 (HH)
SEMCOG	6,947 (per)	7,813 (per)	7,872 (per)

HOUSING CHARACTERISTICS

NUMBER OF UNITS / HOUSING TYPE

Between 2000 and 2010, Bruce's housing supply increased by 290 units, significantly lower than the 1,540-unit increase between 1990 and 2000. This reflects a decelerating population growth rate in Bruce as illustrated in the most recent Census.

However, recent interest in developing the properties in the area of McKay Road and 33 Mile Road suggest a continued demand for a variety of housing types in Bruce Township. As of the 2010 Census, single-family detached homes are still the primary housing type, accounting for seventy-eight (78%) percent of Bruce Township's total housing supply, effectively unchanged from 2000. Mobile homes are the second most common housing unit, at just under thirteen (13%) percent, followed by attached residential units (townhouses and condos) at seven (7%) percent. Multi-family units only account for two (2%) percent of the housing supply.

HOUSING TENURE

Home ownership is generally a good indicator of community stability. Home purchases often represent the single largest investment that a family will make and, therefore, usually signifies a longer-term commitment to a community. Approximately ninety-four (94%) percent of Bruce's total housing units are owner-occupied according to the 2010 Census. For Macomb County as a whole, only seventy-six (76%) percent of all housing units are owner-occupied. This reflects the high percentage of single-family detached residences found within the Township.

VACANCY RATES

Vacancy rates are a significant indicator of conditions within a local housing market. They are particularly useful for evaluating the dynamics of the housing market. Vacancy rates between three (3%) and five (5%) percent are generally considered to be evidence of a stable housing market. When vacancy rates drop below three (3%) percent, housing choice becomes restricted. High vacancy rates, on the other hand, are indicators of incipient housing problems.

According to the 2010 Census, Bruce Township reported a total of 131 vacant housing units. This is an increase from the 2000 level of 74 units. The 2010 homeowner vacancy rate is just over five (5%) percent, which is lower than the County's vacancy rate of seven (7%) percent and the U.S. vacancy rate of twelve (12%) percent.

HOUSING VALUE

The value of housing units is another measure of the quality of a community's housing supply. Bruce's 2010 estimated median, owner-occupied housing value is \$261,700. This is considerably higher than the Macomb County median of \$157,000. The percentage of housing units with a value over \$200,000 within the Township continues to increase. This is reflective of the larger lot subdivisions being developed as well as the market trends within the Township. The 2010 Census indicates that approximately sixty five (65%) percent of the homes within the Township have a value over \$200,000. Approximately twenty nine (29%) percent of the County's housing as a whole has a value over \$200,000. Based on current subdivision trends and a continued rise in real estate, it is anticipated that the median housing price in Bruce will continue to outpace many of the neighboring communities as well as that of the County as a whole.

TABLE #11
LOCAL MEDIAN HOUSING VALUE
2000-2010

<u>Community</u>	<u>2000</u>	<u>2010</u>	<u>Change</u>	
			<u>Number</u>	<u>%</u>
Bruce Township	\$286,318	\$261,700	- \$24,618	-8.6
Addison Township	\$304,263	\$282,300	-\$21,963	-7.2
Almont Township	\$162,700	\$187,300	\$24,600	15.1
Armada Township	\$257,554	\$247,700	-\$9,854	-3.8
Ray Township	\$257,027	\$227,700	-\$29,327	-11.4
Village of Romeo	\$188,944	\$173,100	-\$15,844	-8.4
Washington Township	\$281,700	\$251,400	-\$30,300	-10.8
Macomb County	\$177,992	\$157,000	-\$20,992	-11.8

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

Section 3.0

ENVIRONMENTAL | analysis

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

The purpose of this study is to inventory the physical features of Bruce Township that have the potential of influencing the location and character of development. Specific topics covered in this inventory include geology, topography, soils, water, woodlands, wetlands, and agriculture.

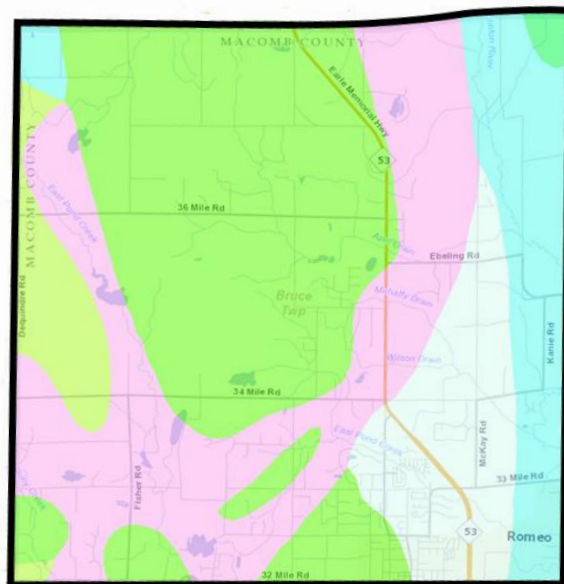
Existing physical features exert important influences in shaping the development of a specific area. They are nature's contribution to the environment. Collectively, these features can determine the overall character of the community.

When integrated thoughtfully into development proposals, physical features serve to enhance the character and appearance of the constructed environment. Conversely, ignoring physical features, or misusing them, can have significant, long-term negative consequences. Some well-defined physical features serve as a barrier to development and may be difficult to overcome, except at considerable expense. It is usually better to design with nature than to attempt to substantially change an area's physical environment.

The attractive, natural setting of Bruce Township has been altered slightly by recent developments. However, the development has not occurred to the extent of disrupting the rural character of the Township. A large contributor to this rural character is the active farmlands that remain in existence in Bruce Township.

GEOLOGY

Michigan's physical setting, as we know it today, including the Great Lakes that surround the State, are the result of the interaction of glacial action on the bedrock formation that underlay the State. The bedrock formations of the State consist largely of sandstone, limestone and shale, which were particularly vulnerable to the weight and movement of the glaciers. The weight of the glaciers depressed the land mass surrounding Michigan, forming basins that would eventually become the Great Lakes.



3-1

QUATERNARY GEOLOGY

	MEDIUM TEXTURE TILL	BRUCE TOWNSHIP Macomb County
	OUTWASH SAND & GRAVEL	
	MEDIUM TEXTURE GLACIAL TILL	Prepared By: Michigan State University
	LACUSTRINE SAND & GRAVEL	
	LACUSTRINE CLAY & SILT	



Glacial movements, including the periodic advance and retreat of these large sheets of ice, are largely responsible for the surface land features across southeast Michigan. These glaciers sculpted the surface of the land as it moved. It also collected soil and rock fragments, which were used as erosion tools before depositing them further south. The fertile soils of southern Michigan are a direct consequence of this glacial action.

The characteristics of the surface features are related to the manner in which the glaciers retreated and melted. Where glaciers melted at a rate equal to their forward movement, the accumulated soils were deposited in a line parallel to the edge of the glacier, providing hilly areas known as moraines. If melting occurred while the glacier remained stationary, the result is a gently undulating glacial hill plain. Rapid melting of glacial ice resulted in short, broad, swift rivers flowing from the glacier. When this occurred, the material was spread out in front of the glacier as an outwash plain. Outwash plains are mainly gravelly and sandy.

Macomb County is mostly level to gently sloping, with the exception of the northwest part of the County. The western two-thirds (2/3) of Bruce Township is extremely hilly and scenic, along with the western portions of Washington and Shelby Township. The remaining eastern third of Bruce Township is more level and soil conditions are better suited for agricultural uses rather than residential, this is likely due to its lacustrine soil composition, as depicted in the Bruce Township quaternary geological map, Illustration 3-1.

TOPOGRAPHY

Topographic conditions can have a significant influence on land development patterns. Topography, for example, can impact the site location, orientation and design of buildings, roads and utilities. Where topography is extreme, slopes become an important consideration due to concerns relating to the ability of the land to bear the weight of buildings and the danger of erosion. Sometimes, topographic variations offer opportunities to appreciate the scenic environment. The absence of significant changes in topography can result in the need for man-made drainage improvements.

Bruce Township's topographical features are a direct consequence of the glacial actions described previously. The relief, or range elevations, varies from an altitude of 750 feet above sea level in the Township's southeastern corner, to more than 1,100 feet at the highest point in the western portion. The undulating character of the western portion of Bruce Township provides scenic views and adds a unique beauty to the area. Illustration 3-2 shows the topographic conditions in Bruce Township.

Effective site planning, good design, and proper construction can make the Township's rolling topography an asset for future development. Careful attention should be paid to the development of these hillsides to avoid the problems frequently associated with building on slopes. Whenever developments seek to dramatically alter the natural topography or run against its grain, the likelihood of problems increases.

TOPOGRAPHY

Prepared By:
Bruce Township
Planning Commission

SOILS

Soil characteristics have an important influence on the ability of land to support various types of land uses, including roads, buildings, utilities and agriculture. Four (4) specific soil characteristics influence their ability to be used for various purposes. These include the following:

- **Bearing Capacity** — the ability to support the weight of roads, buildings or vehicles.
- **Erodibility/Stability** — the susceptibility of the soils to erosion hazards and the ability to accept weight, without causing mass movements such as mud flows and slides.
- **Drainage** — the capacity of soils to transit and receive water. This characteristic is especially important for determining the ability of soils to accept on-site waste water treatment systems.
- **Soil drainage characteristics** are influenced by particle composition and water content.
- **Resource Value** — the economic worth of the soil for agricultural purposes, or as a fill or mined material.

Bruce Township's soil characteristics were identified as part of the larger Macomb County Soil Survey, conducted in September of 1971 by the United States Department of Agriculture Soil Conservation Service. Categories of soils with different characteristics and physical properties were identified as part of the survey. This process resulted in a patchwork or jigsaw-like pieces that fit together to portray a larger overall picture of existing soil characteristics. A large number of individual soil types are present in the Township. These individual categories are grouped together into several generalized classifications of soils that share similar characteristics. A total of nine (9) of these grouped categories are located in Macomb County. Three (3) of these soil classifications cover Bruce Township, as depicted in Illustration 3-3.

Lapeer-Miami-Celina Association

Soils within this association occur in gently to strongly sloping areas and are well drained to moderately well-drained. These soils are frequently found in a landscape consisting of small, hilly areas and steeper slopes next to major drainage-ways. These soils are fairly well suited to agriculture.

An erosion hazard is the main limitation for farming. Limitations for residential development are slight to severe, depending on the slope. The soils make good foundations for houses and streets. Much of the western two-thirds (2/3) of Bruce Township contains this association.

Oakville-Boyer-Spinks Association

This association is made up of well-drained, nearly level to hilly soils. Most of this association has severe limitations for use as cropland. Many areas are too steep or too sandy and

generally are droughty in mid-Summer. The slopes, which are short and irregular, make contour farming and construction of terraces difficult.

Slope is the main limitation for the use of this association as residential and recreational areas. The limitation is slight in the nearly level and gently sloping areas. It is severe in the steeper areas, where it is difficult to lay out streets and utility lines and to construct houses. Boyer soils are a potential source of sand and gravel and provide good foundation material for houses, streets, and highways. This association occurs only in the southwest corner of the Township.

Conover-Parkhill-Locke Association

Land within this association consists of nearly level to gently sloping soils that are somewhat poorly drained to poorly drained. This association is one of the best in the County for crops. This association occupies the eastern one-third (1/3) of Bruce Township. The soils in it are medium to high in fertility and respond readily to management. Nearly all areas have been cleared and are cultivated. Excessive wetness is the main limitation.

Excessive wetness and slow runoff are severe limitations of this association as residential and recreational areas. These limitations cause difficulty in laying out streets and utility lines and in constructing houses. Highways break up readily because of frost heaving and excessive wetness.

SEPTIC LIMITATIONS

One of the more practical applications of this soil information is to determine the suitability of the land to support different types of activities and uses. Chief among these is the suitability for onsite sewage disposal systems. The capability of different soil classifications to support septic tanks is shown in Illustration 3-4. The soil survey identifies three categories to define the suitability of various soil categories to support septic tank installation and operation. These basic classifications are defined as follows:

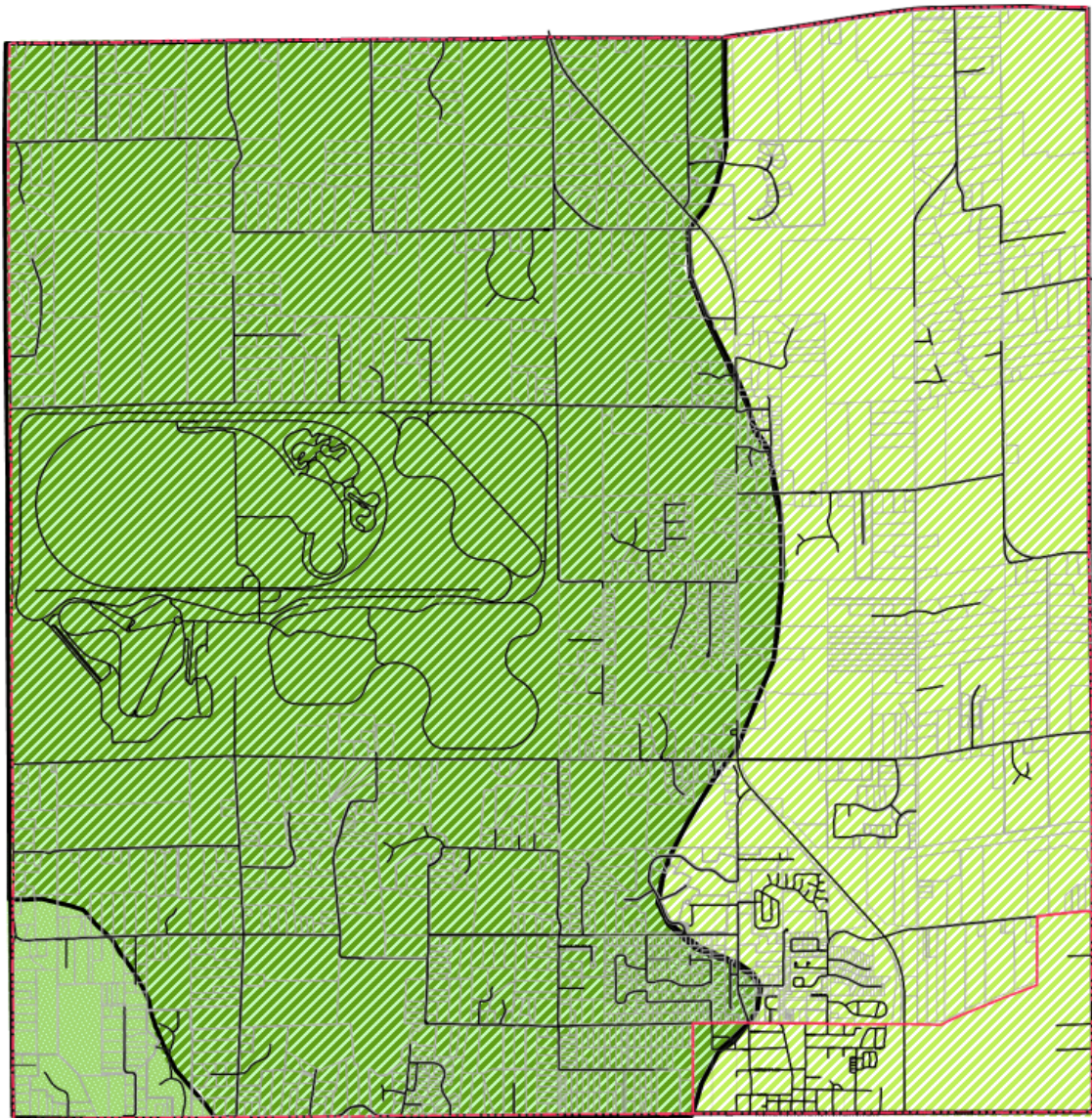
Slight - Relatively free of limitations or limitations are easily overcome.

Moderate - Limitations need to be recognized, but can be overcome with good management and careful design.

Severe - Limitations are severe enough to make use questionable.

The classifications are basically concerned with such limitations as shallow pollution due to high permeability, high water table, slow permeability, unstable organic matter, and slope effects.

Bruce Township has approximately two-thirds (2/3) of its soils in the slight and slight to moderate limitation class. The pattern is diverse. Severe limitation soils account for the remaining one-third (1/3) of the soils in the Township, and mainly occupy the eastern third of Bruce Township.



3-3

GENERALIZED SOILS



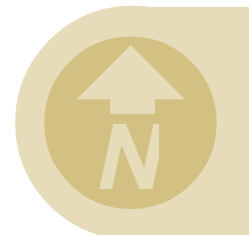
1 - LAPEER-MIAMI-CELINA

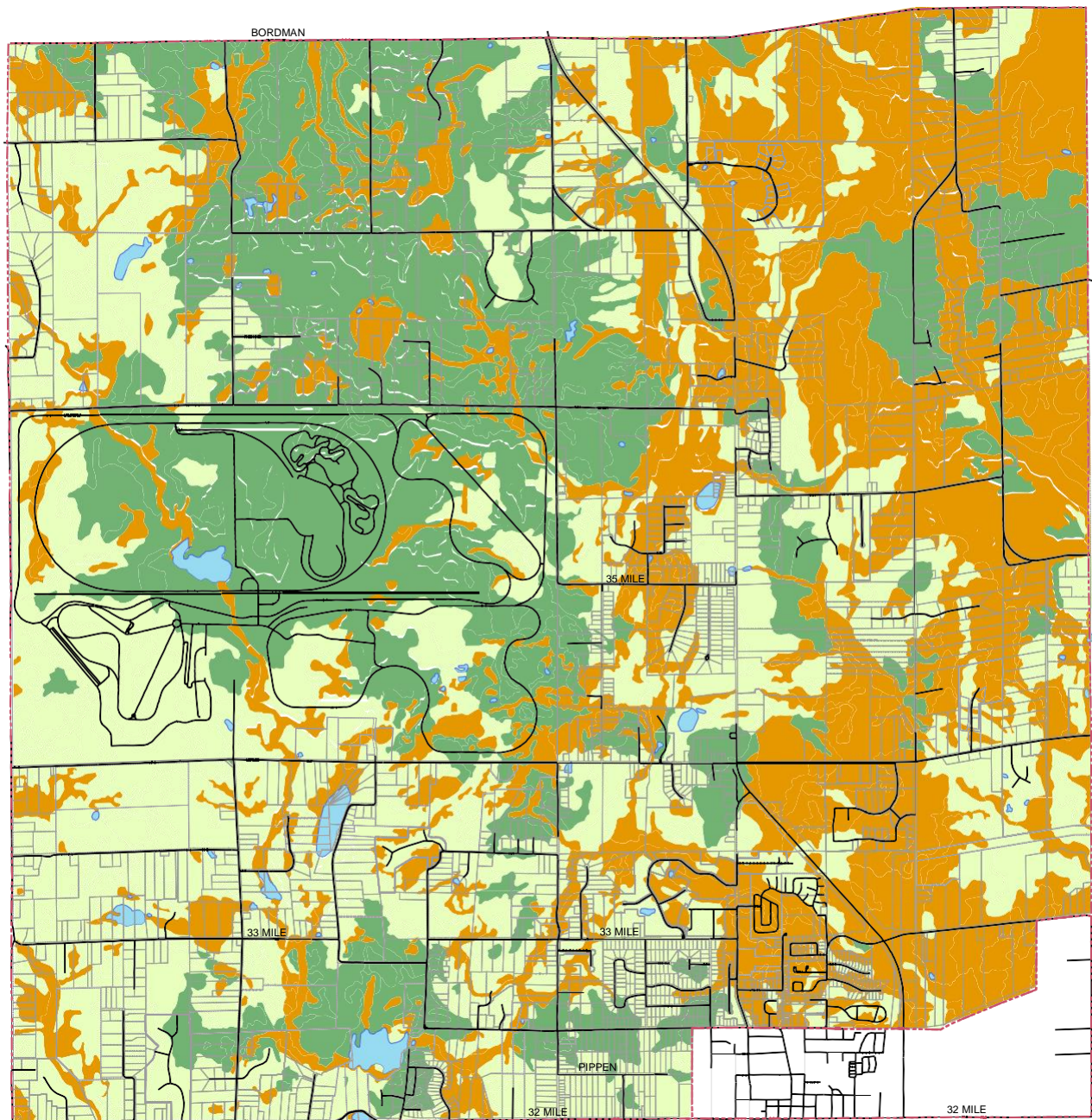
2 - CONOVER - PARKHILL - LOCKE

6 - OAKVILLE - BOYER - SPINKS

BRUCE TOWNSHIP

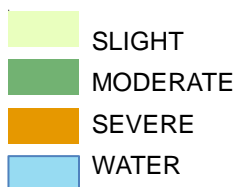
Macomb County





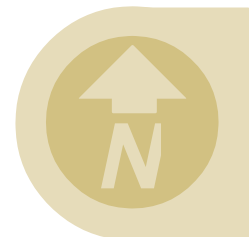
3-4

SOIL SUITABILITY



BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



WATER

Surface water exists in many forms, such as lakes, rivers, creeks and open storm drains. Several lakes and streams are located in Bruce Township. The North Branch of the Clinton River is present in both the northeast and northwest portions of the Township. Centrally located in the western portion of the Township are the Apel, Mahaffy, and Wilson Drains, which empty into the North Branch of the Clinton River. Stoney Creek crosses the southwest corner of the Township. East Pond Creek meanders through the eastern and southern portions of the Township, connecting Fisher, Nowlan, and East Mill Lakes. Other lakes in the Township include Hidden and Mill Lakes.

WETLANDS

Wetlands are an important element of Michigan's landscape. Before experiencing settlement in the late 18th and early 19th centuries, Michigan was thought to contain over eleven (11) million acres of wetlands. Like the extensive forests that once covered the State, the unique physical characteristics of many of these wetlands were permanently altered as a consequence of the settlement of the State. This change occurred as forests were logged and swamps drained for farming purposes. Between twenty-five (25%) and fifty (50%) percent of these original wetlands remain in Michigan today.

Wetlands are areas characterized by the presence of water that either saturate the soil or cover the land most or all of the year. Because of this characteristic, wetlands have the ability to support unique varieties of plants and animals. Not all wetlands are similar, however. Several categories of wetlands are found in Michigan. These varieties are the result of differences in climate, bedrock geology, soil characteristics and landforms that are unique to different portions of Michigan. The characteristics of wetland vegetation provide the basis for making a distinction between different types of wetlands. The two basic types of wetlands are forested and unforested. The largest share of remaining State wetlands is of the former variety. Many of these forested wetlands have soils that are saturated with water during seasonal periods. These wetlands are commonly referred to as swamps. Swamps differ from unforested wetlands more commonly known as marshes, wet prairies, wet meadows, fens, and bogs.

Marshes are those areas that normally occur along the edges of lakes and streams. These areas are flooded for much of the year, with average depths under five (5) feet. Commonly occurring vegetation in marshes include emergent plants, such as bulrushes, cattails, sedges, grasses, and floating or underwater plants.

Wet prairies consist of land located between marshes and abutting farm land. Their existence is a result of fluctuating water levels and Indian fires, which prevented the establishment of more permanent vegetation, including trees and shrubs. Few of these unique wetlands exist today. Many of these areas have been absorbed into the adjoining agricultural acreage. Wet prairies are recognizable by the striking vegetation that inhabit these areas, such as asters, goldenrods, mints, rare milkweed, Indian plantain and assorted prairie grasses.

Fens are a common herbaceous wetland located in areas characterized by saturated, lime-rich soils. Fens are commonly found at the bottom of ridges where poor drainage conditions exist, resulting in muck soils. Like wet prairies, farming has absorbed many of these wetlands.

The remaining classification of non-forested wetlands is bogs. The most striking feature of a bog is the thick acidic peat mats that cover these areas. These are formed as a result of the decomposition of sphagnum mosses and sedges. Many bogs have been permanently changed as a consequence of peat mining activities, especially those located in the more populated portions of southeast Michigan.

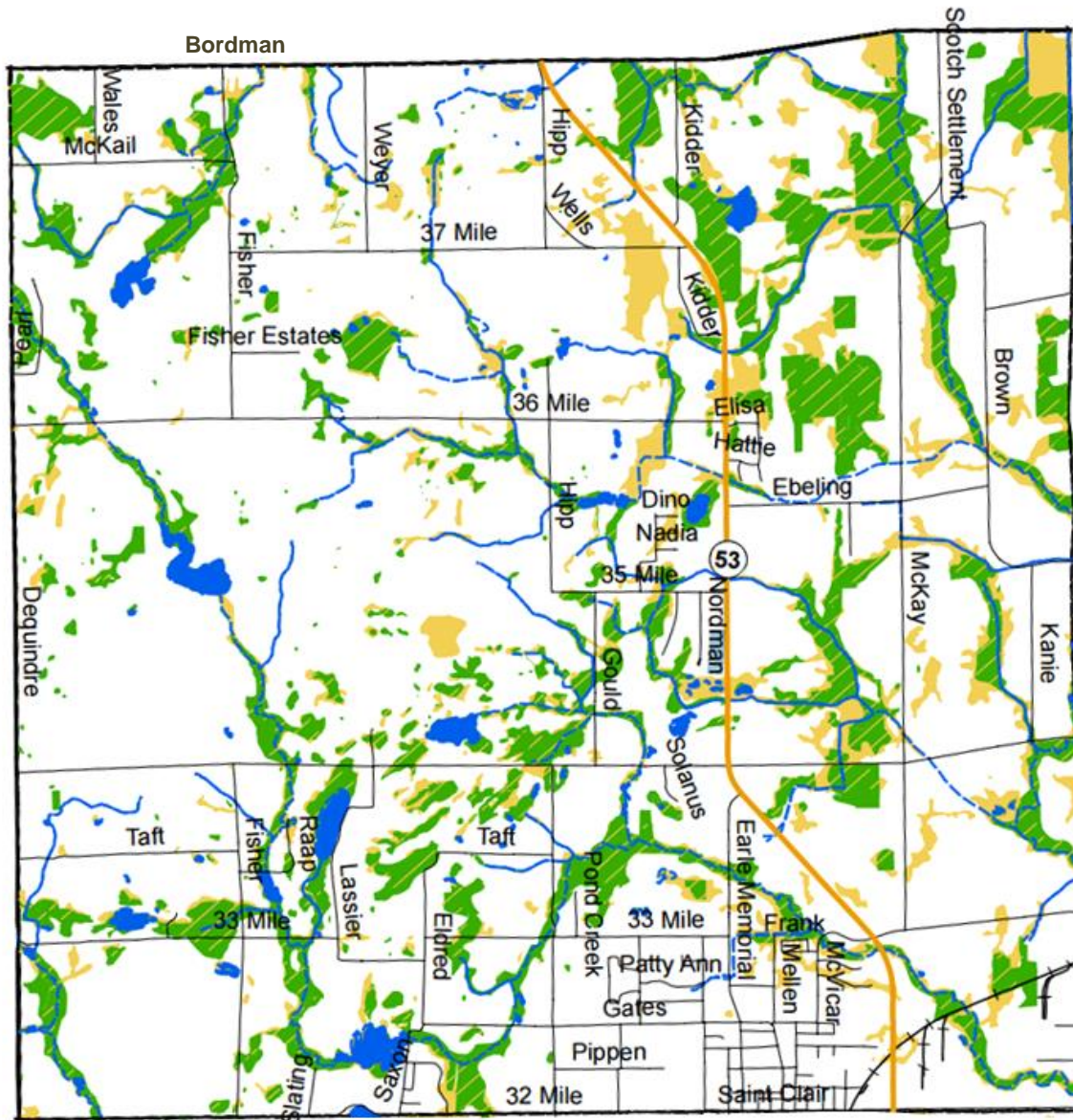
In spite of these differing characteristics, wetlands share some common physical properties that have important consequences for planning purposes. Wetlands serve a number of necessary environmental functions. These include the following:

- Protecting downstream water supplies by providing clean ground water as a result of the nutrient retention and sediment removal. Wetland vegetation traps these sediments and pollutants, thereby preventing them from being deposited in surface water bodies.
- Functioning as effective natural storage basins for floodwater. Wetlands may be considered large sponges that absorb large quantities of seasonal precipitation, gradually releasing it when the receiving channels are able to accept it.
- Protecting the shoreline from erosion caused by wind and wave action, and effectively serving as environmental shock absorbers.
- Providing a habitat for many types of plants and animals that thrive in the type of physical environment created by wetlands. These plants and animals provide an economic and recreational benefit as a result of hunting, fishing and other leisure activities.

There are extensive wetland areas within Bruce Township. All wetland areas are identified on the County's Wetlands Indicator Map. These maps were most recently updated by the County in 2003 and illustrate potential wetlands within the Township. In 2006, MDEQ created Final Wetland Inventory Maps for Michigan, which were last updated in 2012. The Macomb County Final Wetland Inventory Map identifies all wetlands and water features within each Township in the County. The section of this map which includes Bruce Township can be seen in Illustration 3-5.

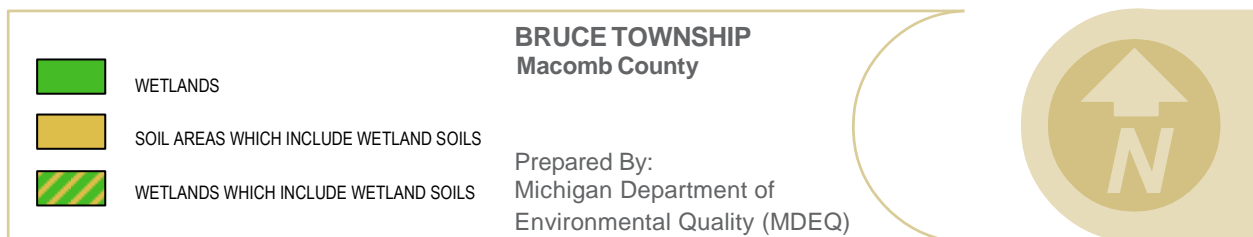
The preservation of the Township's natural wetlands is a legitimate concern of local planning. This may be accomplished through cooperation with the DEQ regulations that prevent development in these poorly drained geological areas.

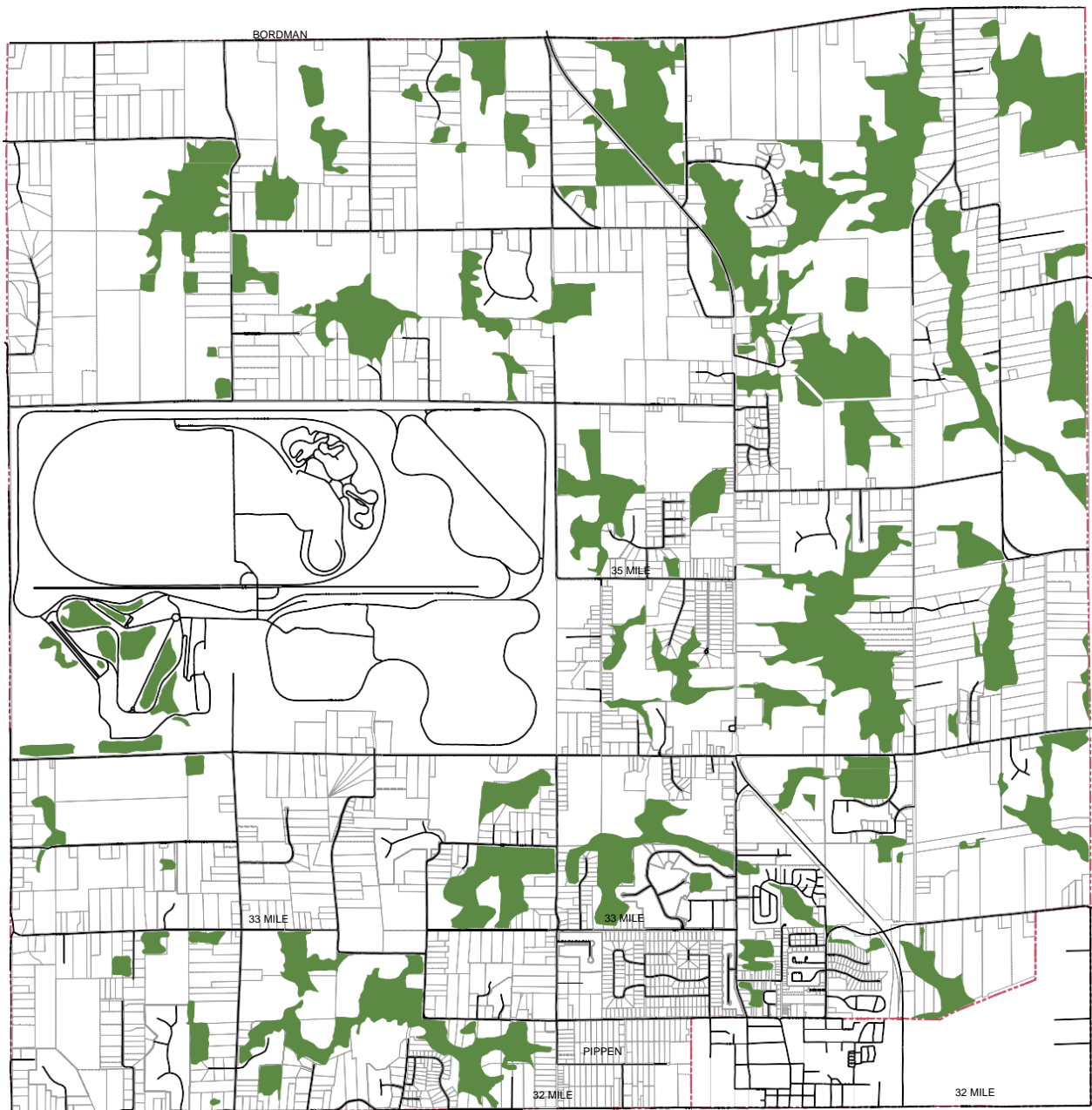
Much of Bruce Township is impacted by wetlands. Many varieties exist in the Township, including forest, shrub, and emergent wetlands. The locations tend to follow the path of existing drainage courses as shown on the following map. Others coincide with existing woodlands. The large number of wetlands and their distribution throughout the community will limit the development potential of the land located in the vicinity of identified wetlands. While this illustration identifies wetland areas, actual on-site inspections may result in wetlands of substantially different sizes and configurations.



3-5

GENERALIZED WETLANDS



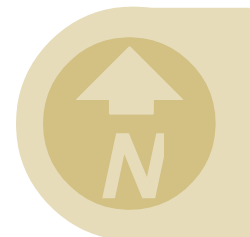


3-6

GENERALIZED WOODLANDS

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



WOODLANDS

Large wooded areas also serve significant environmental functions that need to be recognized and acknowledged. A wooded area can be of great value to a watershed. The canopy of trees aid in breaking the force of precipitation, thereby decreasing erosion. Erosion is further inhibited by the fibrous root system of the under story plants, as well as the layer of leaf or needle litter. Woodlands can also reduce the volume of stormwater runoff. Clear-cut lands can produce excessive runoff unless trees are replaced by other vegetation with comparable water retaining capacity. With no soil and vegetation to moderate runoff from precipitation, flooding may result, in addition to a loss of precipitation ordinarily retained and recharged into groundwater reserves by the woodland.

Woodlands improve air quality and afford protection from wind and erosion. Leaves and branches moderate the strength of winds and, when moistened with dew or rainwater, reduce suspended particles in the air, which are later washed off with rainwater. Plants also serve to moderate the effect of chemical pollutants in the air by absorbing some ozone, carbon dioxide, and sulfur dioxide.

A dense stand of trees can significantly cut noise from adjacent factories or highways by six (6) to eight (8) decibels per one-hundred (100) feet of forest. Moreover, the moderating effects of forests on temperature and wind can significantly cut the sound-carrying capacity of the atmosphere.

The resilience of woodlands creates a microclimate around the tree stand itself. Woodland qualities, which moderate and buffer temperature, precipitation, runoff, wind, and noise, are features of this microclimate effect. This microclimate effect significantly benefits surrounding urban and suburban areas. An urban area devoid of vegetation is the exact opposite of the forest microclimate. It increases the range of temperature fluctuations, much like the climatic extremes of a desert. When the sun's energy strikes streets and buildings, it is changed into heat, further increasing the temperature on a hot day; at night, the buildings lose heat and offer no protective cover from night chill or winter winds. Thus, if woodlands are interspersed among built-up areas, the effects of their microclimates can be felt in adjacent urban areas, moderating fluctuations in temperatures by keeping the surrounding air cooler in the summer and daytime, and warmer in the winter and evening.

The significance of woodlands is given added weight by the less quantifiable benefits that they provide to the public. Not only are woodlands important buffers, they also add aesthetic values and provide attractive sites for recreational activities, such as hiking, camping, and other passive recreational pursuits. Continued stability of good real estate values is a secondary benefit offered by woodlands. Since people choose to live in and around woodlands, providing for woodland protection in the planning of development projects will maintain favorable real estate values.

Significant quantities of wooded land are evident throughout Bruce Township. These wooded areas are identified by Michigan Department of Natural Resources MIRIS maps. They are distributed fairly evenly throughout the community and are graphically represented in Illustration 3-6. The characteristics of these woodlands likely vary from site-to-site. An examination of existing woodlots, however, should be conducted in conjunction with each development proposal brought before the Township. Incorporating woodlands as integral features of all future development will significantly enhance the quality of life for the Township.

MICHIGAN NATURAL FEATURES INVENTORY

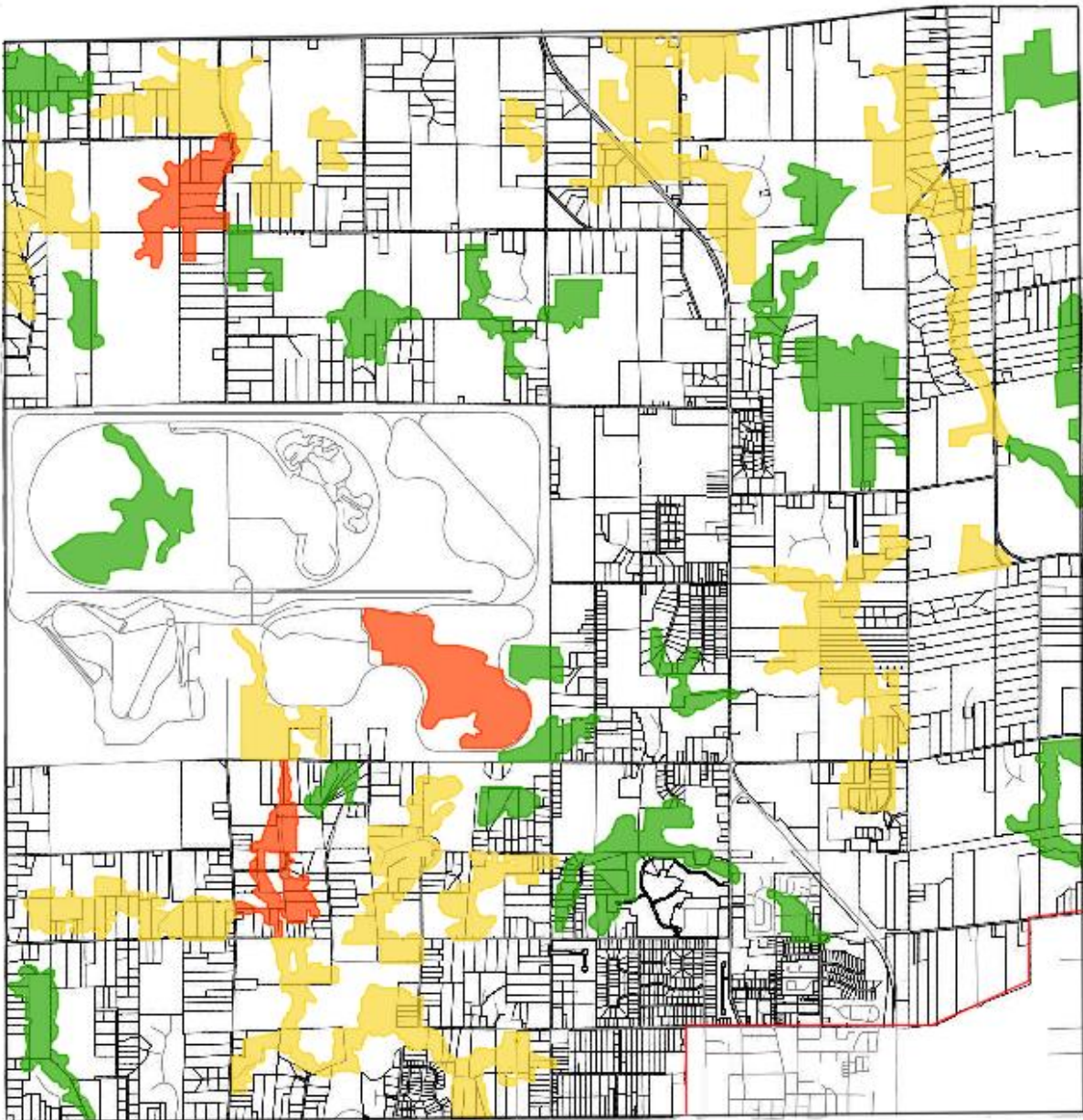
Potential Conservation Areas are defined as places on the landscape dominated by native vegetation that have various levels of potential for harboring high quality natural areas and unique natural features. In addition, these areas may provide critical ecological services such as maintaining water quality and quantity, soil development and stabilization, pollination of cropland, wildlife travel corridors, stopover sites for migratory birds, sources of genetic diversity, and floodwater retention. The delineation of sites was done through aerial photo interpretation, with emphasis placed on 1) intactness, 2) wetlands and wetland complexes, 3) riparian corridors, and 4) forested tracts.

The scoring system used was originally developed by the Michigan Natural Features Inventory (MNFI) and includes the following criteria: total size, size of core area, presence of stream corridor, landscape connectivity (percentage and proximity), restorability of surrounding lands, vegetation quality (percentage and area), parcel fragmentation, and number of element occurrences. For a more detailed description, refer to the overall report, "Macomb County Potential Conservation/Natural Areas Report."

All identified sites, regardless of their ranking, have significance to their local setting. This is especially true in areas that have experienced a high degree of development and landscape fragmentation. However, field inventories should be conducted on identified potential conservation areas, particularly Priority 1 sites. This fieldwork would provide much needed additional site-specific data that should be considered when developing in and around such areas.

Scores for Potential Conservation Area sites in Macomb County are valued from two (2) points to twenty-four (24) points, with a total possible score of forty (40) points on the system established by MNFI. Priority 1 sites (areas of high priority) range from fourteen (14) to twenty-four (24) points. Sites designated as Priority 2 (medium priority) span eight (8) to thirteen (13) points. Priority 3 classifications (lowest priority) have denominations of two (2) to seven (7) points.

Bruce Township contains a number of identified natural features that meet the parameters for the three levels of priority for preservation. The Township contains three (3) areas designated as Priority 1 sites, with scores ranging from fourteen (14) to fifteen (15) points on the developed scoring scale. The first area is located in the northwest corner of the Township. The second and most expansive area is approximately centered in the Township, within the confines of the Ford Motor Co. Proving Grounds. The final site is located towards the southwest corner of the Township between 33 and 34 Mile Road, east of Fisher Road. The Township contains a total of twenty-two (22) sites that are categorized as Priority 2. These sites ranged from eight (8) to thirteen (13) points on the scoring scale. These sites are found throughout Bruce, although most prominently at the northeast, northwest, and southwest corners of the Township. A total of twenty-two (22) Priority 3 sites were identified within the Township with scores of four (4) to seven (7) points. Even more so than sites designated as medium priority, those sites designated for low priority are found all throughout the Township. Again it is important to note that even those sites listed as priority 3 or low priority sites still have great environmental importance.



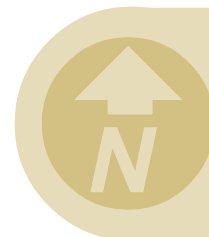
3-7

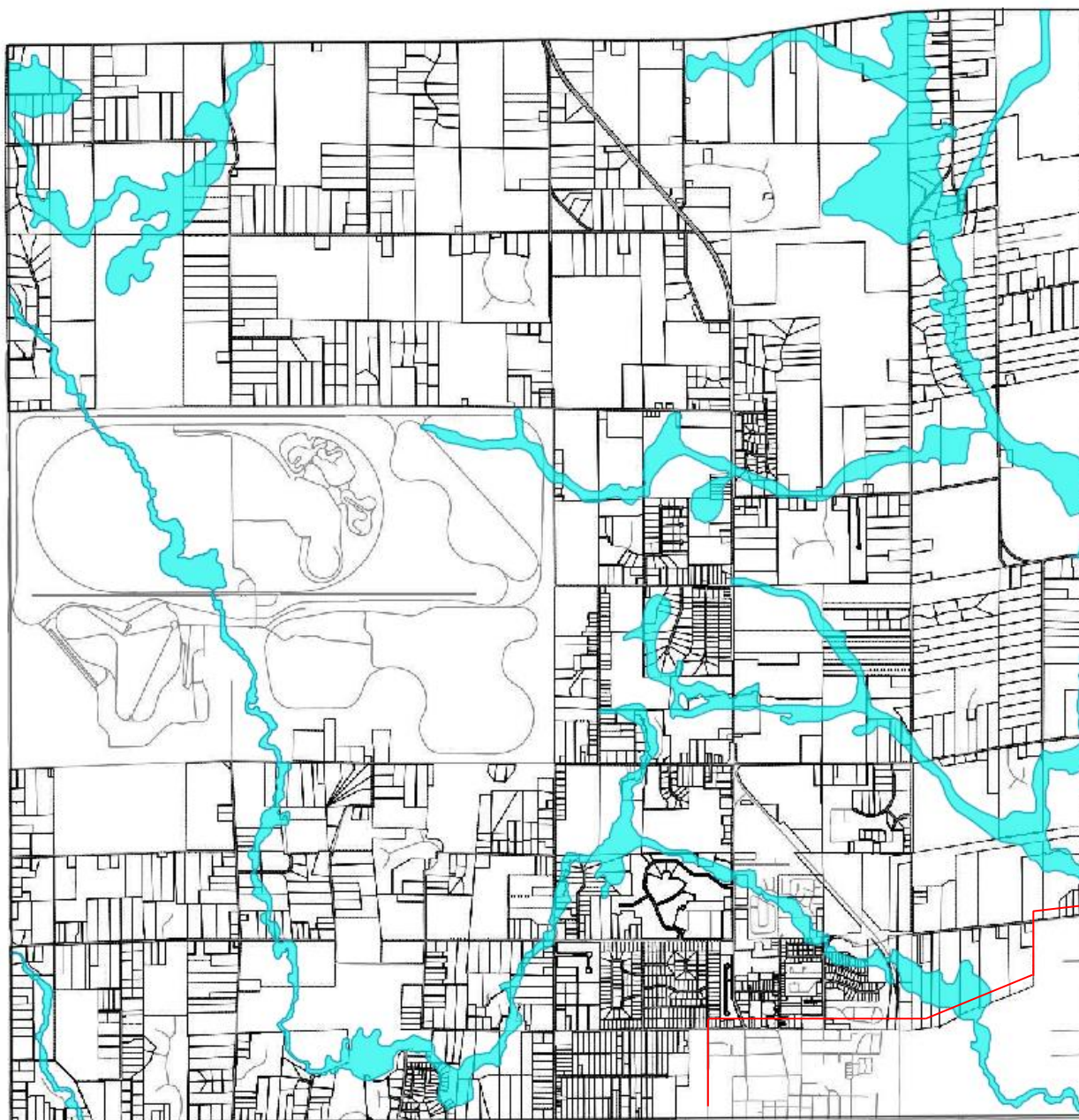
NATURAL FEATURES INVENTORY

- LOW
- MEDIUM
- HIGH

BRUCE TOWNSHIP
Macomb County

Prepared By:
Bruce Township
Planning Commission





3-8

ONE-HUNDRED-YEAR FLOODS

BRUCE TOWNSHIP
Macomb County

Prepared By:
Bruce Township
Planning Commission



FLOODPLAINS

The floodplain area is an important natural resource for several reasons. Not only is it necessary for the prevention of flood damage to development within the Township, but it also serves as an important wildlife habitat, with its unique types of vegetation providing food and cover to many types of animals. In addition, floodplain areas provide a valuable scenic resource and can be utilized for a wide range of recreational activities.

While floodplains do provide a useful service, they also place limitations on development. Floodplains in Bruce Township outline many of the rivers, creeks, drains and lakes discussed earlier in this report. These maps were recently revised by FEMA to more accurately illustrate the likely floodplains within the Township. Illustration 3-8 depicts the one-hundred-year flood zones as recognized by FEMA, which are flood events that have a one percent (1%) chance of occurring in any given year.

CONCLUSION

As this chapter points out, the physical features of the community are nature's contribution to the Township's environment. For a variety of reasons, different communities have different endowments. Physical features appear to either enhance or limit development. Until recent times, development limitations were considered an adverse circumstance and engineered solutions were often employed to overcome natural limitations. Experience has proven that cooperation with nature, using imagination and creativity, is preferable to removing and/or paving over natural features. Because the Township is only partially developed, it should carefully examine each opportunity to maximize its development in a manner that enhances the community's liability. Planning can best assist in accomplishing this by encouraging designs that respect and work with nature.

Section 4.0

EXISTING LAND USE

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

The character of our physical environment is influenced by many factors. Chief among these is the use of land, the distribution of uses within a community, and the relationship of these uses to one another. These factors strongly influence the overall character and image of the community. They also influence quality of life and our relative degree of satisfaction with our surroundings.

Land use characteristics and other relevant physical features are among the most important aspects of the land use planning process. These features establish the observable physical setting upon which the future of the community will be based. They also influence the development potential of the community.

The chief feature of this chapter is an examination of the Township's land use characteristics on a classification basis. Each of the Township's individual land use categories are discussed, including the amount of the land devoted to each category and the distribution of the uses throughout the community. Current information will also be compared to previous land use surveys to illustrate trends.

METHODOLOGY

Bruce Township's boundaries are a product of the Northwest Ordinance of 1787, establishing a uniform system of land divisions into a grid pattern. This system was devised to assist the eventual settlement of the vacant interior portion of the United States. Townships created as a result of this process were subdivided into 36 one-mile square divisions that are known as sections.

The Township's boundaries are formed by Bordman Road on the north, 32 Mile Road and the Village of Romeo on the south, Dequindre Road on the west, and Powell Road on the east.

Existing land use data for Bruce Township is based on a survey performed in the spring of 2006. Aerial photographs and Macomb County existing land use information from the year 2004 were also utilized as a supplement to establish uses. Each land use category was measured to determine the amount of land area occupied by each individual land use class. The results of these tabulations are described in the following pages.

LAND USES

Vacant

A total of approximately 2,100 acres of land within the Township is considered to be vacant. Some of this acreage is farmed, over based on review of aerial photography, properties in this category were substantially vacant.

Farmland

The largest land use category within the Township is farmland. This category represents a total of approximately 7,200 acres. Property utilized for farming is scattered throughout the Township. Farmland within the Township has been converting however to residential uses. Fortunately, most of these residential developments have either been large lot or open space developments.

Single-Family Residential

Single-family homes occupy the largest share of the Township's developed land. For the purposes of this study, all single-family homes located in the Township were considered a part of the single-family residential classification with the exception of those farm houses located on existing farmsteads. Those homes were tallied as a part of the farmland calculation. Approximately 6,000 acres of land are developed for single-family home sites. The majority of single-family home sites are located in platted subdivisions and along the frontages of the major road system. Subdivisions are confined to the southernmost portion of the Township.

Multiple-Family Residential

Multiple-family units occupy approximately 40 acres of land within the Township. Most of this acreage is made up of two family dwellings. Several small multiple family complexes exist on Gates and McVicar Roads.

Manufactured Housing Community

One Manufactured Housing Community currently exists within the Township. The Hometown America community is located on the east side of Van Dyke, just north of 33 Mile Road. Approximately 80 acres are utilized for the development.

Commercial

Approximately 160 acres of commercial and office land currently exist within Bruce Township. The majority of the uses currently existing are located within the planned shopping centers located at 33 Mile Road and Van Dyke. These consist of the Fiddler's Cove Shopping Center

and the Adam's Corner Shopping Center. Additional commercial land uses are found along both sides of Van Dyke. These uses range from doctors' offices, glass sales, bars, etc.

Industrial

Currently, the Township has a limited number of industrial establishments. These establishments include Theut Products Inc. and Ligon Brothers Manufacturing Company, both located along Van Dyke. Other industrial uses are located along 33 Mile Road. In total, approximately 180 acres are being utilized for industrial purposes. Other industrial uses do exist in the 33 Mile Road corridor but are very small in nature and are situated on land which is largely farmed. These properties were included within the farmland category.

Public/Semi-Public

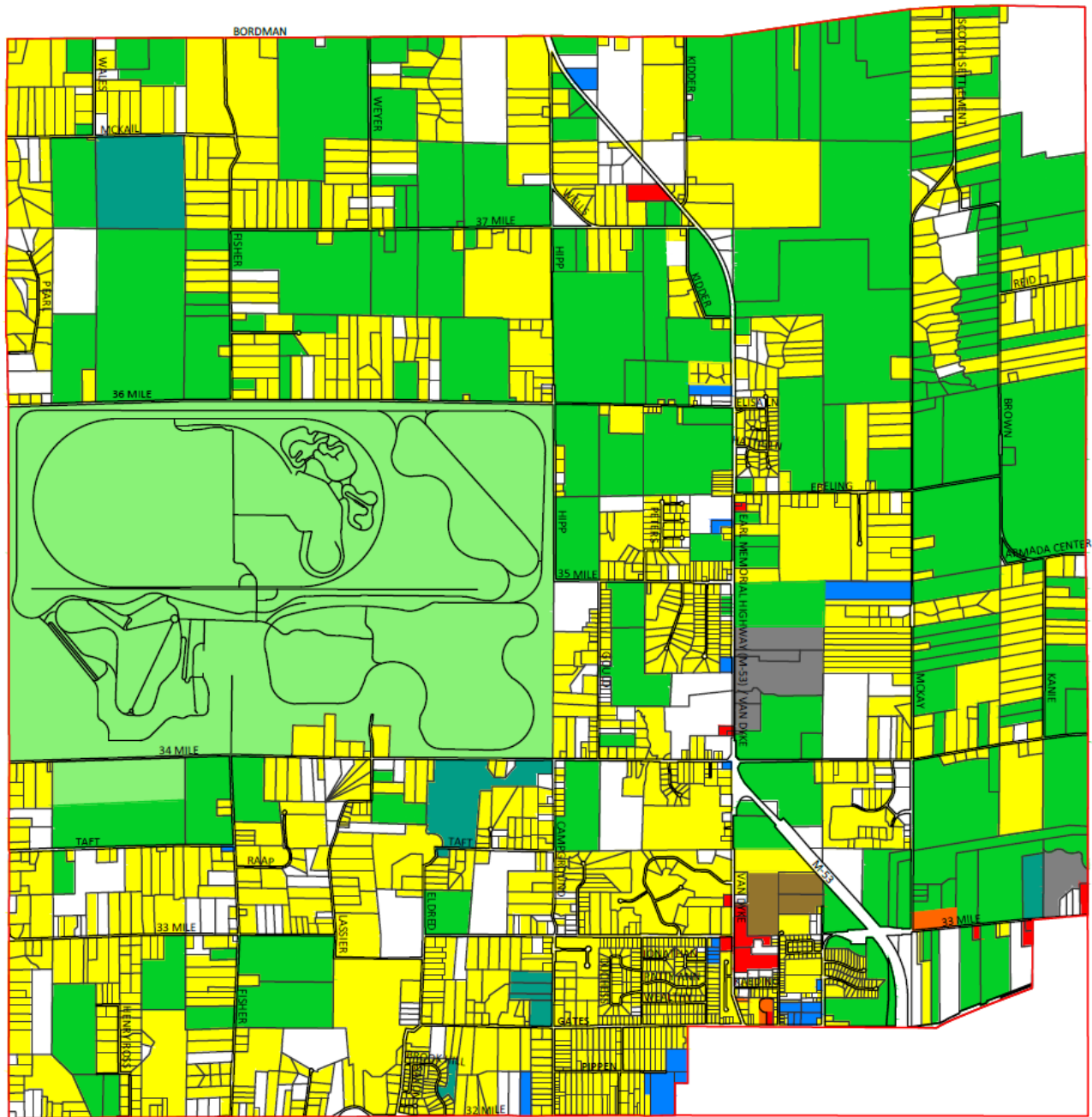
Public uses include public facilities operated by the government such as Township offices, lands for public utility stations, schools, cemeteries, etc. Currently there are approximately 130 acres noted as being utilized for public and semi-public uses. This includes Township Hall, Township Fire Hall, cemeteries, the VFW Hall, the hospital and churches located within the Township.

Park and Golf Course

A total of approximately 350 acres are noted as either parkland or golf courses. This includes the Orchard Hill Park and Crystal Diamonds, Heather Hills, and Bruce Hills Golf Courses.

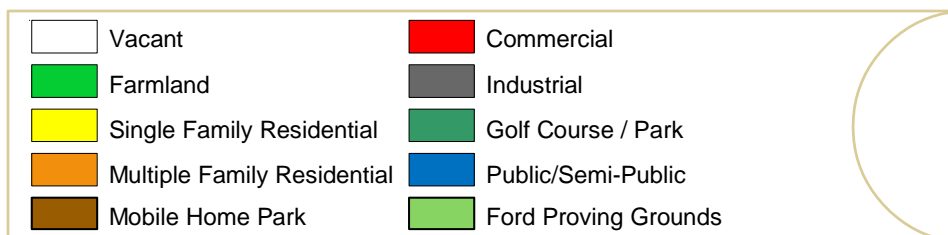
Ford Proving Grounds

A total of 3,900 acres are contained within the Ford Proving Grounds. This facility is largely undeveloped but the site still does contain numerous roads, buildings, and infrastructure.



4-1

EXISTING LAND USE MAP



Section 5.0

GOALS | objectives

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION AND METHODOLOGY

As designated in the Michigan Township Rural Zoning Act (Sec. 27a., P.A. 184 of 1943, as amended), a township has the legal authority to institute a zoning ordinance, which shall be based upon a plan. The Bruce Township Master Plan serves as the planning document that guides modifications to the Bruce Township Zoning Ordinance and shall be a reference for all Township-related zoning decisions. In the broadest sense, the Master Plan is a series of general policies to guide the physical development of the community over the next ten (10) to twenty (20) years. The Plan contains a number of policies, each supported by a group of objectives designed to serve as a guide to consistent and rational public and private decision making in the use and development of land and infrastructure improvements. This Plan has been established with regards to the Township's iterated goals and interests, past planning and zoning decisions, and the availability of such resources needed to support appropriate and legitimate land uses.

On occasion, the basis of Township decisions on planning and zoning issues are challenged. Bruce Township has taken extensive measures to ensure that this Master Plan is not arbitrary, capricious, or without reason. Thoroughly researched and defined statements of Township policy within the Master Plan provide a basis for planning and zoning decisions. Policy statements within the Master Plan also help educate the general public on the rational for, and/or influences upon, decisions made regarding the following issues. Additionally, all land use designations within this Plan have been determined with consideration to the type of uses, scale of impacts, size and character of the Township and adjacent communities, and seek to reflect the input and desires articulated by Township residents.

The Township consistently utilizes the Master Plan during the Planning Commission decision-making process and when agreement on the interpretation of the zoning ordinance cannot be met, the Planning Commission has deferred to the Master Plan for resolution. In order to achieve the goals and objectives stated subsequently in this section, Bruce Township has modified the Plan in such a manner that provides further clarity and reason.

With consideration of the effort that has gone into developing the rational and context of this document, the following statements are provided as the overriding goals of the Master Plan.

MASTER PLAN GOALS

- To preserve and protect the existing natural assets found within the Township. These include the extensive natural topography as well as the extensive woodlots, wetlands, open spaces, and farmland.
- To maintain a sense of pride and ownership within the Township, in particular, to maintain a sense of pride and ownership of this Plan and its recommendations by the residents.

- To promote developments which are sensitive to the existing environmental character of the Township and provide for innovative design and provide a variety of quality living conditions.
- To understand that Bruce Township will largely be a bedroom community where residents will primarily work, shop, and entertain outside of the Township in more densely developed communities.
- To promote and encourage long-range thinking, not only within public officials, but also in the residents. In addition, this Plan should also help in the viewing of issues of a larger scale or context, such as a County or regional level.
- To continue a well-planned growth and development policy by accommodating more densely populated and intense development in those areas of the Township where sewer and water service has been planned and is available while limiting development in other areas of the Township where no public sewer or water service is available.
- To preserve and continue to encourage the high quality community facilities, such as schools, parks, emergency services and open space.

POLICY BASIS

Only through careful analysis of existing conditions and the forces which have brought them about, can the Township understand the interrelationship of current issues which they face, identify their underlying purpose, anticipate future problems, and devise solutions.

Accordingly, the Township identifies its goals and objectives by relating them to current issues and to tangible alternative solutions. At the same time, the Township must attempt to anticipate future problems and recommend the steps necessary to prevent their development or reduce their severity.

No statement of policy or set of objectives, however carefully and analytically developed, will be equally relevant at all times. Movements of people and the stimulation of activities relieve one set of issues and leave others in their wake. The challenge for the Master Plan is to anticipate future land use issues and their relationships and offer policies for dealing with these issues.

This section attempts to reflect the community structure and quality of community life which the Township desires. Decisions cited in this chapter and the resulting objectives are translated in a Master Plan that reflects Bruce Township's key decisions in selecting future development patterns.

MASTER PLAN OBJECTIVES

OBJECTIVES FOR RESIDENTIAL DEVELOPMENT

- Promote the continuance of rural developments and uses within the Peripheral Planning Area of the Township.
- Promote the usage of open space, cluster and planned unit development designs within all sections of the Township.
- Promote the continued development of quality housing.
- Promote low to moderate density housing types which are contained within the Central Planning Area where water and sewer infrastructure already exist.

OBJECTIVES FOR NATURAL ENVIRONMENT

- Promote the conservation of natural resources like woodlands, wetlands, streambanks, steep slopes, etc. through the usage of open space, cluster and planned unit development designs.
- Encourage the preservation of natural drainage courses in their current state(s) by working with the Macomb County Drain Commission.
- Preserve and maintain buffers around natural features in groundwater recharge areas of the Township.
- Preserve existing rural tree-lined streets by working with the Macomb County Road Commission to minimize tree clearing within the road rights-of-way.
- Require that all storm water run-off be retained on site within appropriate storm water retention areas and not be retained within existing wetlands, streams, ponds or lakes.
- Preserve significant vegetative buffers and open spaces along exterior roadways of subdivision and site developments.
- Work with the Clinton River Watershed planning groups to implement water and stormwater best management practices.

OBJECTIVES FOR COMMERCIAL DEVELOPMENT

- Concentrate the majority of future commercial and mixed use development near 33 Mile Road and M-53 where existing water and sewer infrastructure is available and a planned access ramp has been proposed.
- Plan for additional commercial nodes along Van Dyke at the time when market demand indicates a necessity for additional commercial property.
- Continue the high quality and high aesthetic value of commercial development currently found in the Township where water and sewer infrastructure is available.
- Recognize that Township residents have substantial retail opportunities in the communities to the south, especially along the M-53 and M-59 Corridors as well as 23 Mile and 26 Mile Roads.
- Control the number and location of curb-cuts created by commercial/office development to maximize roadway efficiency and safety.
- Control the number and size of development signs within the Township to reduce congestion and confusion along Township roadways.

OBJECTIVES FOR INDUSTRIAL DEVELOPMENT

- Limit the development of industrial parcels to the appropriate planned areas in the southeast corner of the Township, where water and sewer infrastructure is available.
- Promote the development of light or high-tech industrial uses which do not require outdoor storage areas and do not generate excessive nuisances.
- Increase development standards and requirements which upgrade site and building appearance from exterior roadways and public views.
- Wherever possible, encourage the development of industrial subdivisions or condominiums to maximize use of industrially planned and zoned properties.
- Encourage more intense industrial uses which require outdoor storage or create other excessive adverse impacts to be sufficiently buffered and located in the interior of the planned industrial areas.

OBJECTIVES FOR THOROUGHFARES

- Minimize the number of access points resulting from new development along major roadways, in particular the Township's major thoroughfares and Van Dyke.
- Encourage the development of roadway improvements in conjunction with individual land developments, particularly the intersection of M-53 and 33 Mile Road.
- Promote the preservation of scenic roadways within the Township by limiting tree clearings, right-of-way reservation, ditch clearing, etc.
- Obtain rights-of-way, as development occurs, which are consistent with the Township's adopted Thoroughfare Plan.
- Improve the aesthetic views from major public roadways by requiring natural buffer areas between the road right-of-way and the proposed development.
- Recognizing the large number of private road developments in the Township, maintain high construction and maintenance standards for such roads.
- Review the necessity of acceleration and deceleration lanes as well as by-pass lanes for each development and require the development of such as necessary.

OBJECTIVES FOR PUBLIC FACILITIES

- Limit the expansion of sewer and water facilities to the sewer and water district along 33 Mile Road.
- Facilitate the development of a mix of uses in the area of McKay and 33 Mile Roads near M-53, subject to the availability of water and sewer service and a planned access ramp. This will allow for the capture of tap and user fees to cover the cost of installing and maintaining the existing infrastructure as well as expanding the Township's overall tax base.
- Promote and continue the development of high quality fire and emergency facilities within the Township through continued facility planning, vehicle purchase and training.
- Support the development and planned expansions of community services, such as schools and libraries which meet the Township needs while also meeting the Township's planning policies and standards.

OBJECTIVES FOR RECREATION AND OPEN SPACE

Recreation

- Incorporate open spaces, recreational land and facilities into new development by the use of Township's open space and cluster residential development options.
- Preserve and continue to promote high quality parks within the Township such as the 33 Mile Road and Morency Park.
- Preserve and encourage currently owned Township, County, and State lands to remain undeveloped or developed in a low intensity manner.
- Support a pathway system within the Township connecting outlying areas of the Township to the more densely populated areas adjacent to the Village of Romeo.
- Support the continued development and maintenance of the Macomb County Trailway System along the Township's southern boundary.
- Promote the goals and objectives adopted within the current Romeo-Washington-Bruce Recreation Master Plan.
- Reserve and/or purchase additional land or open space to accommodate the anticipated needs of future Township residents.

Open Space

- Preserve the identified natural features of the Township through the use of the Township's open space and cluster residential development options.
- Continue to implement natural feature ordinances and review requirements such as the Township's natural feature setback ordinance into the development process.
- Allow for natural drainage systems as a part of development which allows for further greenscape and open area.

B R U C E
T O W N S H I P

COMPREHENSIVE
MASTER PLAN

Section 6.0

AGRICULTURAL AREAS | plan

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

Bruce Township has traditionally been an open space and agricultural community and still is to this day. The true farming activity has lessened over time; however, several major farms still reside within the Township. Further, within both this Plan and the previous Master Plan, the Township calls for the long-term preservation of remaining farmland as one of its main goals. The Township must derive new and innovative techniques to ensure that the goal of farmland preservation will be viable, while realizing that outside regional influences and growth pressures may have a direct impact on the feasibility of such a goal. The following two sections of the Master Plan, the Agricultural Areas Plan as well as the Residential Areas Plan must work in unity to provide a balance for residential growth and farmland preservation.

ISSUES WITH FARMLAND PRESERVATION

As growth in southeast Michigan continues to spread northward in Macomb County from the south, the issue of farmland preservation has moved to the forefront of rural township planning. Bruce Township being at the northern end of Macomb County, one of the fastest growing counties in the State, must be proactive if farmland and open space is to be preserved in the Township.

Economic Issues - Bruce Township, being a relatively rural Township, has very few land uses outside of agriculture and residential. Some non-residential uses have been developed at the south end of the Township adjacent to the Village of Romeo. Obviously, the presence of the Ford Proving Grounds on the west side of the Township provides a large industrial type use which occupies a large land area. Without the presence of the Proving Grounds, the Township's tax base would be relatively limited.

Past studies, including those from the American Farmland Trust, have shown that agricultural and open space uses require far less services in terms of dollars of service per dollar of tax collected than typical residential development require. These studies indicate that for each dollar in taxes collected from a farm, the farm only requires an average of \$0.34 to \$0.75 in services from the Township. In contrast, residential developments typically require on average \$1.04 to \$1.54 in services for each tax dollar collected. The more farmland and open space that Bruce Township can preserve, thereby reducing dollars of services required, translates into a reduced need for further industrial and commercial properties. The limiting of commercial and industrial properties throughout the Township is consistent with the Township's goals and objectives.

Farming / Residential Conflict – One of the main factors in farmland loss is the introduction or continued development of residential housing into key farmland areas. This factor played a large role in the development of the Right to Farm Act and, more specifically, the Generally Accepted Agricultural Management Practices (GAAMP's). These two documents provide protection for farmers from nuisance claims of adjacent or nearby residents. New homeowners typically do not realize the equipment that is necessary, the schedules kept by farmers, and the associated practices within the farming industry. These unrealized issues typically result in complaints, vandalism, or even court action against the farmer. But under the Right to Farm Act and the GAAMP's, the farmer is afforded general protection. In an effort to eliminate or reduce the number of conflicts between residents and farmers, the simple solution is to isolate both entities. This promotes the idea that agriculture is an industry, not merely a land use.

AGRICULTURAL DATA

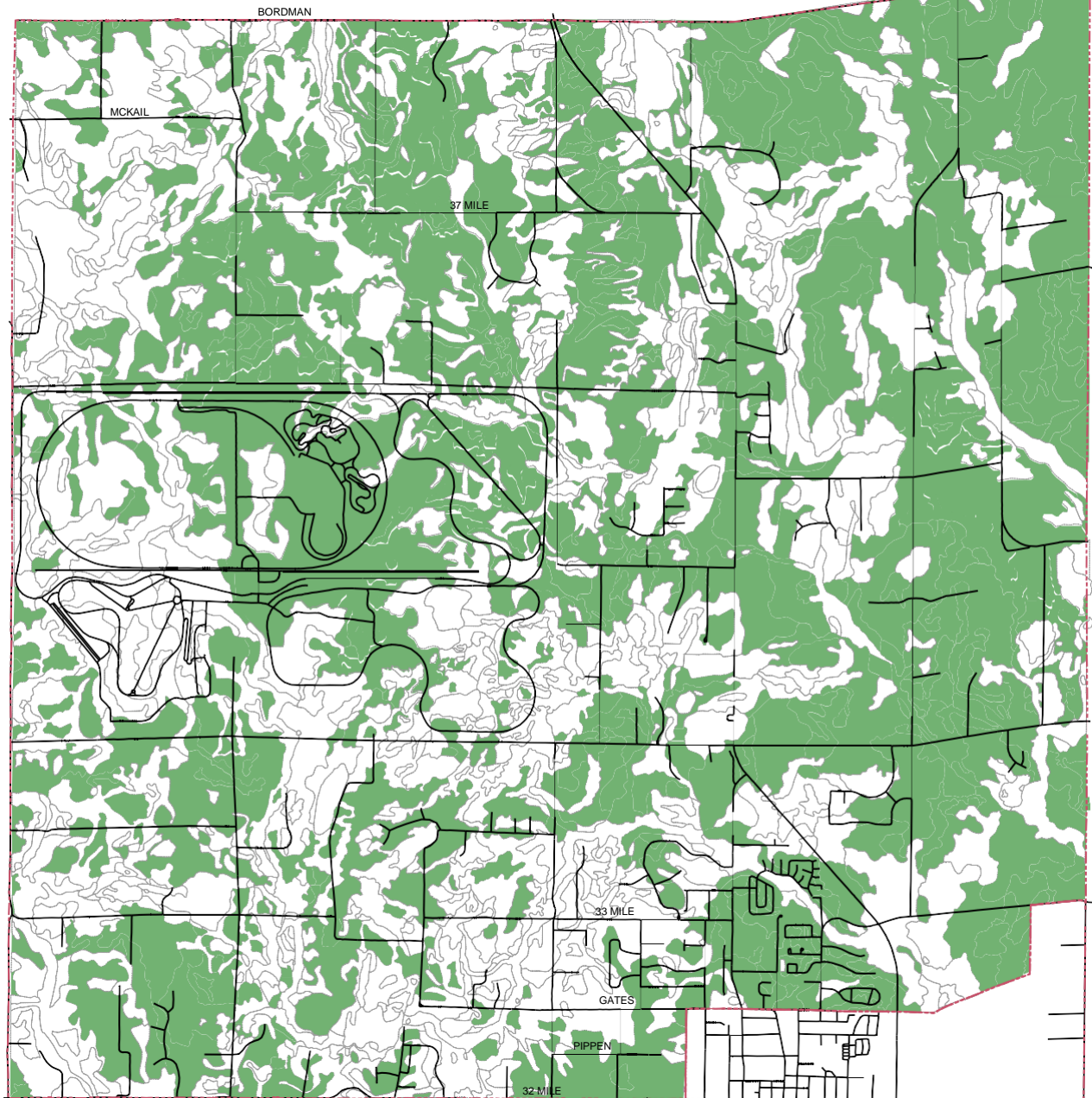
PRIME AGRICULTURAL LAND

One of Bruce Township's most significant land use characteristics is the abundant quantity of existing open space and farmland. Soil data is the principal source of information used by the

U.S. Department of Agriculture Soil Conservation Service (SCS) to determine those areas of the County that have the greatest potential for long-term agricultural production.

- Soils capable of providing yields of crops common to the area that are equal to or greater than yields from well-managed, deep, well drained sandy loams.
- Soils quality, a growing season, and moisture conditions necessary to provide a high yield of crops economically if managed in accordance with modern farming methods.
- Slopes of less than six (6) percent.
- Active rooting depth of at least twenty (20) inches.
- Soils that are not waterlogged. Waterlogged soils are those that have standing water as much as six (6) inches deep several times during the growing season.
- Soils that do not flood more than once every two (2) years.
- Soils that present no particular difficulty in cultivating with large equipment (less than ten (10) percent is covered with coarse rock fragments).
- Soils with the potential of being made private agriculture through economically justifiable investments and practices, including drainage, clearing, irrigation, etc.

Soil and Conservation Service mapped the locations of important farmlands in Macomb County in 1971. As a consequence of the County's continued urbanization in recent years, significant amounts of agricultural land have been converted to other uses. In Bruce's case, the conversion has been to single family residential use. In general, land identified by the SCS as being well suited for farming is located throughout most of the Township. The farmland mapping for Bruce Township does not provide data for the six (6) square miles of the Ford Proving Grounds. However, the majority of the remainder of the Township is covered by what is considered prime farmland, as seen in Illustration 6-1. The areas between Van Dyke and Campground, from 32 to 34 Mile Roads contain large portions of land that is not considered as prime farmland. This is also true for the areas immediately along the Township's western boundary essentially from 32 Mile Road to Bordman Road. These sporadic areas are likely as a result of the large amount of wetland area throughout the community as well as the probability of some sand courses along the Township's western boundary.

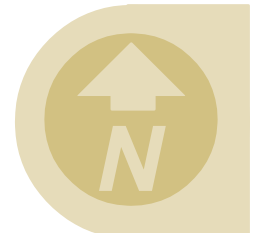


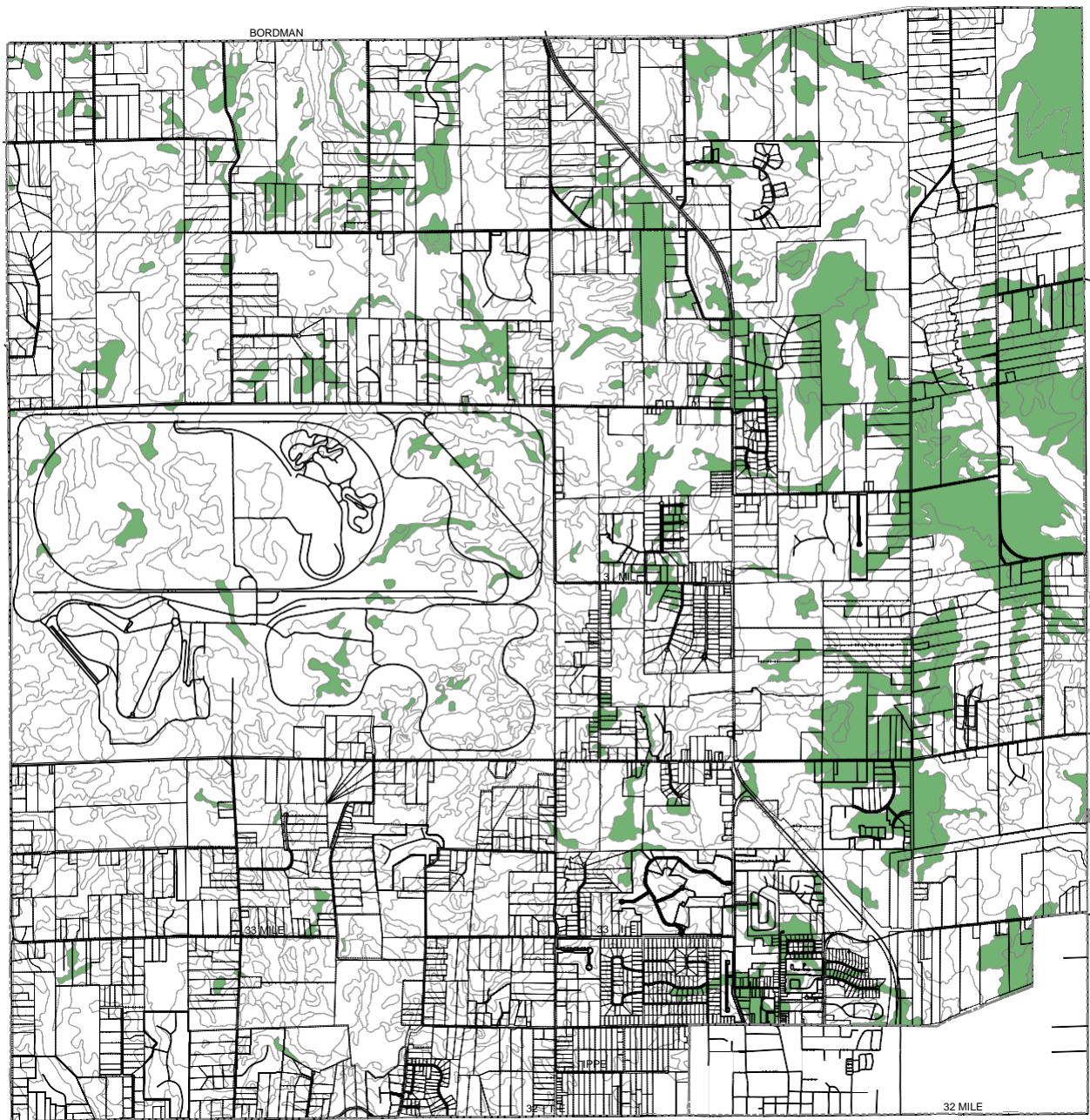
6-1

PRIME FARMLAND

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission

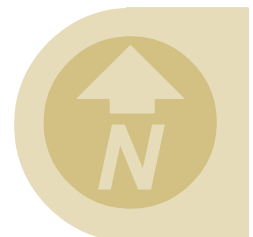


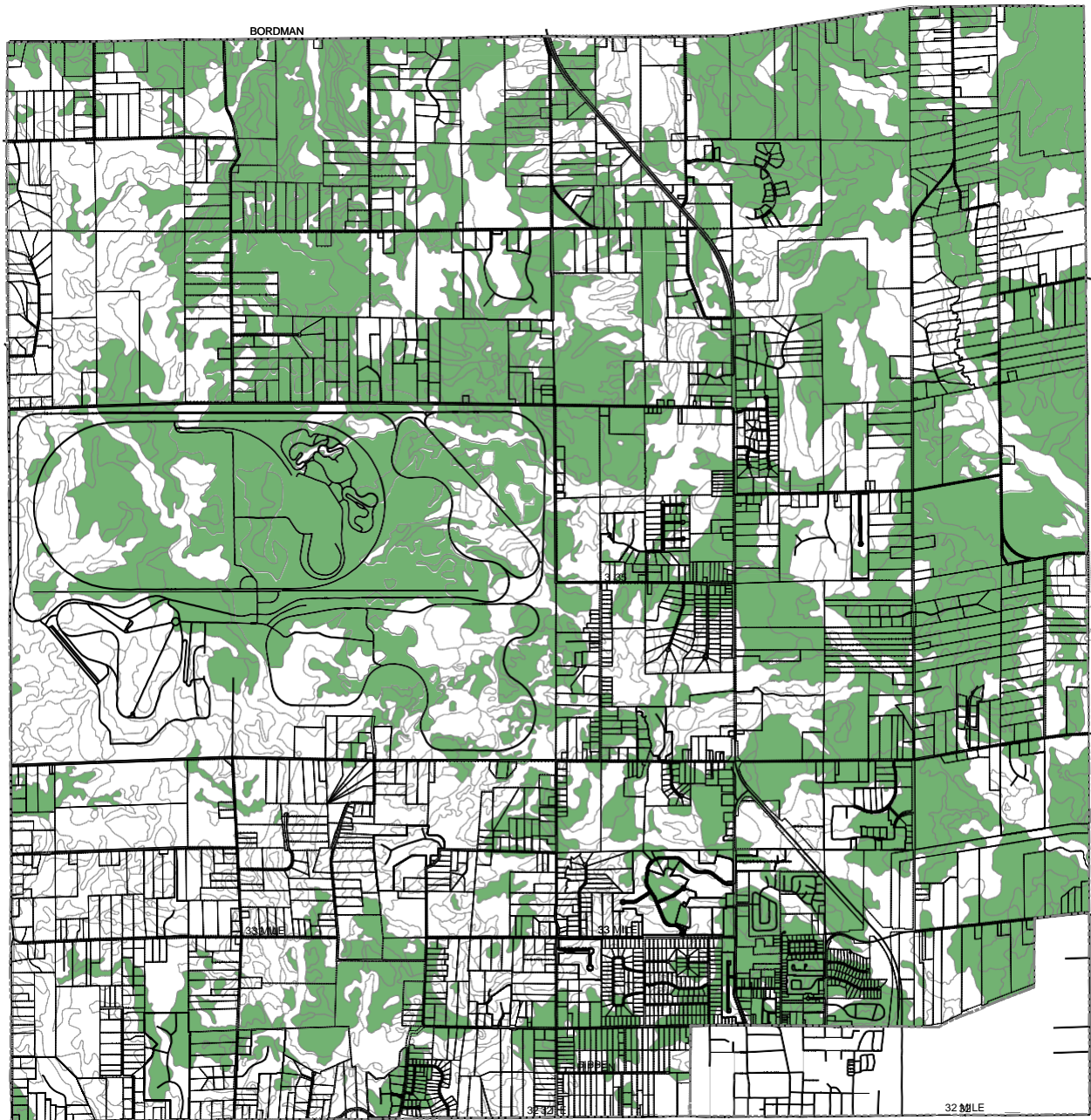


6-2 SOILS PRODUCING 100 BUSHELS OF CORN/ACRE

BRUCE TOWNSHIP
Macomb County

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Bruce Township
Planning Commission



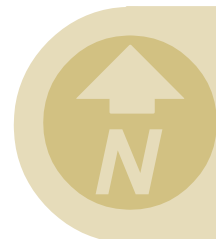


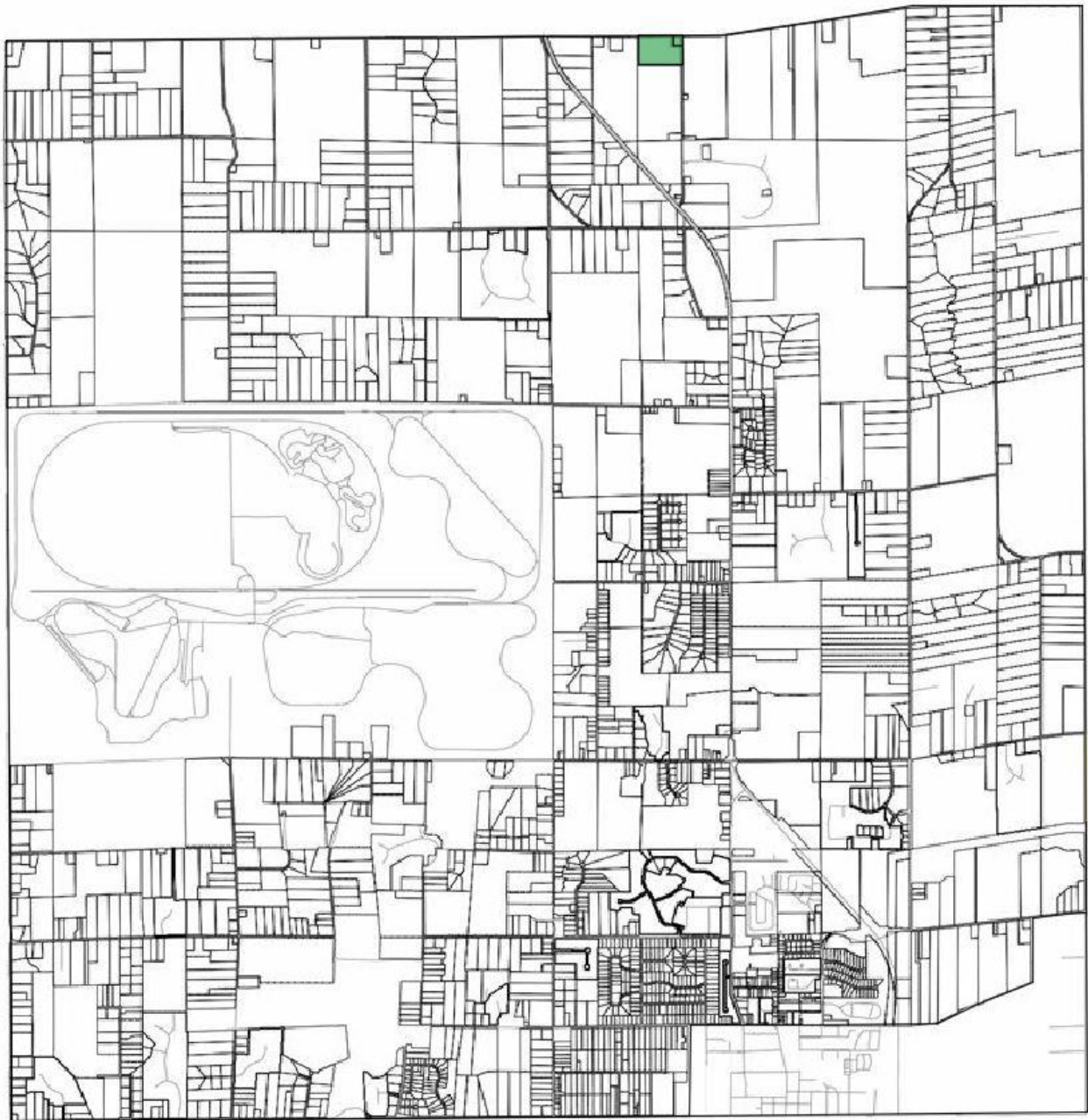
6-3

CLASS II SOILS

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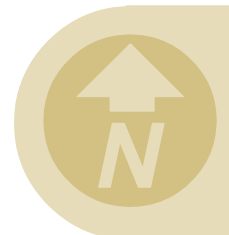
6-4

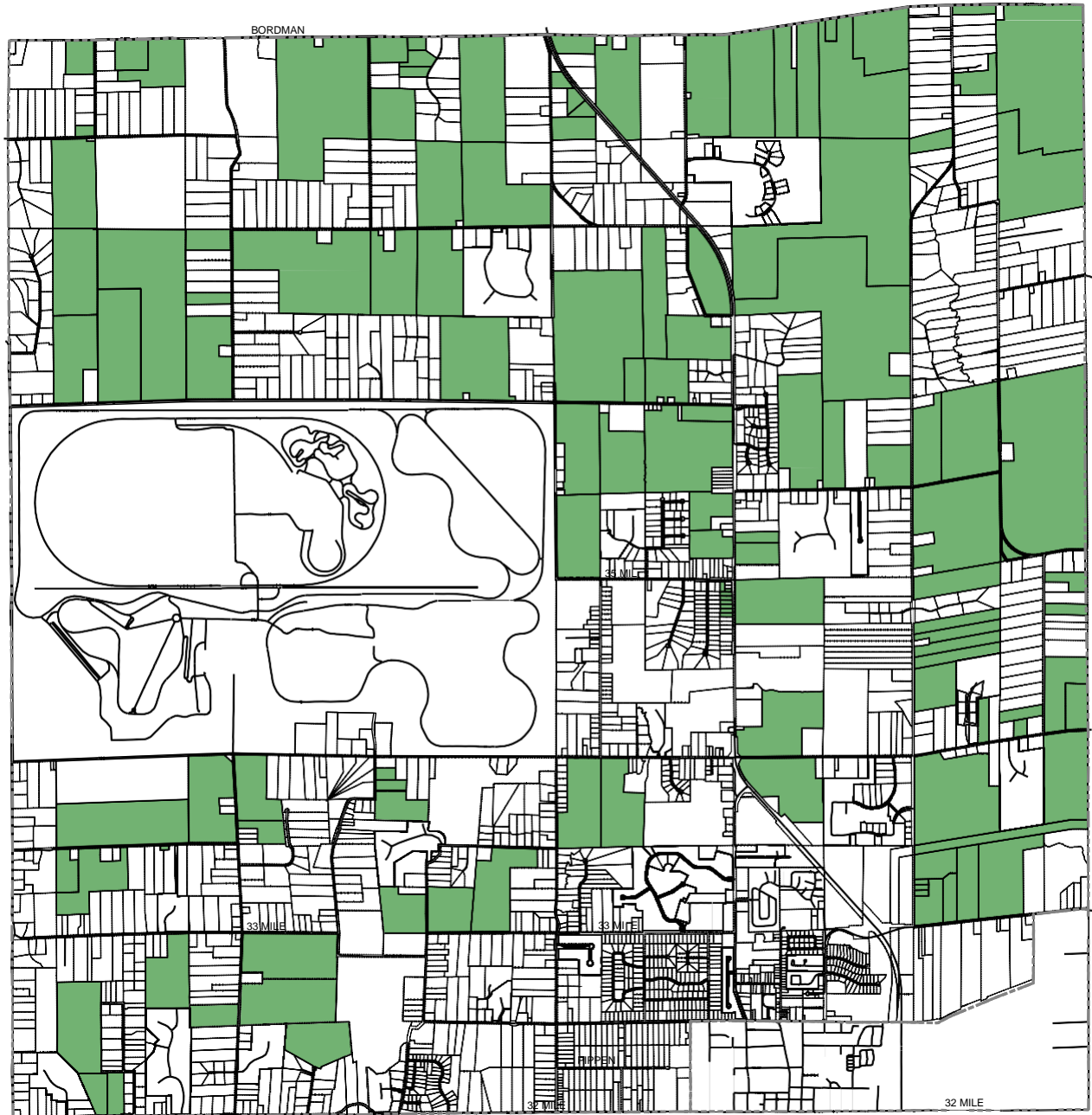
P.A. 116 PROPERTIES

*This P.A. 116 property expires in
2018, unless renewed

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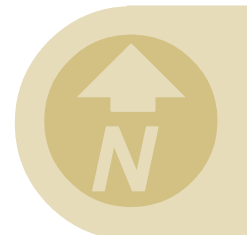


6-5

CURRENT FARMLAND & OPEN SPACE

BRUCE TOWNSHIP
Macomb County

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Planning Commission



LAND THAT PRODUCES 100 BUSHELS OF CORN PER ACRE

Another means of determining agriculturally valuable land is to assess how much land within the Township contains soils which typically produce at least 100 bushels of corn per acre per year (with improvements). Only a small portion of the Township falls under this classification. The northeastern section of the Township contains the majority of these soils. These soils are generally in the area of Armada Center and McKay Road, Brown Road, and Scotch Settlement, north of Ebeling Road. The majority of the western portion of the Township does not contain soils which are fertile enough to produce such high yields.

SOIL CLASSIFICATION II

The Soil Conservation Service also provides soil classifications as to the productivity of each soil type. These classifications rate each soil as to their productivity for agricultural purposes. Based on the Soil Conservation Service, Class I and II soils are the most productive soils for agricultural purposes in Bruce Township. The soil composition of Bruce Township provides a much larger amount of Class I and Class II soils than those noted above. Again, the southwestern portion of the Township lacks many of these productive soils. Generally, the northeastern one-half of the Township contains primarily either Class I or Class II soils. Areas that are designated as Class I or II soils are depicted on the previous Illustration.

PUBLIC ACT 116

To help preserve farmland in the past, the State of Michigan enacted P.A. 116 which grants tax benefits for farmers who enroll their properties in the program. In return for the tax benefit, farmers sign agreements that prohibit the farmers from developing their property for urban development purposes. However, a P.A. 116 agreement is temporary, so after the established life span has expired, the farmer is free to do with the land as he or she pleases. If the farm is sold or the P.A. 116 agreement is voided prior to the expiration of the agreement, the farmer or purchaser of the property must pay back the State the difference or taxes saved over the last seven (7) years. This Public Act, while not a permanent farmland preservation tool, is and has been one method of reducing the impacts of urban taxes on farming. As depicted in Illustration 6-4, there is currently only one (1) P.A. 116 property in Bruce Township which expires in 2018, although there have been more in the past which have elapsed.

CURRENT FARMLAND & OPEN SPACE

Throughout the Township, there are a number of properties which are either currently tilled or remain otherwise open. Again, the majority of these parcels are found within the northeastern half of the Township. These properties are also the largest in terms of continuity of land. The current farmland and open space properties coincide largely with those areas which have either Class I or Class II soils.

PARCELS OVER 40 ACRES

Within the Township, a total of approximately three hundred and thirty (330) parcels are over forty (40) acres in size. Parcels of this size are deemed as being the most appropriate minimum acreage for farming activities. However, it is noted that farms on smaller size parcels are becoming more popular for the purpose of specialty farms as well as hobby farms. A forty acre parcel provides a substantial enough area on its own to justify the moving of equipment, planting of crops, etc. Again, this is not to say that smaller parcels should not or cannot also be farmed. Parcels of this size and larger are found throughout the Township but again, the northeastern half of the Township contains the largest percentage.

AGRICULTURAL PRESERVATION DISTRICTS

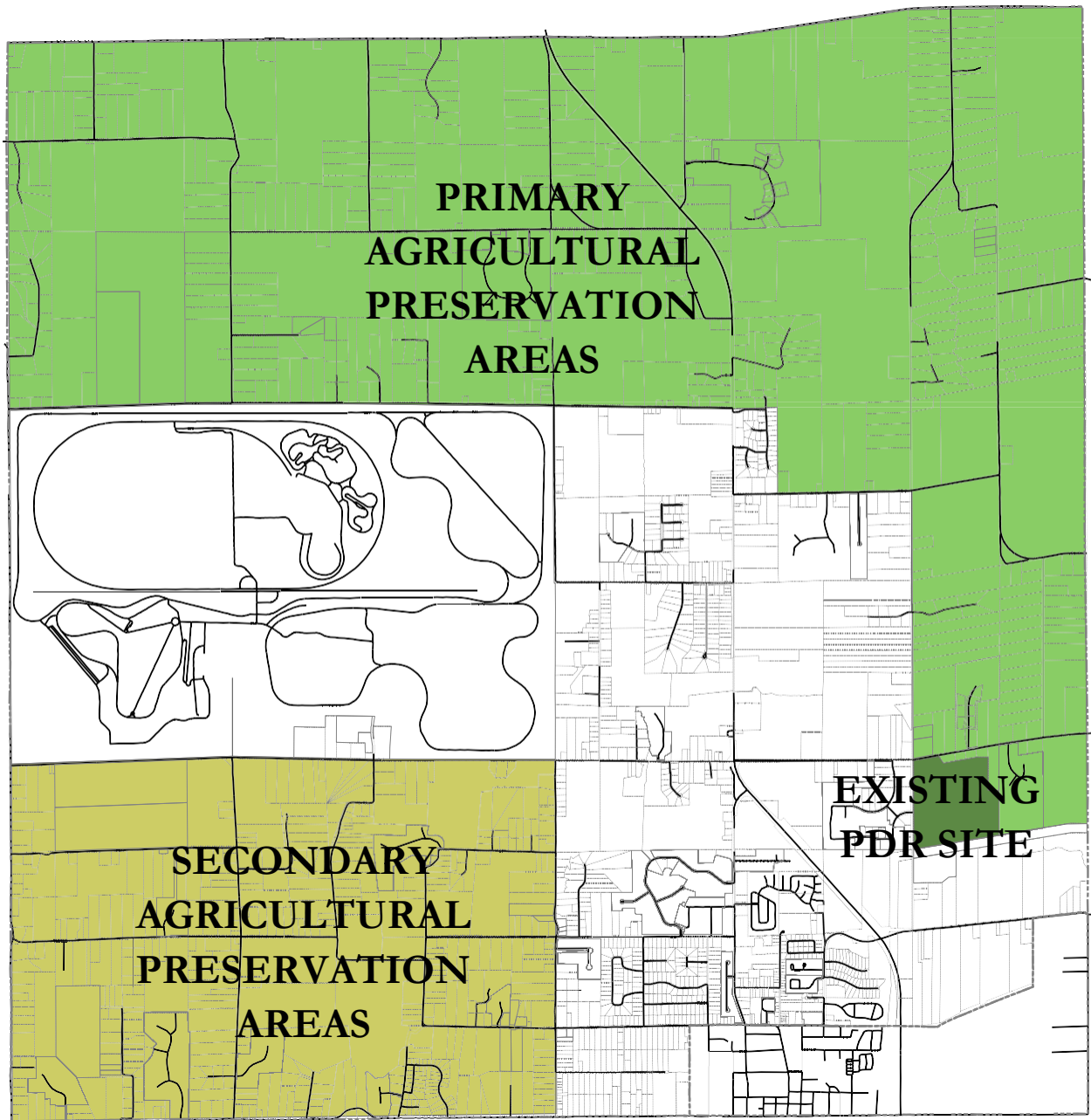
In an effort to establish those areas or blocks of farmland which are best suited for continued agricultural purposes, the aforementioned information was overlaid to create a Primary Agricultural Preservation District, as well as a Secondary Agricultural Preservation District. This District is the combination of areas that are made up of lands that are currently farmed, Class I and II soils, soils that are conducive to producing over 100 bushels of corn per acre per year, and prime farm lands. The combination of these elements on a single farm provides a basis for which agricultural preservation is most likely to occur.

These blocks are developed in conjunction with P.A. 262 of 2000 which allows Townships to designate areas which they believe are the most suitable areas for long-term farmland operation. These blocks are areas where the Township should work with farmers and the State Department of Agriculture in applying for Purchase of Development applications.

For Bruce Township, the primary agricultural preservation area is shown on the following map. This area runs from 36 Mile Road (west of Van Dyke) and Ebeling Road, to McKay and the Township's industrial district (east of Van Dyke) to the northern boundary of the Township across the entire width of the Township. This area, as noted in the previous text, has the largest amount of soils conducive to long-term agricultural preservation as well as the largest number of current open space and farmland.

The secondary agricultural preservation area is also shown on the following map. It contains essentially six (6) square miles of land area and runs from 32 Mile Road on the south to 34 Mile Road on the north, Dequindre Road to the west and Campground Road to the east. This area does contain a large number of divided properties and does not contain the most conducive soils for long-term farming. However, several farms do exist in the area. The Township promotes the long-term existence of those farms and open spaces and, therefore, has dedicated the area as a farmland preservation area.

The third area shown on the map is the property that the Township purchased the development rights for in 2008. This property was the first acquisition of this type and shows the Township's commitment to long term rural and farmland preservation.

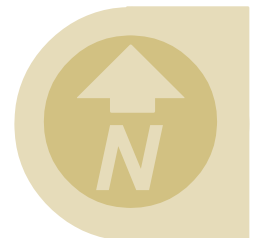


6-6

AGRICULTURAL PRESERVATION AREAS

BRUCE TOWNSHIP
Macomb County

Prepared By:
Bruce Township
Planning Commission



IMPLEMENTATION TECHNIQUES

Purchase of Development Rights – The State of Michigan passed P.A. 262, which provides for the purchase of development rights through the local unit of government in conjunction with the State Agricultural Department. This farmland preservation option allows the municipality to purchase the density rights of the property, while leaving all other rights associated with the property with the landowner. This preservation option maintains farms as farmland or open space (the farm is retired while the landscape is preserved) in perpetuity. Public Act 262 provides the mechanism for matching State funding for Townships or other municipalities to purchase farmland development rights. The steps required to qualify for matching funds for the purchase of development rights are as follows:

- Have adopted within the last ten (10) years, a comprehensive land use plan that includes a plan for agricultural preservation.
- Have adopted a development rights ordinance providing for a purchase of development rights program pursuant to the County Zoning Act, or the Township Zoning Act, containing the following:
 - An application procedure
 - The criteria for a scoring system for parcel selection within the local unit of government.
 - A method to establish the price to be paid for development rights, which may include appraisal, bidding or formula based process.
- Indication of which parcels, the size of those parcels, and the location that are proposed for PDR.
- Indication of local matching funds coming from either the Township or the County.
- An estimation of the value of the agricultural conservation easement.

With the development of this Master Plan, the Township has now completed the first and third points noted above. In addition, the Township has also adopted a PDR Ordinance which is further explained below.

PDR Committee - In 1997, an initiative was begun by a group of interested citizens concerned with the loss of farmland and open space in Macomb County. This group helped to spearhead an effort wherein local units of government in Macomb County would request the establishment of a County “Farmland and Open Space Preservation” task force to discuss and review the loss of farmland and open space in the County. As a result of their effort, the Macomb County Board of Commissioners voted to create the Macomb County “Farmland and Open Space Preservation Ad Hoc Committee”. The purpose of this Committee was to examine agriculture and open space in Macomb County and to make recommendations regarding strategies for preservation.

In the year 2000, a parallel group was established by five (5) of the townships located in the northern portion of the County. The five (5) townships participating on the Committee, which was originally named the “Northern 5 Committee,” included Armada, Bruce, Lenox, Ray and Richmond Townships. Washington Township opted to participate with the PDR movement in 2006. Subsequently, the name was changed to the Macomb Agricultural Purchase of Development Rights Committee (MAPDRC).

The purpose of the Committee was to develop a local Purchase of Development Rights (PDR) program in the County. Twenty (20) individuals participated on the Committee, with monthly meetings being held. The Committee accomplished their goal of developing a model ordinance as well as a scoring system, which has been adopted. The Committee has now moved on to the second phase of their work and has been reviewing PDR applications for the northern communities as well as successfully securing grant monies through the local municipalities and the State. As of 2008, MAPDRC has preserved nearly forty (40) acres of prime farmland within Bruce Township.

Planning Recommendation: Continue to participate within the PDR Committee to assure the potential for long-term farmland preservation. This includes volunteer efforts on that Committee, securing monies for operating and matching funds for any potential purchase of farmland as well as ensuring the Township is current with its planning and zoning efforts to ensure grant eligibility. Planning efforts would include keeping farmland and open space preservation as one of the main goals of the Township Master Plan, providing text and mapping in the Master Plan that encourages farmland preservation and notes those areas where such should occur. Finally, limit the extension of public sewer and water infrastructure in those areas where farmland and open space preservation is most desirable.

Zoning Recommendation: Work to develop a value added farming zoning regulation to help farmers evolve within a changing agricultural economy while protecting the long term interests of the Township. An ordinance may include the amount of “non-agricultural” material which can be sold on site, the types of ancillary activities which can occur as a part of the farm operation, as well as safety considerations for patrons of the farm market.

Planning Recommendation: Consider developing a transfer of development rights plan for the Township if and when such option becomes available. This would allow density transfers from the agricultural preservation areas noted in this section of the Plan to other areas of the Township where public sewer and water infrastructure may be available and where transportation access is more suitable for higher densities. Again, this option is technically not permitted within the State at this time; however, the topic is being considered and may be available at a later date.

Zoning Recommendation: Develop a mandatory Open Space Development Ordinance for the Township’s larger lot sizes. If future developments were to be developed in this fashion, the benefits in terms of open space and farmland preservation may be twofold. First, the development of open space areas throughout the development may allow further separation between existing farmland areas and the proposed residential development. The second benefit may be to allow the preserved open space areas to be utilized for farming purposes. In this instance, the impact to the residents of the development would be known at the time of purchase and theoretically, only those persons who desire to live next to a farm operation would purchase a home within the development.

This Ordinance requirement would likely be located within the Township’s Subdivision development standards. Therefore, the requirement would only apply to those lands being developed as a subdivision or a site condominium.

Section 7.0

DEVELOPMENT | plan

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

This section of the Master Plan considers the development potential within different areas of the Township. The Development Plan identifies areas of the Township that are best suited for different densities, future land uses, and preservation. The potential of these areas is determined with regards to carefully articulated goals, the existing pattern of development, and the availability of infrastructure. Bruce Township has traditionally been a rural, residential bedroom community with its retail needs largely serviced by the Village of Romeo and the more developed communities to the south such as Washington and Shelby Townships as well as the City of Sterling Heights. The Township has gone to great lengths to retain this established character by identifying those areas of the Township that are appropriate for different densities and types of land uses by providing infrastructure and services in those areas best suited for more intense development while preserving farmland and open-space in those areas less suitable for development.

BASIS FOR PLANNING AREAS

Bruce Township has established three (3) general planning areas, which are depicted in Illustration 7-1. These designations have been created based on similar land uses, characteristics, goals, and the potential for development within each of the planning areas. By establishing generalized areas, Bruce Township is able to evaluate development and land use proposals through a wider lens and determine whether a project is in-keeping with the local planning area and available resources. The Township hopes that founding these planning areas and incorporating each area's existing and future land uses, density designation, infrastructure availability, and septic capacity of the soil will prevent decisions from being made based on individual parcels, and instead will promote an over-arching premise for sound land use decision-making.

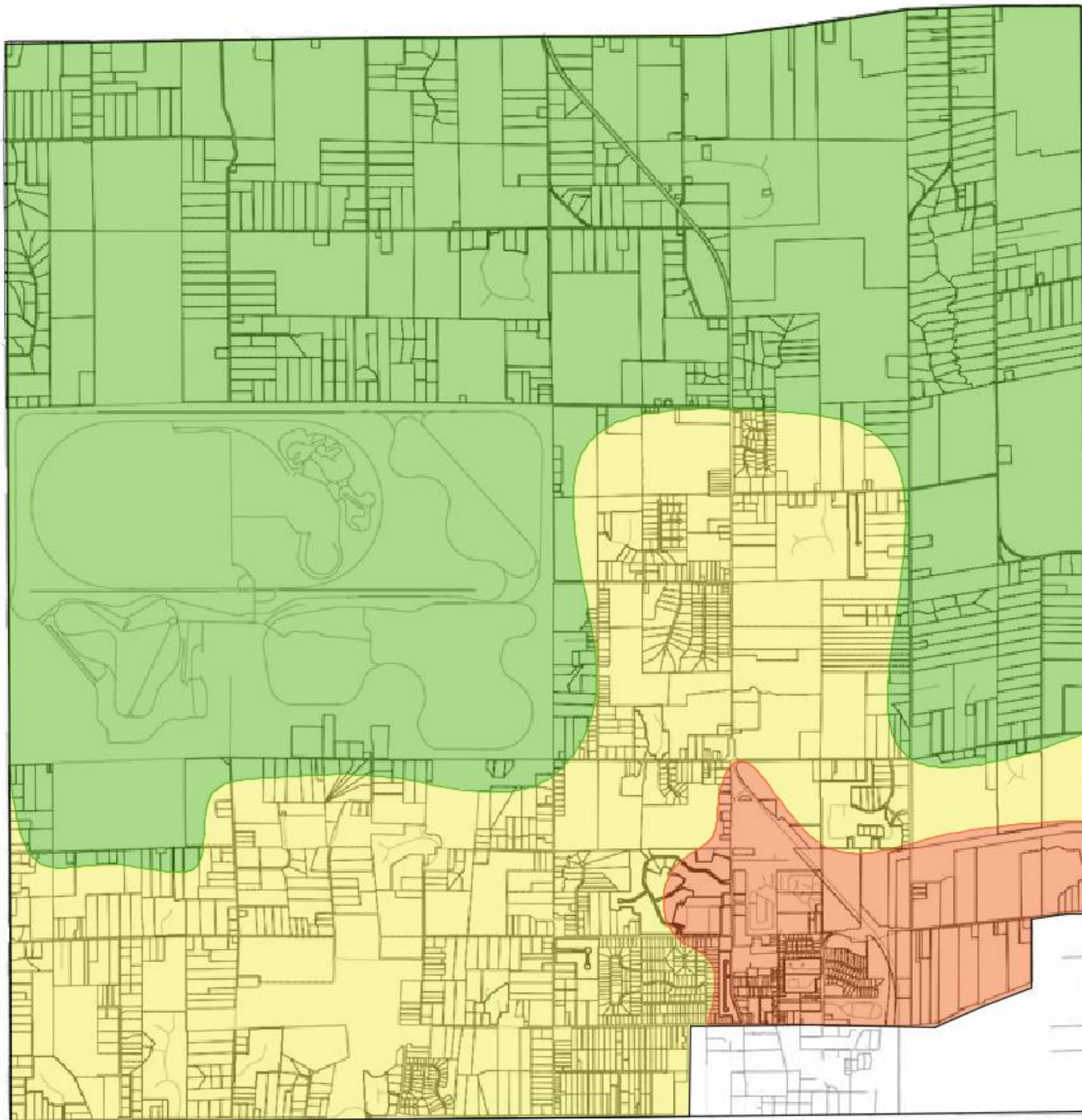
LOCAL PLANNING AREA DESIGNATIONS

Central Planning Area – The Central Planning Area is roughly bounded by the Village of Romeo to the south, 34 Mile Road and Taft Road to the north, the properties along Van Dyke Road to the west, and the Township boundary to the east.

Transitional Planning Area – The Transitional Planning Area is roughly bounded by the Township boundary to the south and west, the Central Planning Area to the south and east, McKay Road to the east, and 36 Mile Road and the Proving Grounds to the north.

Peripheral Planning Area – The Peripheral Planning Area is roughly bounded by the Township boundary to the north, east, and west and the Transitional Planning Area to the south.

See Illustration 7-1 on the following page for a map of the Township outlining each planning area.



7-1

PLANNING AREAS

- CENTRAL PLANNING AREA
- TRANSITIONAL PLANNING AREA
- PERIPHERAL PLANNING AREA

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



PLANNING AREAS

CENTRAL PLANNING AREA

Overall Density and Use Designations

The Central Planning Area contains the majority of the Township's commercial, industrial, and mid to higher density residential designations. The predominant residential zones in this area include R-1B Residential One-Family, RM-1 Residential Multiple Family, and MHP Mobile Home Park, which have a recommended lot size equivalent to one half acre or less in size.

Both of the Township's existing commercial centers are located within this planning area. These two centers are adjacent to one another at the intersection of 33 Mile Road and Van Dyke. The Fiddler's Cove Shopping Center, located at the southeast corner of this intersection, has provided the Township with a number of retail uses for the last twenty years. The overall appearance and function of the center shows the Township's dedication to requiring first rate development. The Center is now completely built out with the completion of phase II at the north end of the site near the entrance to the Hometown America site as well as the construction of the restaurant outlot.

The other major shopping center located within the Township is at the southwest corner of 33 Mile Road and Van Dyke. This center is the result of the retrofitting of an old industrial building which had fallen into disrepair. The center is now home to a major tenant space as well as five (5) to eight (8) additional retail uses which provide day-to-day shopping and dining needs to Township and Village residents.

The southeast corner of the Township has traditionally been dedicated to industrial purposes. The planned industrial district is located on both the north and south sides of 33 Mile Road (see Illustration 7-2) which was recently paved to provide better transportation access to the current and future industrial users. Powell Road then provides truck access out of the Township through the industrial districts of Armada Township and the Village of Romeo. This area is also serviced by the Township's limited sewer capacity via the mutual operating agreement with the Village of Romeo. This area of the Township also has municipal water service and additional capacity may be allocated within the industrial district as such developments occur that require it. The industrial land use designation is intended to accommodate light assembly operations, warehousing and similar activities which are conducted primarily in a building. While some more intense industrial uses may be appropriate within the interior areas of the industrially designated areas, their locations should be more carefully regulated and will be limited to available water and sewer service.

Although this planning area is substantially built out, several developable parcels still remain, including properties on the south side of 33 Mile between M-53 and Powell Road. Additionally, the commercial and industrial zones within this area are largely under-utilized. Vacant lots within the Central Planning Area should be the primary location for more intensive land uses proposed for the Township since this area has the capacity to sustain some moderate to higher density developments.

Infrastructure Availability

The Central Planning Area contains the entire Water and Sewer Districts, as depicted in Illustration 7-2. While these utilities are not envisioned to extend throughout other areas of the Township, there are taps that have been allocated but not yet utilized within these districts.

Roadway access

Access to this planning area is primarily from Van Dyke, M-53, and McKay. The streets within the Village also allow for access; however, these are essentially residential streets not designed for large amounts of traffic or heavy trucks. Several of the streets which service this area such as the extension of Mellen and Kaeding Roads should not be utilized to accommodate additional traffic due to their limited size and condition. MDOT recently approved a break in access at the M-53 and 33 Mile intersection and the Township has proposed the development of a new ramp, which will provide greater accessibility to this area.

Environmental Issues

In this area of the Township, soil considerations, in terms of appropriateness for septic systems, is largely negligible due to the presence of sanitary sewer service. The soils map, Illustration 3-4, however, notes that nearly the entire planning area has severe limitations for septic systems.

Only one identified natural feature completely falls within this planning area. It is located at the terminus of Mellen Road. Additionally, portions of two other natural features exist within the boundary of this planning area. These can both be found between 33 Mile and 34 Mile, one along Van Dyke and the other along the eastern border of the Township. The floodplain and wetland issues associated with these properties will make development difficult, and it is imperative that any final design incorporates and preserves these natural features along the East Pond Creek.





Manufactured Housing

The Township's only manufactured housing community is located within the Central Planning Area. Currently, the development contains a total of 404 sites. The triangular property immediately to the east of the mobile home park at 33 Mile Road and M-53 is planned for RM-1 Residential Multiple Family Residential as a transition and buffer between the single family to the south and the M-53 expressway. Similarly, the "Edgemont" development to the south along M-53 was planned as a single family neo-traditional open space development where the open space along M-53 would provide a buffer/transition. Several small multiple family developments are also contained within this area of the Township. These range from duplexes to apartment complexes.



7-2

CENTRAL PLANNING AREA

-  CENTRAL PLANNING AREA
-  INDUSTRIAL DISTRICT
-  WATER DISTRICT
-  SEWER DISTRICT

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



TRANSITIONAL PLANNING AREA

Overall Density and Use Designations

The Transitional Planning Area is predominately comprised of two of the Township's low to moderate density single-family residential zoning designations. These include the R-1 Residential One-Family and the R-1A Residential One-Family Districts. The proposed lot densities associated with these districts are two (2) units per acre and one (1) unit per acre, respectively. This area provides a transition between the higher densities to the south (Central Planning Area) and the lower density two (2) and five (5) acre lots planned to the north and east (Peripheral Planning Area).

While a large portion of this area is already split in acre lots or larger, providing the general character of the area, several large developable parcels exist within this corridor. These properties should be developed consistent with the densities of the existing developments and in accord with the available resources.

In addition to residential uses, the Township has planned for a few select non-residential nodes along Van Dyke within this area. In particular, the northeast corner of Van Dyke and 34 Mile Road is proposed for commercial purposes and adjacent to the west the Township envisions office uses.

The southeast corner of Van Dyke and Ebeling Road is planned and zoned for commercial purposes and has some residential uses. The existing commercial buildings have aged and will likely need to be redeveloped in the near future. Further, these buildings are likely nonconforming based on the Township's current zoning and engineering standards. Due to the size of these parcels, these sites would likely need to be developed in conjunction with one another and would provide service to northbound traffic rather easily. Finally, if and when redeveloped, these sites should be brought up to the Township's current planning and zoning standards. This includes moving the buildings back to the proper setback in relation to Van Dyke.

At the northern end of this planning area, the Township has a court order for local commercial use of the property located at the southwest corner of 36 Mile Road and Van Dyke. A small nonresidential building currently exists onsite. However, the four (4) acre parcel can be redeveloped under the Township's C-1 Zoning District. To date, a number of small office and retail operations have utilized the site, but currently the property is currently unoccupied.

The second planned industrial area within the Township is located in this planning area, just north of 34 Mile Road on the east side of Van Dyke. To date, this property is not developed to its fullest potential, likely due to the limited sewer availability, lack of water availability, as well as the recent changes in the industrial economy of Southeast Michigan. Because infrastructure extensions are not foreseen, these properties may continue to be underutilized as an industrial site. However, further emphasis should be placed on making sure existing development standards are adhered to whenever new or expanded development occurs.

Infrastructure Availability

This planning area does not have access to any of the Township's allotted water or sewer service. Bruce Township does not foresee the expansion of these service districts so the Transitional Planning Area is heavily reliant on suitable septic soils for determining the density capacity and land use types.

Roadway Access

The Transitional Planning Area is primarily serviced from the east and west by 32 and 34 Mile Roads and from the north and south by Dequindre, Fisher, Campground, and Van Dyke. This planning area also encompasses roads such as Lassier and Eldred, which are designated as natural beauty roads and enhance the character for this particular area of the Township. Recognizing the value such roads provide, the Plan does not endorse the expansion or improvement of these roads. Roadway improvements to 33, 34, 35, and 36 Mile Roads and Ebeling Road, however, would help facilitate traffic through and within this planning area.

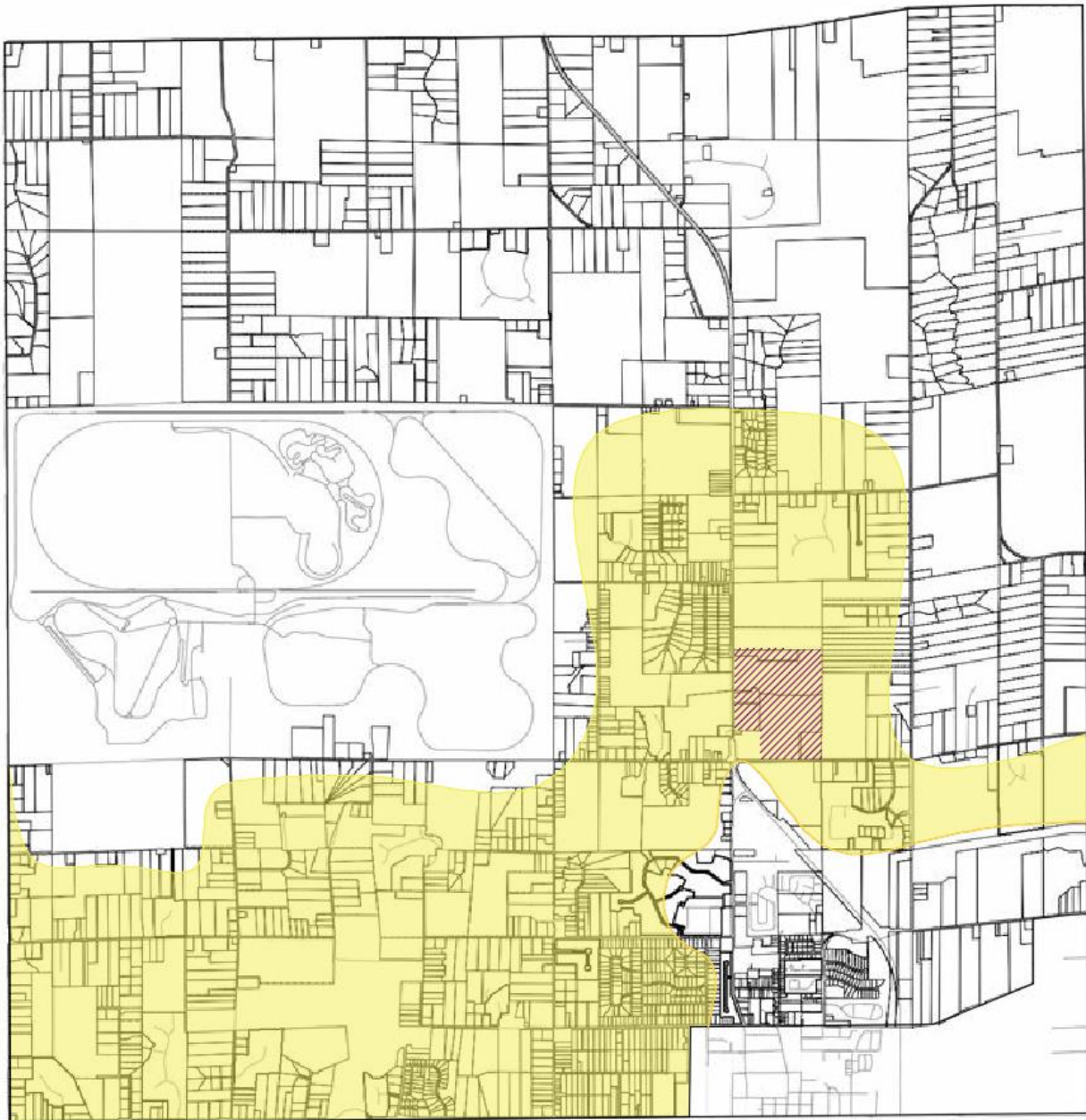
Environmental Issues

Within the Transitional Planning Area, soils range from having mild to severe limitations for supporting septic systems. As shown on the Soil Suitability Map contained within the Environmental Analysis section, Illustration 3-4, a large majority of the soils on the east and west side of Van Dyke are not conducive to septic systems. Soils in the southwest corner of the Township have fewer limitations. Where soils permit, slight increases in development density have been permitted, however, septic systems and final development density is still subject to Macomb County Health Department approval.



In addition to soil constraints, the Transitional Planning Area contains several areas that require environmental sensitivity. The Township's southwest corner is one of the most highly impacted by natural features, in particular, one (1) of the three (3) high priority preservation areas is located in this planning area, as seen in Illustration 3-7. Within this portion of the planning area, the majority of remaining developable parcels are encumbered by these identified features; therefore measures must be taken during the planning process to protect these areas. The combination of these environmental factors and limited infrastructure supports the need for larger lot sizes in this planning area even though roadway capacity could indicate that smaller lots and higher density may be more appropriate.

Farmland and Open Space Preservation

Much of the Township's remaining farmland and open space is located within the Transitional Planning Area. As articulated in Section 5, the goals and objectives of this Plan, Bruce Township is seeking to continue the preservation of such areas. Additionally, Illustration 6-8 within Section 6, the Township's Agricultural Plan, depicts agricultural preservation areas. Not only does this planning area contain the Township's only existing Agricultural Preservation Site located along McKay just south of 34 Mile, to which the Township has purchased the development rights, the southwest corner of the Township is also dedicated as a potential Agricultural Preservation PDR area. Due to the preservation goals established and being pursued by the Township, development should continue to remain low in density and intensity.

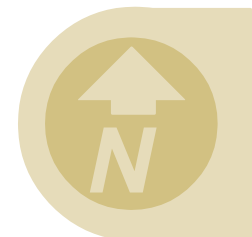


7-3 TRANSITIONAL PLANNING AREA

-  TRANSITIONAL PLANNING AREA
-  INDUSTRIAL DESIGNATED AREA

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



PERIPHERAL PLANNING AREA

Overall Density and Use Designations

Almost the entirety of the Peripheral Planning Area is zoned as R-S Rural Suburban, the exceptions being a subdivision immediately adjacent to 36 Mile Road and Van Dyke which is zoned for R-1 Residential One Family. The recommended density of this planning area is five (5) acre lots and this area of the Township has traditionally been split into five (5) to ten (10) acre parcels or greater.

In addition to residential developments, there are a number of agricultural and open space uses. There are several farms and farm stands operating in this part of the Township and a couple golf courses are present as well. These land uses contribute to the open, rural character of the Peripheral Planning Area.

Another land use that supports the low-density, open space of the Peripheral Planning Area is the uninterrupted six (6) square miles that comprise the Ford Proving Grounds. This parcel, which constitutes almost one third (1/3) of the planning area, consists of testing tracks, a few structures, and natural vegetation.

This planning area also has a few nonconforming nonresidential sites. One such site is located along Van Dyke just south of Bordman Road. This property was formerly the Northwest Gateway site for the Macomb Community College and is currently home to a Henry Ford medical facility. The building is isolated from all other planned commercial areas within the Township. However, it is not likely that this building would be demolished and reverted back to residential use. Therefore, the Township recognizes that a nonresidential use will likely continue at this site. However, the Master Plan does not show this area planned for long-term nonresidential use nor does it promote the expansion of nonresidential land uses in this area.

Infrastructure Availability

No Township water or sewer lines extend into the Peripheral Planning Area, nor is there any foreseeable expansion of such services within the adopted sewer plan for the Township. Therefore, due to the reliance on septic systems for this area of the Township, larger lot sizes should be maintained to prevent pollution and contamination. The exception to this is the Proving Grounds, which has a substantial amount of paved roadway and sufficient underground infrastructure and utilities constructed to support the property's needs.

Roadway Access

The Peripheral Planning Area is the most remote in terms of vehicle access. The primary roadway servicing this planning area is Van Dyke, which provides north/south access through the Township. McKay also functions as a north/south thoroughfare in the eastern portion of the planning area. 34 and 36 Mile Roads offer east and west access.

A majority of the other roadways throughout the Peripheral Planning Area are essentially one lane gravel roads. The carrying capacities of these roadways without substantial improvements are very limited, likely even below the typical one thousand (1,000) to two thousand (2,000) vehicles per day standard for a gravel roadway. The limited roadway surface, as well as the tree canopies, helps define the character of the area. Roadway improvements would likely remove a substantial number of trees as well as canopy provided by such, thereby destroying the existing character. The Thoroughfare Plan for the Township as well as the plans for the Road Commission of Macomb County do not call for improvements to these gravel roadways.

Environmental Issues

Soil limitations in this planning area are essentially split at Van Dyke between moderately limited to the west and severely limited to the east. Because of the parameters set by the septic capacity of the soil, maintaining large lots and plenty of open space is crucial.

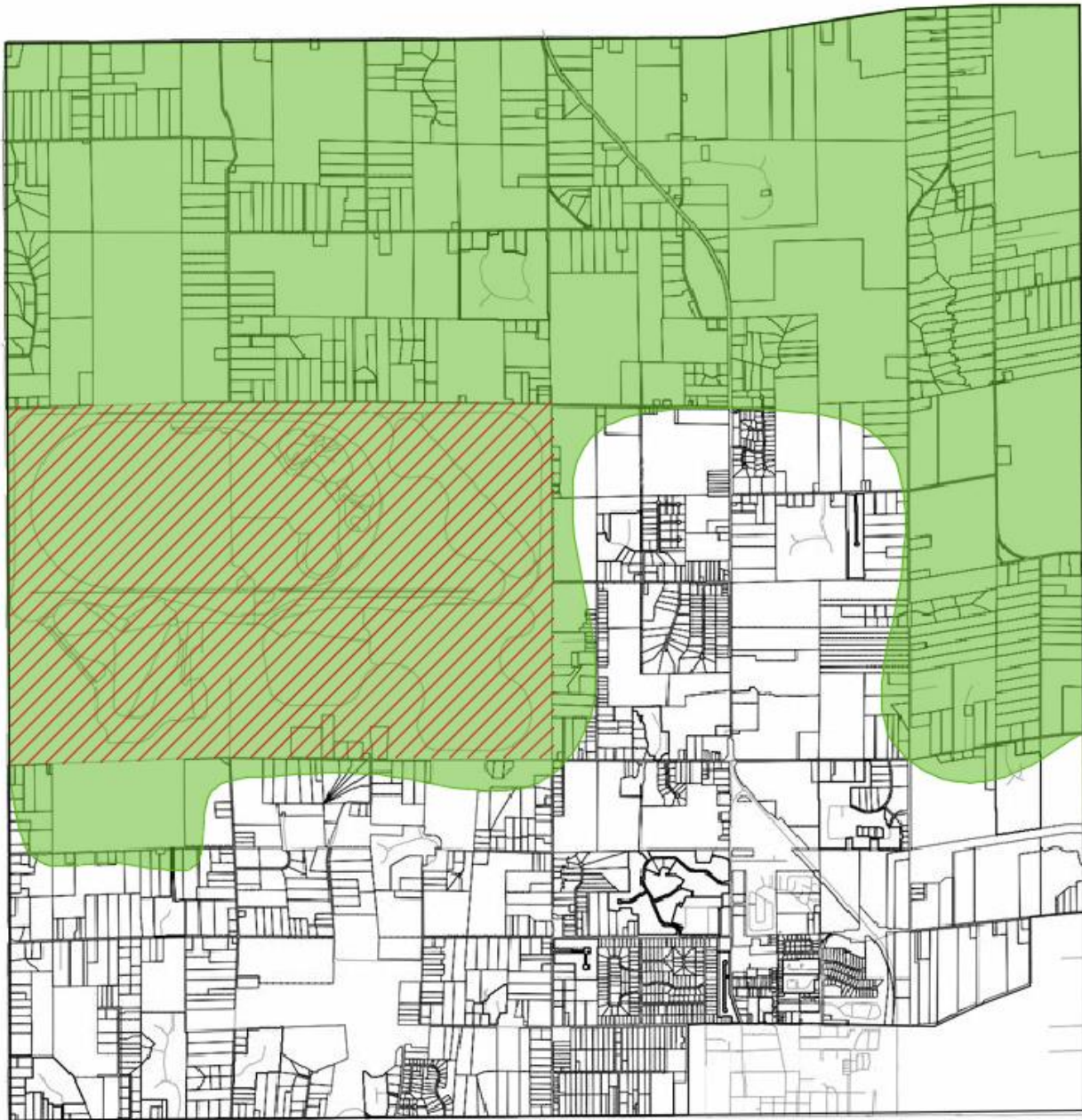
As noted in the environmental section of the Master Plan, and depicted in Illustration 3-7, a large number of highly sensitive environmental features are located in this planning area. The larger lots and lower density help protect these sensitive areas by reducing impacts caused by higher impervious surface ratios, higher traffic concentrations, less manicuring and maintenance of lawns, less percentage of land area dedicated to septic field, etc. This area being home to a large number of wetlands also provides a potentially beneficial area for groundwater recharge for the Township's wells. This is critical due to the large number of wells being utilized within this and other areas of the Township.

Two of the Township's largest identified natural features are located on the premises of the Proving Grounds. Further, the grounds contain a number of other wetlands, ponds, and the north branch of the Clinton River. The Ford Motor Company has respected the boundaries of these features and made conservation efforts on portions of the property. In conjunction with these efforts, the Plan calls for the continued preservation of these areas regardless of land use.

Farmland, Open Space, and Proving Grounds Preservation



Finally, this area serves as one of the Township's main agricultural preservation areas. The large residential acreage, limited number of homes, limited traffic, as well as the existing farmland and soil types, make this area of the Township one of the more conducive areas for long term farming operations.

The Proving Grounds and Bruce Township have had a long-standing relationship and the two entities have collaborated to promote the long-term existence of the Grounds and the conservation of onsite natural features. However, should the Ford Motor Company decide to discontinue operations at the Proving Grounds and sell the property, it is the Township's wish to have the property remain intact rather than subdividing into smaller lots and to require that the property, should it ever redevelop, develop as an open space planned unit development, which would allow those natural features to be incorporated into an overall design for the property, accomplishing essentially the same goal.



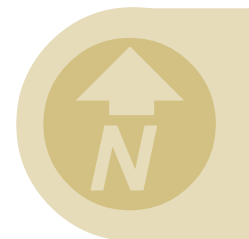
7-4

PERIPHERAL PLANNING AREA

-  PERIPHERAL PLANNING AREA
-  FORD PROVING GROUNDS

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



PLAN IMPLEMENTATION AND BEST MANAGEMENT PRACTICES

RESIDENTIAL USES: GOALS AND RECOMMENDATIONS

Planning Recommendation: Encourage all developments which come before the Planning Commission to utilize the Township's open space development option. This provision allows the same overall density as compared to conventional development while allowing natural features such as wetlands and woodlands to be preserved.

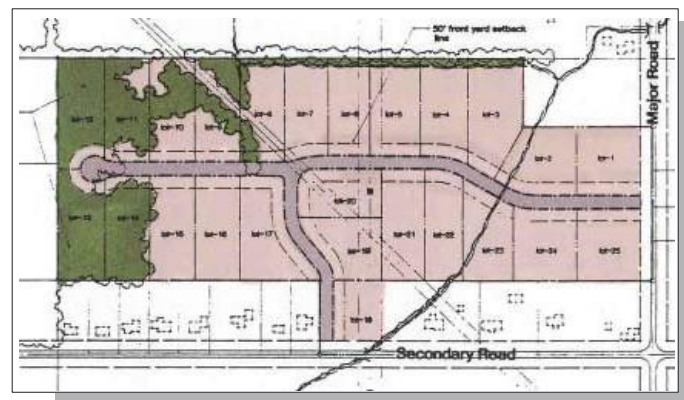
Open Space Developments

The Township adopted their Open Space Ordinance in 1999. The Township has worked with a number of developers to utilize the Open Space Ordinance to help preserve a significant amount of green space within the community. To date the Township has approved a total of eight (8) open space developments (some of which were approved under deviations from the Township's current Open Space Ordinance). With the Township's two (2) and five (5) acre zoning classifications, the ability to preserve a significant amount of open space becomes much more viable even on conventional well and septic.

Private Road Developments

The other main form of residential developments within the Township are private roads with simple lot splits. The Township has developed standards for private roads which decrease roadway width from County standards while still maintaining adequate construction standards to maintain long term durability.

7-5 RESIDENTIAL DEVELOPMENT LAYOUT OPTIONS



Zoning Ordinance Recommendation: Woodlands Protection - The Township has a Woodlands Ordinance which requires a percentage of all woodland canopy on site to be preserved to help maintain animal habitat, soil stability, stormwater mitigation areas, and native vegetation. The intent of this Ordinance is to help integrate the built environment with the existing natural environment. The regulations established by this Ordinance are incorporated at the time of site plan approval process. If the canopy is disturbed or not preserved in the necessary amount, replacement trees would be required.

Zoning Ordinance Recommendation: *Wetlands Protection* - The Township's current practices require a wetlands consultant assessment for wetlands delineation as well as a Level III Wetlands Assessment prior to final approval. This practice allows the Township to integrate natural features into the design process and preserve the natural features identified on the County's mapping.

Zoning Ordinance Recommendation: Adopt an exclusive open-space-only zoning district based on the Township's existing R-S Rural Suburban District. This provision could be adopted as a separate district or as an overlay to the existing R-S District. This provision would mandate a minimum open space of thirty (30) to fifty (50) percent as a part of development. Simple splits would still require a five (5) acre minimum.

Planning Practice: As rezonings come before the Township for higher densities, require that sufficient data is provided that ensures that adequate soils for septic or an adequate drain is available for community septic as well as adequate well water is available for the development.

Planning Recommendation: Develop a Planned Unit Development Overlay for the Ford Proving Grounds, applicable only if the property changes use or ownership, which regulates how the parcel may be developed.

NONRESIDENTIAL USES: GOALS AND RECOMMENDATIONS

Increase Pervious Surface

In an effort to increase pervious surface which reduces the total amount of storm water runoff while increasing the quality of the runoff, the amount of greenspace on each nonresidential site should be increased. Requirements for minimum greenbelts, larger parking lot islands, the use of reserve parking areas, preservation of natural areas, etc. can be utilized to increase the total amount of greenspace.

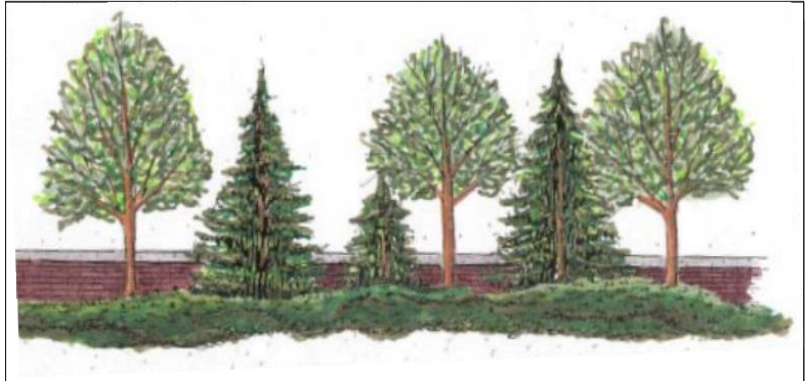
The Township currently utilizes an ordinance provision that allows for a reduction in the total number of parking spaces constructed provided the difference in the number of parking spaces is shown on the site plan. The intent of this provision is to allow for increased greenspace while still ensuring that an appropriate number of parking spaces are provided on site. Further, a legal mechanism to ensure that the parking spaces are constructed should the use change, the demand for parking increase, etc. must also be provided.

The Township also has requirements for natural resource greenbelt requirements. This provision requires that a minimum of twenty-five (25) feet be provided around all natural features identified on site. This greenbelt is an unbuildable area and is intended to be left natural to allow for filtration of runoff.

Further, the Township currently requires both private assessments and MDEQ assessment of wetland areas within the Township as a part of the development review process. This continued practice will help maintain and protect the Township's natural open space character, while managing the location of the development area.

7-6

ILLUSTRATION OF RECOMMENDED GREENBELT



Zoning Recommendation:

Develop a zoning regulation with minimum greenbelt requirements for all nonresidential developments. Typical provisions would require a ten (10) foot wide greenbelt around the entire perimeter of the site regardless of whether screening or other landscaping is required.

Zoning Recommendation: Develop a zoning regulation for landscape islands in excess of one hundred and eighty (180) square feet. Currently, the requirement for parking lot islands is substantially smaller. Further, the connection of these islands throughout the parking area to develop a more usable and efficient greenspace area should be encouraged.

Engineering Recommendation: Develop provisions for green practices as a part of the Township's current Engineering Ordinance. This may include the use of biofilters, rain gardens, sedimentation ponds, areas for reduced impervious surface, the use of natural ditches rather than curbs, and the like. These structures would be used in conjunction with traditional retention or detention ponds which would regulate overall quantity of stormwater discharge.

Planning Recommendation: Work with the Clinton River Watershed Council to continue work on Watershed Planning with specific attention to the greening of nonresidential sites.

Streetscape

Streetscape typically refers to the landscaping and visual amenities of a site when viewed from the roadway. A pleasant streetscape should provide a smooth transition from the right-of-way to the buildings located on the site. The ingredients of a proper streetscape within Bruce Township should be part of the Township Zoning Ordinance and should include the tree type and permitted species, the caliper, the quantity per linear foot, and any setback requirements.

Zoning Recommendation: Amend the Township Zoning Ordinance to require street trees along all exterior roadways to developments. This provision should allow for other creative or unique configurations such as berms or clusters of trees.

Engineering Recommendation: Provide creative solutions to the placement of exterior landscaping in relationship to right-of-way locations, utility easements, etc. in an effort to provide a better streetscape.

Screening

It is the ultimate goal of the Township to create development that is harmonious from property line to property line. Within the ideal world this would be possible, but in real world situations this may not always be possible. In cases where intense commercial or industrial uses abut residential uses, a method of intense screening shall be supplied.

Zoning Recommendation: The Township should consider revising screening requirements for nonresidential development to more precisely describe what type of screening is expected. Screening regulations should include the tree type and permitted species, caliper, density, height, quantity per linear foot, non-vegetative screening options, and any setback requirements.

Access Management

As future nonresidential sites are developed in the Township, close consideration should be given to the number of access drives, proximity to other access drives, and the ability to utilize joint access drives. Further description of access management standards are contained within the Thoroughfare Section of the Master Plan.

Zoning Recommendation: Incorporate MDOT driveway spacing standards within the Township Zoning Ordinance for those properties with frontage or access to M-53/Van Dyke. Further, incorporate a review process which incorporates RCMC or MDOT review early in the site plan review process.

Zoning Recommendation: Develop regulations which require special land use approval for those sites which have more than one (1) access drive to and from an exterior roadway. This will allow further review of such access drive and allow discretion in whether such drive is necessary. Boulevard driveways however, would not be subject to special land use and are typically preferred.

Review Timing of Rezonings

The Township has a limited number of non-residential development sites. This is based on the determined need for such sites, the fact that the Township is largely a bedroom community, the limited area for such sites in relation to existing residential developments, limited infrastructure, etc. As the need for these nonresidential sites to develop evolves, the Township should review

applications for rezoning (if applicable) very carefully. The premature conversion of residential property to nonresidential may actually lower property value. Further, the Plan has noted improvements which need to be in place to accommodate many of these future developments. Those improvements should be in place prior to any rezoning.

For those sites which do require rezoning, the Township may wish to consider conditional zonings on those pieces. The actual conditions must actually come from the developer/landowner, but the tool may provide ways to mitigate potential conflicts between the subject site and surrounding land use and roadways.

Zoning Recommendation: Develop a conditional rezoning ordinance provision for the Township Zoning Ordinance. This provision can be developed with coordination between the Township, Township Attorney and Township Planner.

Architectural Design

Within Bruce Township, the architectural details of the existing non-residential developments provide the Township with a unique character. The two main shopping centers provide extensive architectural details, a nice pedestrian scale for shoppers, deviation in building façade, etc. It is anticipated that future developments would follow this architectural theme while maintaining its own unique character.

Zoning Recommendation: Develop design guidelines contained within the Township Zoning Ordinance which provide the framework for architectural design for nonresidential buildings.

Maintain Current Practices

Since the adoption of the last Master Plan, the Township has enacted a substantial number of Zoning Ordinance provisions and planning policies to ensure quality developments in the Township. These include: updating the lighting ordinance, revisiting the height and size regulations for accessory buildings, introducing wireless communication regulations, etc. The continued enforcement of these regulations will continue to provide the Township with high quality development.

New Development

With the Township being primarily a rural residential community, considering the suitability, necessity, and location of proposed nonresidential developments is important.

Planning Recommendation: The availability of infrastructure should function as a mechanism to determine where the Township can accept development projects of higher intensity and density.

Planning Recommendation: Recognize that a number of nonconforming nonresidential uses exist in areas zoned and planned for rural and low-density residential development, allow the continuation of these nonconforming uses, however, the Township should not promote the expansion of these uses into adjacent lots.

Planning Recommendation: Recognize that although major intersections along Van Dyke such as Ebeling and 35 and 36 Mile Roads may be appropriate locations for future commercial nodes, it was noted that with respect to current population estimates and under-utilized existing commercial and industrial zoned lots elsewhere in the Township, current traffic issues on Van Dyke, and limited availability of utilities, commercial uses around these intersections are not desirable at this time.

Section 8.0

GREEN
INFRASTRUCTURE | plan

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

Bruce Township has a unique ability at this time to preserve the overall natural character of the Township while providing recreational opportunities, natural habitat linkages as well as maintaining surface and ground water quality. Further, at this time the ability exists to provide connections between not only physical parks and spaces but also between significant natural amenities and physical features.



*Photo 1
Wetland Area in Bruce Township*

SIDEWALKS AND PATHWAYS

MACOMB COUNTY TRAILWAYS PLAN

The Macomb County Commission in 2004 adopted a county-wide Trailways Plan that defined corridors which should be developed to encourage walking, running, biking, and other forms of non-motorized circulation. Within this Plan, pathways and linkages are designated throughout the entire County which, at completion, will provide a non-motorized system linking every community in Macomb County. The Plan developed different types of connections, including local and regional connections. The intent of the regional connections is for long distance travel, linking the far ends of the County as well as major destinations and adjacent counties. The local connectors are to provide smaller scale trails branching between the regional trailways system.

REGIONAL CONNECTIONS

Within the Village and the Township, the Macomb Orchard Trail has been designated as a regional connector. The Trail, which follows the old Grand Trunk Railroad bed, comes northward from Shelby and Washington Townships through the Village near the boundary of Bruce and then heads eastward towards Armada Township. A trailhead is planned in the vicinity of Powell Road where the Village of Romeo and Bruce and Armada Townships meet.

The second planned regional connector heads north from the Village of Romeo, past the Ford Proving Grounds and into Addison Township and eventually connects to the Polly Ann Trail. This planned route continues on Morton and Morency to 33 Mile Road, then west to Campground Road, then northward through the Ford Proving Grounds and then Hipp Road, to 36 Mile Road and then westward to the Township's boundary with Addison. Further efforts to refine the actual route may be required in order to provide necessary connections to the Ford Proving Grounds. This regional connector does pass the Township's property at 36 Mile Road and Hipp Road providing connection to this substantial property.

LOCAL CONNECTIONS

Within the Village, the Plan calls for the designation of Morton Street, Gates Street, Bailey Street and 32 Mile Road as local connectors providing a designated pedestrian circulation system between the two designated regional connector pathways. Most of these pathways/sidewalks are already constructed. Some of the pathways and sidewalks along 32 Mile Road and Gates still need to be completed.

EXISTING SYSTEM

Within the Township, pathways along exterior roadways have typically not been required. The Township, however, has adopted a new planning philosophy where pathways are desirable between planned developments and Township or other public facilities and destinations. In 2004, the Township amended its Zoning Ordinance to require pathways along exterior roadways for all new developments. The Ordinance provision did allow the Commission to waive or defer the installation of those sidewalks if no good purpose was to be served by their installation. The Commission determined that a comprehensive plan for pathways needed to be developed to provide a standard for when pathways are to be required and when they are to be waived.

The Township typically requires internal pathway systems with any approved residential development. These developments usually have an open space requirement which lends itself to comprehensive internal scenic pathways through woodlands, wetlands and other natural features.

PLANNED PATHWAY SYSTEM

The Township has developed a desired pathway system which services a large portion of the Township and connects the main public properties as well as the majority of the Township to the Village of Romeo and the Macomb Orchard Trail. These pathways are designed to be eight (8) feet in width to service walkers, joggers, bike riders, rollerbladers, amongst others in the more rural sections of the Township. This includes pathways in the Rural Agricultural, Rural Estate, and Low Density Single Family Residential Designations. The remainder of the sidewalks/pathways can be developed as five (5) foot wide concrete sidewalks.

The designated planned pathways include the following:

- 32 Mile Road from Dequindre to the Village boundary
- 33 Mile Road from Campground to Van Dyke
- 33 Mile Road from McVicar to Powell Road
- 34 Mile Road from Campground to McKay Road
- 35 Mile Road from Hipp to Van Dyke
- 36 Mile Road from Dequindre to Van Dyke
- Campground from 32 Mile Road to 34 Mile Road

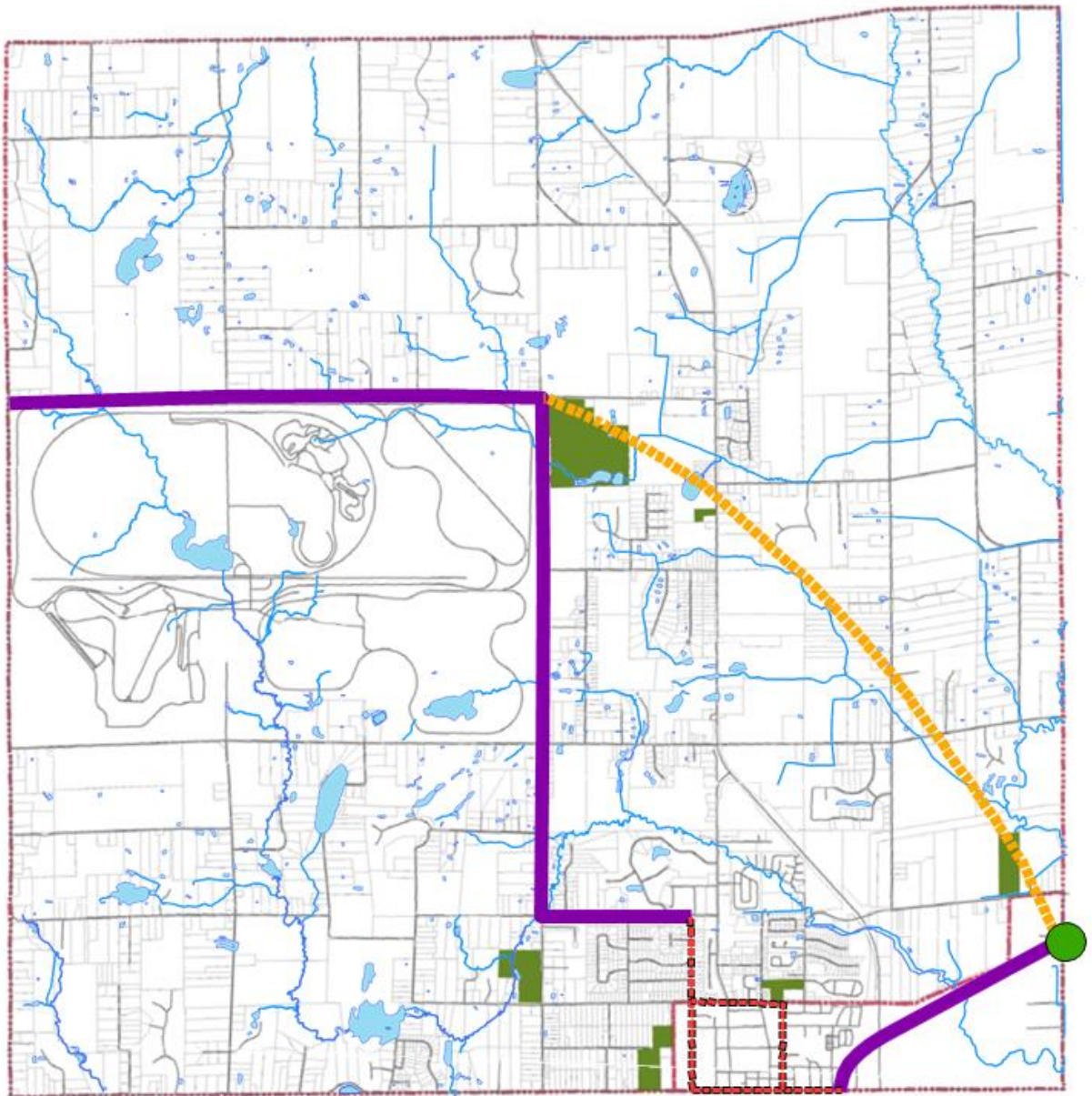
- Van Dyke from the Village boundary to 36 Mile Road
- McVicar Road from the Village boundary to 33 Mile Road
- McKay Road from 33 Mile Road to 34 Mile Road

The development of a pathway along 32 Mile Road to the Township's western boundary has two major impediments to its completion. The first is the development of the pathway approximately one half mile west of Campground. The pathway will need to traverse rather steep terrain. The proper grading of the path will be crucial in providing a usable pathway connection. The second impediment is where the trail must bend around the Cuisack Lake curves just west of Mound Road. The terrain, in addition to the severity of the curves, will provide issues in terms of where the pathway may be located. Again, reviewing the proper grades for the path as well as providing ample room between the path and the curvature of the road will be essential.

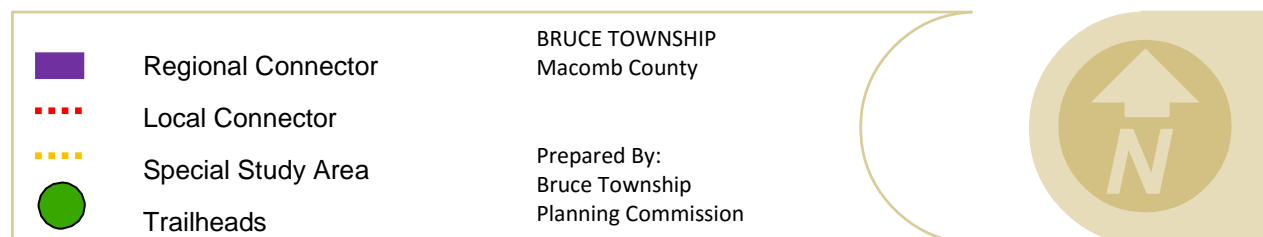
The development of a pathway along 33 Mile Road will also likely be a challenge. The Township has secured a pathway from the corner of 33 Mile Road and McVicar to the south along McVicar. However moving eastward, the crossing of the 33 Mile Road bridge over the M-53 Bypass was deemed to be undesirable at this time due to the limited roadway and bridge width. An alternative may be to have users go north to 34 Mile Road and then down McKay Road to 33 Mile Road and then east. Or as another alternative, go just north of 32 Mile Road and cross the Bypass at the planned bridge for the Macomb Orchard Trail. The intent of the pathway along 33 Mile Road is to connect the courthouse, Crystal Diamonds and the planned trailhead at Powell Road.

The remainder of the pathways should be developed as both residential and nonresidential development comes forward to the Township. For those properties already developed or those which will likely not be developed, the Township will need to obtain funding for the construction of pathways. This funding can come from either grants, since several of the pathways are a part of a much larger, more regional planned pathway, or from the Township's or Parks and Recreation Department's budgets.

As the general rule of thumb, the development of pathways should occur on the north side of roads running east and west. These include 32, 33, 34, 35, and 36 Mile Roads and on the west side of roads running north and south, including Campground Road, M-53 and McKay Road. Further, if more acceptable alternatives exist which will preserve natural features such as wetlands, woodlands, and the like, those may be accepted by the Township provided the overall intent of the pathway is maintained and that connections can also be maintained. Finally, for uses along Van Dyke, an eight (8) foot pathway is required to provide consistency as well as to recognize that that portion of the Trail will be more of a regional connector.



8-1 MACOMB COUNTY TRAILWAYS MASTER PLAN



DESTINATIONS

Township Hall - Bruce Township Hall is situated on approximately ten (10) acres of land immediately adjacent to the Village of Romeo. Township Hall contains the administrative offices for the Township as well as the main Fire Hall. Further, the Township has recently completed development of a park at the rear of the site. The park contains a paved walking path, benches, waste containers and other minor amenities. This park is intended to be a passive park with only minor physical improvements or play structures.



Photo 2
Bruce Township Hall

Orchard Hills Park - Orchard Hills Park is the most developed park within the Township. Located at the southwest corner of 33 Mile Road and Morency, the park contains a walking path, numerous play structures, sitting areas, etc. A small parking area is also provided along 33 Mile Road. The development of a pathway along both road frontages will be necessary. The 33 Mile Road frontage pathway will need to be carefully integrated into the existing parking area and connected to the development to the east.

Crystal Diamonds / 42nd District Court - The District Court is located on the north side of 33 Mile Road near the eastern boundary of the Township. The Romeo Washington Bruce Recreation Commission maintains a number of baseball/softball and soccer fields at the rear of the site. This facility is used for leagues and tournaments throughout the summer. At this time, the Romeo Washington Bruce Recreation Department has obtained lights for the fields. The intended construction of these lights will provide longer hours of usage. The lighting intensity for the diamonds though should be closely coordinated with the Township's lighting guidelines.

Ligon Property - The Ligon Property is approximately one hundred thirty-five (135) acres of land in the north-central portion of the Township. Located at 36 Mile Road and Gould Road, the property is rented out for farming purposes. There are several areas deemed as significant natural features on the southern portion of the property which should be preserved regardless of use. Based on the proximity of the property and the limited need at this time for additional park land within the Township, no improvements are planned for the property. When necessary, pathways can be included along the frontage of the property.

Simpson Park - Simpson Park is a private park/camp facility. Located between Gates Street and 33 Mile Road on the west side of Campground, the Park is home to a number of soccer fields as well as a permanent camp facility. Being a private park, public improvements are not always an option. However, being a part of the Township's overall pathway plan, when necessary, pathways should be installed along the frontage of the Park.

Romeo High School - Romeo High School sits immediately west of the Village of Romeo on the north side of 32 Mile Road. The High School contains the community's pool, the auditorium, etc., as well as the community's skate board park located to the west side of the school. At the

rear of the school is a baseball field. Further to the north behind the Community Center (which is within the Village of Romeo), are four (4) baseball//softball diamonds.

Macomb Orchard Trail - The Macomb Orchard Trail traverses the Village of Romeo along the Township's extreme southern boundary. While technically not within the boundaries of the Township, the Township has recognized that their residents will benefit from this regional amenity. The Trail provides connection between Oakland County to the west and the City of Richmond to the east.

Village of Romeo - The Village of Romeo lying half within Bruce Township has traditionally provided a center for Township residents for shopping, cultural events, parks and recreation opportunities, etc.

Additional Parks - If additional parks are desired within the community, two (2) main areas should be targeted. This includes the southwest and northeast corners of the Township. Park land in the area of Fisher Road between 32 and 34 Mile Roads should be sought. The two (2) closest parks are Simpson Park on Campground Road, which is a private park with limited facilities in terms of playground equipment, and the Hamilton Parsons Elementary School on the west side of Dequindre Road in Addison Township.

As noted above, the other area in which park land should be sought is the northeast corner of the Township. There are no real parks close to this area of the Township. Several vacant natural areas exist in the northern portion of the Township; however, no parks are present. The area of Scotch Settlement, McKay and Brown Roads may be an appropriate location for potential land acquisition. Large tracts of open land exist in this area which may be suitable for future park sites in addition to preservation areas. It is noted that properties in the northern portion of the Township are larger. Typically, the need for park land is not as great when individual property owners have five (5) to twenty (20) acres of property. However, the ability to provide a more formalized park is still desirable.

GREEN CONNECTIONS

The natural environment is a major element to the character and natural makeup of the Township. Each environmental component functions, changes and interacts as part of the overall Township and regional ecosystem. A major objective of the Green Infrastructure Plan section is to maintain these natural features and functions in a balanced state while still allowing the community to physically develop in a managed form.

IDENTIFICATION

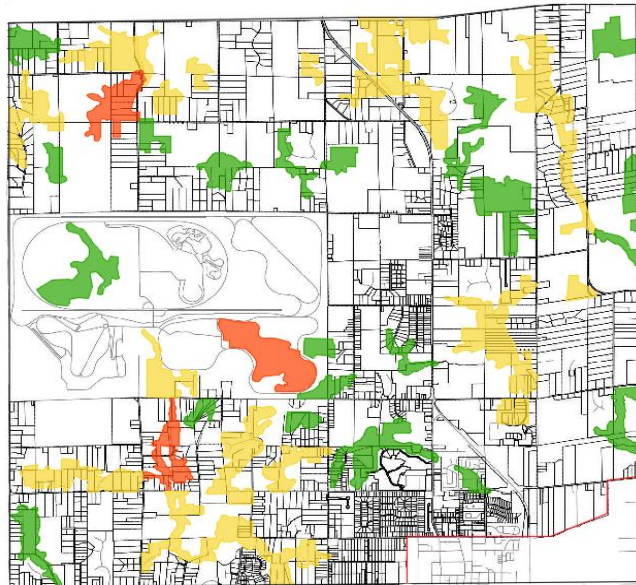
The County has established a number of natural features within the Township that are of significant importance in terms of protection to maintain a valuable ecosystem in the Township and County as a whole. Bruce Township, being one of the more rural municipalities within the County, contains a large number of these key natural features. It is expected that as development occurs, each one of these identified features will be protected through the use of open space

residential design options, conservation easements, land dedication, best management practices, etc. The Township already has preserved a number of these features utilizing these techniques.

Further, the Township has begun the practice of requiring natural feature setbacks from not only these key identified natural features but also natural water bodies as well as major drainage ways. The natural feature setback is twenty-five (25) feet which requires that the area be left undeveloped so land disturbance will not occur. The buffer will also act as a filter to filter out fertilizers, pesticides, etc. which contribute to the overall degradation of water quality within the Township.

Finally, the Township has also adopted practices of requiring thorough assessments of potential wetland areas within the community, as well as adopting a Woodlands Ordinance which requires the preservation of woodland areas based on the type of use proposed. As a part of the site plan review process, the Township requires a private consultant's wetland assessment and then requires a Level III Wetlands Review by the State. These two reviews must be finalized prior to final site plan approval. In 2006, the Township adopted a Woodland Ordinance which requires the preservation of woodlands as a part of site plan review. The preservation requirement is based on an overall canopy percentage rather than individual tree preservation. The Ordinance is also designed to require those properties which clear cut prior to submitting a site plan to provide replacement trees in an equal amount to those removed.

MICHIGAN NATURAL FEATURES INVENTORY



GREENWAYS INITIATIVE

The Southeast Michigan Greenways Initiative was originally founded in 1990. Since then, the principles of the Initiative have been implemented by a number of local municipalities, counties and other regional entities. The Initiative provides the conceptual plan as well as potential funding sources for those projects which are a part of the greenways plan. Within Bruce Township, there are two main connections. These connections are described below.

- The East Pond Creek Connection (ID's 15&16) is a planned greenway corridor which is in conceptual and planning stages respectively. The intent of this Connection is to preserve water quality as well as provide a conservation area. This connector will provide connections with the Stony Creek Connector at 32 Mile Road and Mound Road as well as provide additional connections to the Macomb Orchard Trail (Grand Trunk Railroad) and the

Upper North Branch of the Clinton River.

- The Upper North Branch Clinton River connector is deemed as a connector that is still in its conceptual phase within Bruce Township. Segments further to the south are in their planning stages. Like the East Pond Creek connection, the intent of this corridor is to preserve water quality and provide additional conservation area.

GREENWAYS PLAN

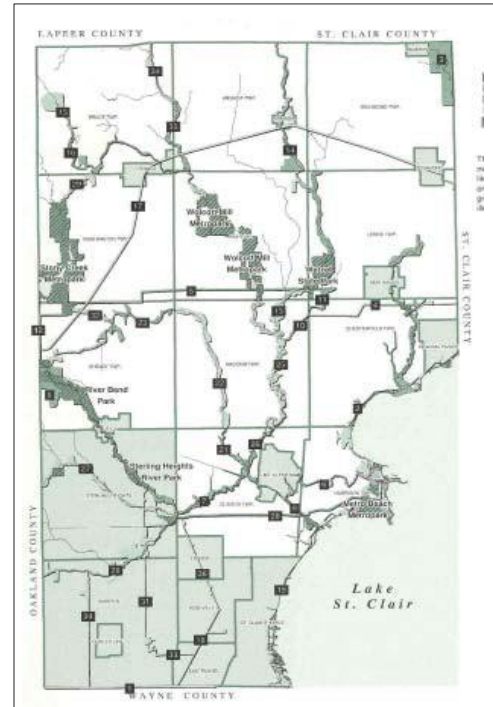
As shown on the greenways plan, the Township has a large series of extensive environmental areas which provide the “green infrastructure” of the Township. This green infrastructure is a result of overlaying the Township’s natural waterways, waterbodies, identified potential wetland areas, and identified natural features, woodlands and public or recreation properties. The Township’s Greenways Plan takes those areas identified by the Greenways Initiative and builds upon it, expanding the areas desired to be protected. The benefits of preserving contiguous greenway infrastructure include:

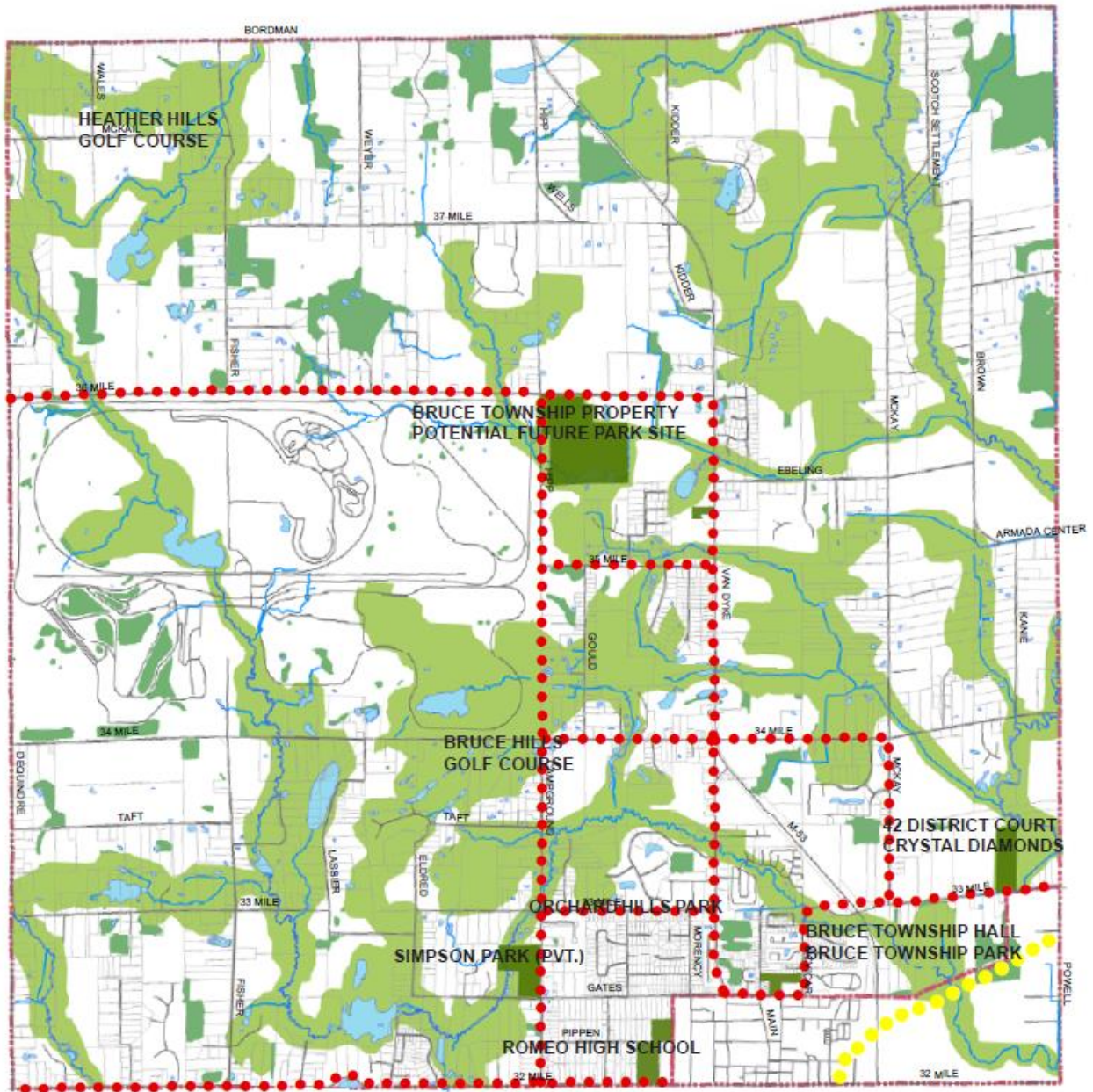
- Ensuring that the stability of the natural features are maintained
- Provide a larger, more viable wildlife habitat
- Maintain water quality within the waterways of the Township
- Help preserve well water recharge areas within the Township
- Maintain the rural, open space character of the Township

Greenway Plans do not necessarily promote the development of trails along every greenway corridor. The preservation of the area and its natural features are typically the desired result. If at some point pathways are desirable along some or all of the greenways, the Township would need to make sure proper easements are in place for the use of such private lands for public use. This can be done through the requirement of trail or pathway easements as individual developments come before the Township for approval, or the Township may need to purchase easements on individual properties as necessary. The methods in which the preservation of the delineated greenways is most likely to occur is described later.

8-2

GREENWAYS INITIATIVE





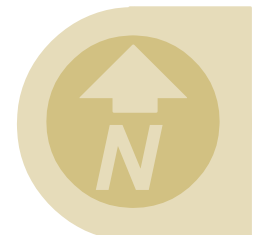
8-3

GREENWAYS MASTER PLAN

- Designated Greenways
- MNFI Sites, Woodlands, Wetlands, etc.
- Planned Pathway
- Macomb Orchard Trail

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 Macomb County

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 Bruce Township
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IMPLEMENTATION

OPEN SPACE ZONING

Open Space zoning is typically used as a requirement of the main zoning district or as an overlay in addition to existing zoning that makes open space development a mandatory condition, thereby protecting open space throughout the developing portion of the Township. Mandating the clustering of houses on a portion of the property can minimize the impact to natural resources and preserve an interconnected network of greenspace throughout the Township. Open space zoning mandates the protection and preservation of a portion of the buildable land of the parcel or parcels being developed for residential housing. A suitable number for the Township may be thirty percent of the overall parcel acreage due to the large lot size required in the outlying areas of the Township. The intent is that with the mandatory open space, those areas defined as a part of the Township's Greenways Plan would be those areas preserved while allowing a suitable number of developable parcels on upland areas. The permanent protection of the dedicated open space may be undertaken through a number of means including a conservation easement, deed restriction, or transfer to public ownership.

A key principal of open space zoning is that if a site would allow a certain number of units under the base zoning, that same number of units would still be permitted. Open space zoning, much like the Township's experiences with its Open Space Zoning Ordinance (Section 2.48 of the Bruce Township Zoning Ordinance) takes a fundamentally different approach to zoning than traditional zoning. In traditional zoning, the language calls out minimums for front, side, and back yard setbacks and lot size among other items. Open space zoning in contrast, calls out minimum open space requirements, but leaves the yard setbacks and lot sizes largely up to the developer. To avoid potential difficulties in the site plan approval process, the developer is encouraged to bring forward a sketch site plan for review by the Township early in the process. Then any questions regarding interpretation of the conservation zoning may be addressed prior to the developer investing significant design and engineering time in the project. The Open Space Zoning Ordinance is designed to provide a fair and equitable process for the developer. This conservation tool protects private property rights and allows development to continue in the Township while protecting an interconnected network of open space.

CONSERVATION EASEMENTS

A conservation easement is a legal agreement that limits the type and amount of development that may occur on a property or a portion of property. A property owner voluntarily enters into an agreement with a public agency or non-profit organization that will hold the easement. Bruce Township has had experience with this with developments like Colbydale Farms where a thirty (30) acre open space area was dedicated to the North Macomb Conservancy. The original landowner may retain the title of the property and the right to sell it, but future buyers are restricted to the conditions of the easement. A conservation easement holds no requirement for public access. One of the advantages of the conservation easement as a conservation tool is its flexibility. The conservation easement may be tailored to the resources of the

property and the owner's particular needs. The property owner works with the agency or conservation organization to outline the rights and restrictions of the easement. The easement can include the entire property or a portion of it. Donors of the easements are typically eligible for income tax, estate tax and/or property tax benefits if the easement is negotiated for perpetuity. Because conservation easements are voluntary, flexible, and usually entail tax benefits for the property owner, they are powerful conservation tools. Conservation easements can be particularly effective for business properties, where portions of the property are unused and the value of the business would not be affected by the restriction of further development on the land. The Michigan Natural Resources and Environmental Protection Act of 1994, or Act 451, enables government entities within Michigan to hold and enforce conservation easements. The easement can be held exclusively by the Township, by a land trust, or both parties as "co-holders". Before accepting the responsibilities of a conservation easement, the Township should determine how the costs of the program will be covered. While donated conservation easements are a relatively cheap conservation tool, they are not cost free. Costs associated with the easements include:

- Creating and acquiring easements including legal fees, staff time, property appraisal, title insurance and an environmental assessment.
- Managing and enforcing easement - the property must be monitored on a regular basis to ensure compliance with the terms of the easement. This requires staff time and potential legal fees if there is noncompliance.

TRAIL AND PATHWAY EASEMENTS

A trail or pathway easement is an easement established for the purpose of creating a trail or pathway for public use. As already mentioned, being proactive and approaching developers to grant easements as part of the subdivision, site condominium, and site plan development process is an effective way to establish a viable trail system rather than trying to retrofit a development with a multitude of individual property owners or an association. Although trail easements are a much more financially viable option for the Township than the outright purchase of corridors, care should be taken in crafting the easement to ensure long-term access to the corridor and minimize future conflicts. At a minimum, the trail easement should specify in writing the width and length of the trail corridor, type of use, and any restrictions the corridor is subject to. Each easement must be tailored to the trail and the property through which it is passing. Specifications for the long-term maintenance of the trail should also be incorporated in the easement agreements. It is recommended that the Township establish a mechanism for overseeing the development of the non-motorized system in the Township, including trail development and maintenance.

VOLUNTARY STEWARDSHIP PROGRAMS

For the Township to be successful in conservation, it cannot simply rely on regulatory measures, but should also focus on public education and implementation of a variety of voluntary stewardship programs. Getting people involved in protecting the Townships resources on an

individual level is one of the best ways to ensure these resources will be cared for in the long run. The Township can do many things to promote conservation efforts including sponsoring conservation programs and providing numerous opportunities for information and education through web sites, lecture series, handouts or fact sheets about the natural resources in the Township. These types of activities are already being conducted at the Township through the Clinton River Watershed and the Township's work on the Clinton River Watershed Planning Group. These continued efforts will help preserve the natural features of the Township.

LAND ACQUISITION

Outright fee acquisition of property at market rate is an expensive conservation tool. It is a tool that is best targeted towards ecologically valuable lands and areas of special concern. This tool can be effective and efficient when used with willing sellers who will offer the Township property at a bargain price because of their preservation ethics and financial standing. In the past, the Township has been very lucky in having property donated or sold at a very reduced rate. As land values continue to increase, such generous offers may no longer be a source of land acquisition. An option would be to initiate a Land Preservation Millage. A rate of less than one mil may provide the Township with several hundred thousand dollars a year for the purpose of acquiring property.

PURCHASE OF DEVELOPMENT RIGHTS (OPEN SPACE)

Under a Purchase of Development Rights (PDR) program, a landowner can sell the rights to develop a parcel of land to a public agency or a private conservation organization. For Bruce Township, the Township's adopted Purchase of Development Rights Ordinance would allow for such a transaction as well as potential grant funding. For the purposes of purchasing open space rather than farmland, a new, similar Ordinance to that already adopted may be necessary. However, the concept remains the same; a conservation easement is placed on the land to prevent development, but the landowner retains ownership. Landowners may also receive property tax relief because the development rights, which can add significant value to the property, are now held in trust or by the Township. The PDR program can be a costly conservation tool. In areas of the Township that have intense development pressure and where real estate values are high, the cost of purchasing the development rights will also be high. Because of this, it is recommended that the purchase of development rights be limited to ecological critical areas in the Township that are unique or are essential for maintaining the network of open space.

Much like simple acquisition, one of the first steps in establishing a successful Open Space PDR program is setting up a funding mechanism for the program. A Land Preservation Millage may be a potential source of funding. This millage would need to be approved by voters. Other sources include matching dollars from federal or state programs, bond initiatives, or taxation relief options.

CONCLUSION

As the Township continues to grow, the preservation of natural features will help maintain the rural character as well as provide for a healthier environment. This includes minimizing to the greatest extent possible, flooding conditions by reducing impervious surface and allowing for natural drainage patterns. Further, without a public water source, the necessity to protect the ground water recharge areas is critical. The preservation of the Township's natural wetland areas and other natural features is a significant step in protecting those areas. In implementing this Plan, the Township will continue to be a leader in the County in developing in an environmentally sensitive manner.

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

Section 9.0

WATERSHED | plan

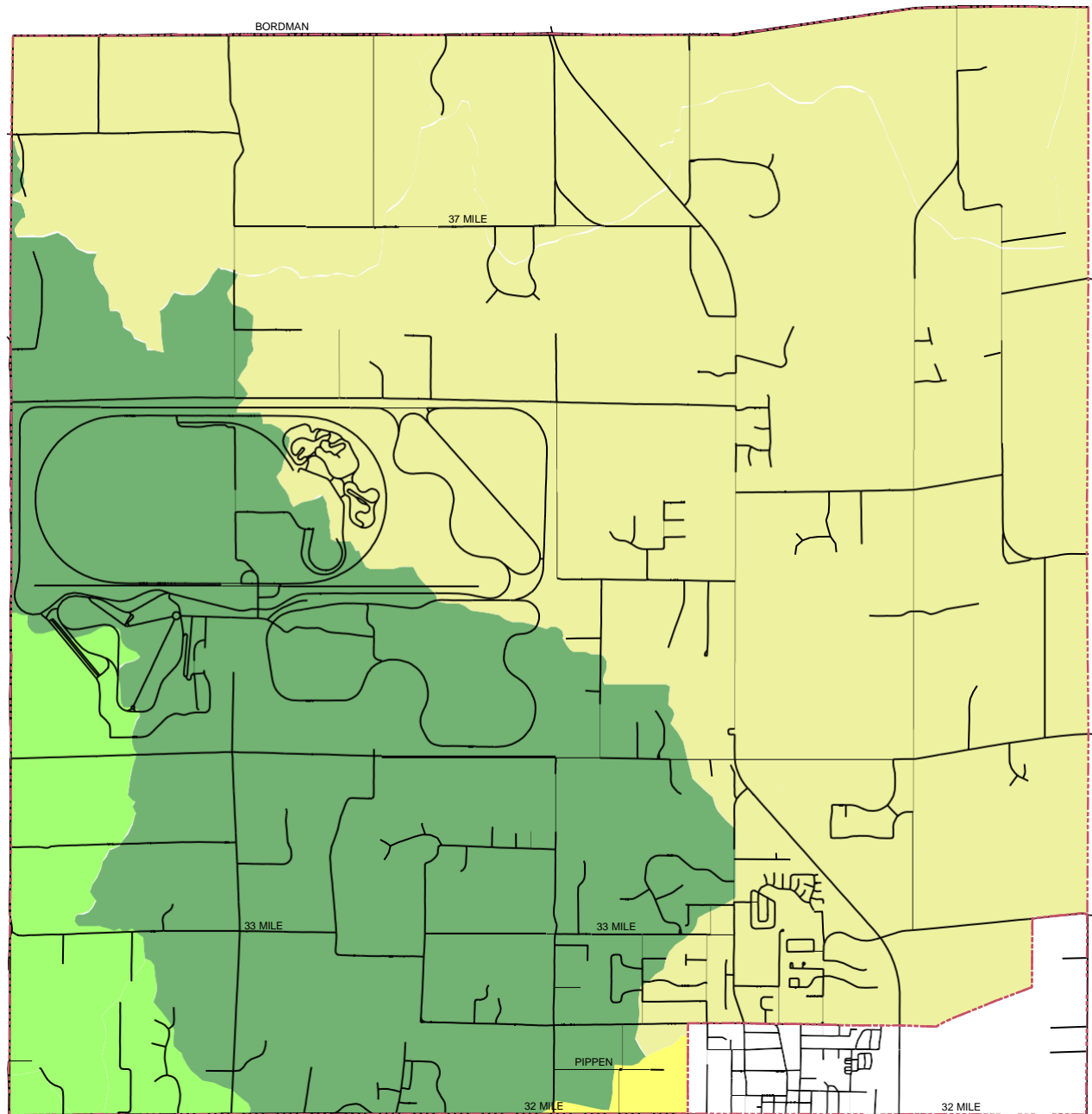
B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

A watershed is another word for a river basin. It's an area of land that drains into a common body of water. In the Township's case, the larger body is the Clinton River, the Clinton River then drains into Lake St. Clair and ultimately into the Great Lakes. The land that drains into the Clinton River covers 760 square miles and includes over 1,000 miles of streams in addition to the eighty (80) mile long main branch. The Clinton River Watershed is then further divided into sub-watersheds. Bruce Township is made up of four (4) sub-watersheds: North Branch Clinton River, Middle Branch Clinton River, East Pond Creek, and Stony Creek. See Illustration 9-1.

The Clinton River is typical for an urban river. When it rains, urban and suburban development in the watershed lead to higher river flows than in natural watershed conditions. Developed land results in a higher degree of surface water runoff due to the removal of vegetation that captures and absorbs such water flows. Water running off of yards and paved surfaces (including roads, sidewalks, rooftops, and parking lots) discharges into the waterway, carrying with it dirt, fertilizers, pesticides, oils, metals, and other pollutants. The sheer volume of water entering the river during storm events can result in significant erosion and sedimentation. This section of the Master Plan identifies specific environmental and watershed issues which may arise from development as the Township continues to grow and mature. The recommendations contained throughout the plan are identified to help alleviate and/or mitigate the identified issues.



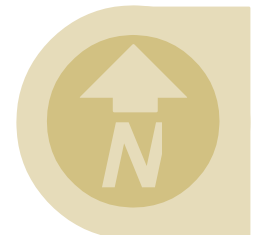
9-1

GENERALIZED WATERSHEDS

- East Pond Creek
- Middle Branch Clinton River
- North Branch Clinton River
- Stony Creek

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WATERSHEDS

NORTH BRANCH CLINTON RIVER WATERSHED

General Land Use Character

The majority of the Township lies within the North Branch Watershed including those areas where the Township has the most land use density and those areas which have public sewer. Land uses range from agricultural properties to residences on well over five (5) acres to large scale industrial uses as well as high density single-family residences as well as manufactured homes. See Illustration 9-2.

Potential Watershed Impacts from Land Use

Septic system failure – This portion of the Township contains a large number of parcels which are less than two (2) acres in size and are serviced by conventional or engineered septic systems. Typically, the potential for septic failure as well as contamination from such failure increases as lot size decreases, however, this is also dependent on a number of other factors. However, a number of lots are even one (1) acre in size.

Soil Erosion Residential – This area of the Township will likely see the largest increase in the total number of houses over the next twenty to fifty years. This is a result of both the size of the sub-watershed but also the amount of large, vacant property as compared to other areas of the Township. Therefore, this area of Township has the greatest potential impact to water quality. Again, to ensure that soil erosion is kept in check, a close alliance with the Macomb County Public Works Office must be maintained. Provisions for limited site grading, provision for silt fencing and quick reestablishment of grass or other vegetation is also necessary.

Soil Erosion Agricultural – The North Branch sub-watershed contains the vast majority of the Township's agricultural lands. This is especially true in the eastern section of the Township. As previously noted BMP's such as "no till", greenbelts along watercourses and drainage ways, wind breaks, strategic and minimizing fertilization, and other farming BMP's will help limit soil erosion and impacts from agricultural runoff.

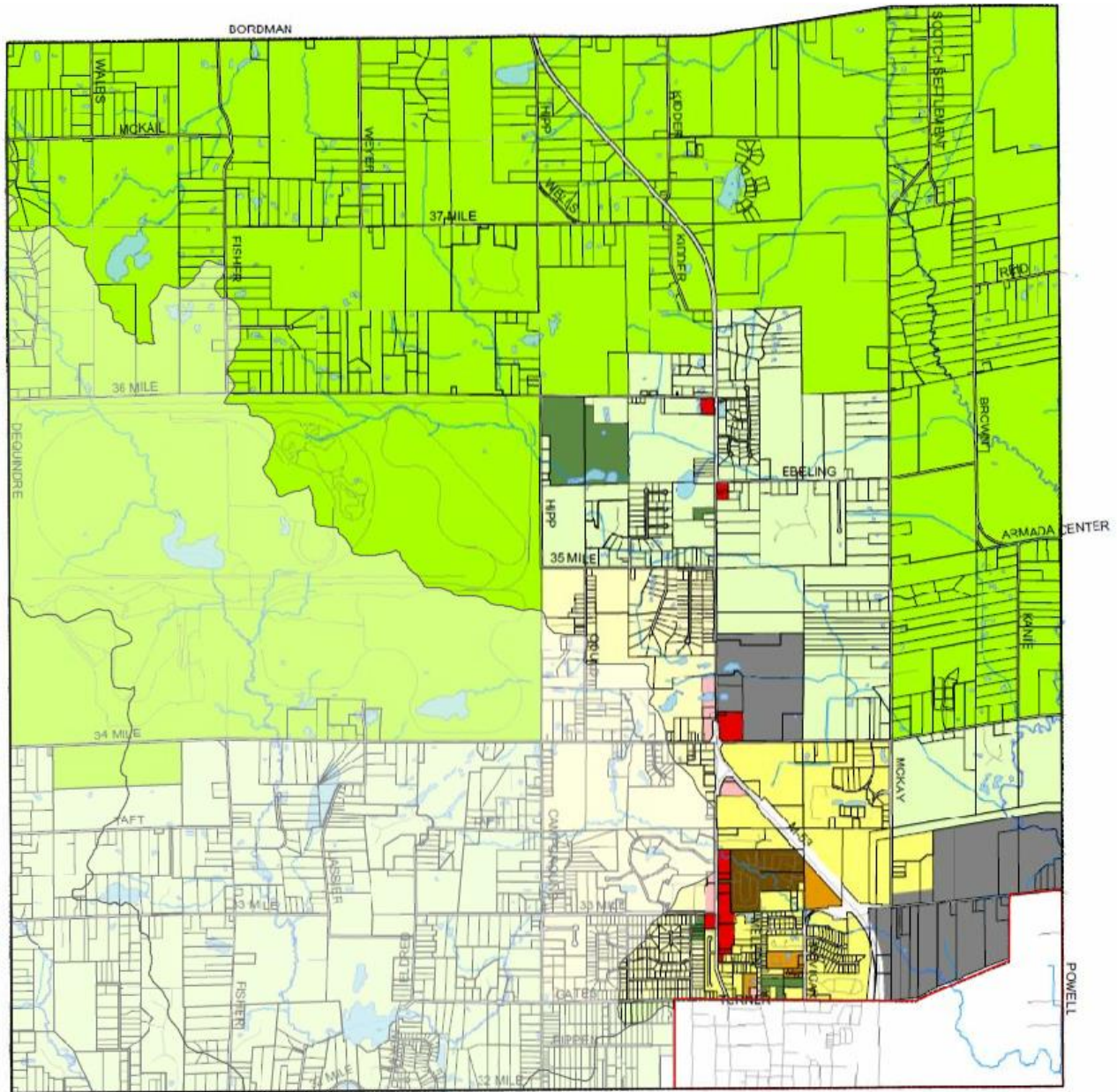
Natural Feature Impact – The Township contains an immense number of identified natural features north of Ebeling Road (east of Van Dyke) and 36 Mile Road (west of Van Dyke). This is a result of minimal development impacts to this point as well as large lot size requirements. The continued splitting of property, to match past and current development trends, along with increased education as to the location of identified natural features will allow for the continued maintenance of such features.

Commercial/Industrial Runoff – The North Branch contains essentially all of the Township's planned commercial and industrial land use. The planned commercial areas are along Van Dyke at 33, 34, and 36 Mile Roads. The main industrial areas are along 33 Mile Road as well as

the isolated industrial area north of 34 Mile Road, east of Van Dyke. The impacts on the quantity of stormwater runoff from the amount of impervious surface as well as the quality of the runoff from the types of chemicals, sediments and other debris found typically in commercial and industrial areas must be kept in check. Proper site plan review which limits the types of uses and outdoor storage areas, ensures that such areas are properly buffered from natural features, the proper stormwater separators are in place, etc. are essential to ensure stormwater quality.

Wastewater Treatment Facility Discharge – The Township’s only wastewater treatment plant is located in the North Branch. The facility is a sand filtration system. The discharge is monitored by the Macomb County Health Department and the Michigan Department of Environmental Quality. The Township in approving the facility as a part of the condominium site plan required proper maintenance provisions to ensure long term operation of the system. Any future development of similar systems should also be required to have such assurances. Further, the proliferation of such systems is not desirable. The impacts of a multitude of these systems, particularly discharging into the same sub-watershed may create the potential for excessive contamination if single or multiple failures occur.

Small Lot Residential Runoff – Residences on small lots generate different impacts on stormwater than large lot residences do. Typically, a small lot will be more manicured than a large one. What this typically means is that the grass will be kept shorter and will have chemicals for weeds and fertilization applied on a regular basis. The impact of the shorter grass is that runoff will typically leave the site more quickly and the impact of the chemicals and fertilizers has the potential to be washed off the site due to the increased rates of runoff. This increased rate of runoff is further multiplied by the reduced amount of pervious surface due to the ratio of home size versus lot size. These types of traits are not common of a two (2) or five (5) acre parcel. Therefore attention needs to be given to providing buffers between homes and stormwater drainage ways or natural features, education must be given on the impacts of lawn chemicals and fertilizers and appropriate stormwater retention/detention facilities along with sedimentation areas must be provided.



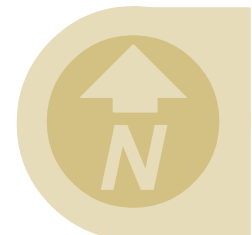
9-2

NORTH BRANCH SUBWATERSHED

- RURAL - AGRICULTURAL
- RURAL - ESTATE
- LOW DENSITY SINGLE FAMILY RESIDENTIAL
- LOW-MODERATE DENSITY SINGLE FAMILY
- RESIDENTIAL MODERATE DENSITY RESIDENTIAL
- MANUFACTURED HOUSING COMMUNITY
- OFFICE
- COMMERCIAL
- INDUSTRIAL
- PUBLIC - PARK

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 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



EAST POND CREEK WATERSHED

General Land Use Character

The land use within the East Pond Creek Watershed is predominately large lot residential consisting of minimum lots of one (1), two (2), and five (5) acres. A large portion of the Ford Proving Grounds lies within this watershed as well. This includes the actual facility as well as the majority of test track. The watershed area also contains a number of acres which are currently farmed. See Illustration 9-3.

Potential Watershed Impacts from Land Use

Septic system failure – Septic systems if designed properly can provide a very reliable means of treating sewage in a rural community. However, the potential is present that failures can occur over time. There are a number of reasons as to why a septic system may fail over time. This includes, improper sizing, poor maintenance, poor soil conditions, among others. Programs such as the County's Point of Sale program is designed to help ensure that the ground and groundwater is not being polluted by failing septic systems. Further, the monitoring of streams for discharge points also helps resolve septic failure issues. Both of these programs are typically conducted through the County level. The Township can help ensure adequate protection from failing septic systems by ensuring that lot sizes are of sufficient size as to not overburden the underlying soils. This is reflective of the Township's past planning practices of two and five acre zoning throughout most of the sub-watershed area. .

Soil Erosion Residential – As new homes are built or new developments are constructed, inevitably, the natural grade and ground cover will be disturbed in some fashion. As these developments are constructed, the Township must ensure that proper soil erosion measures are in place to minimize the impacts of soil erosion and soil deposition into adjacent natural features and drains. Working with the Office of Public Works, the Township can ensure that silt fences and the like are in place before the ground cover is disturbed. As a part of larger residential subdivision or site condominium design, engineering practices should strive to minimize site disturbance while still ensuring proper drainage and sedimentation removal.

Soil Erosion Agricultural – A very limited amount of agricultural land is found within the East Pond Creek Watershed area. However, with any agricultural operation which involves tilling, the potential for soil erosion is present. A number of the farms located in this area have direct impact on a watercourse or other drainage course. Those areas which are tilled within this sub-watershed should utilize practices such as no-till, greenbelts along drainage and other water courses, and windbreaks to minimize the disturbance of soil.

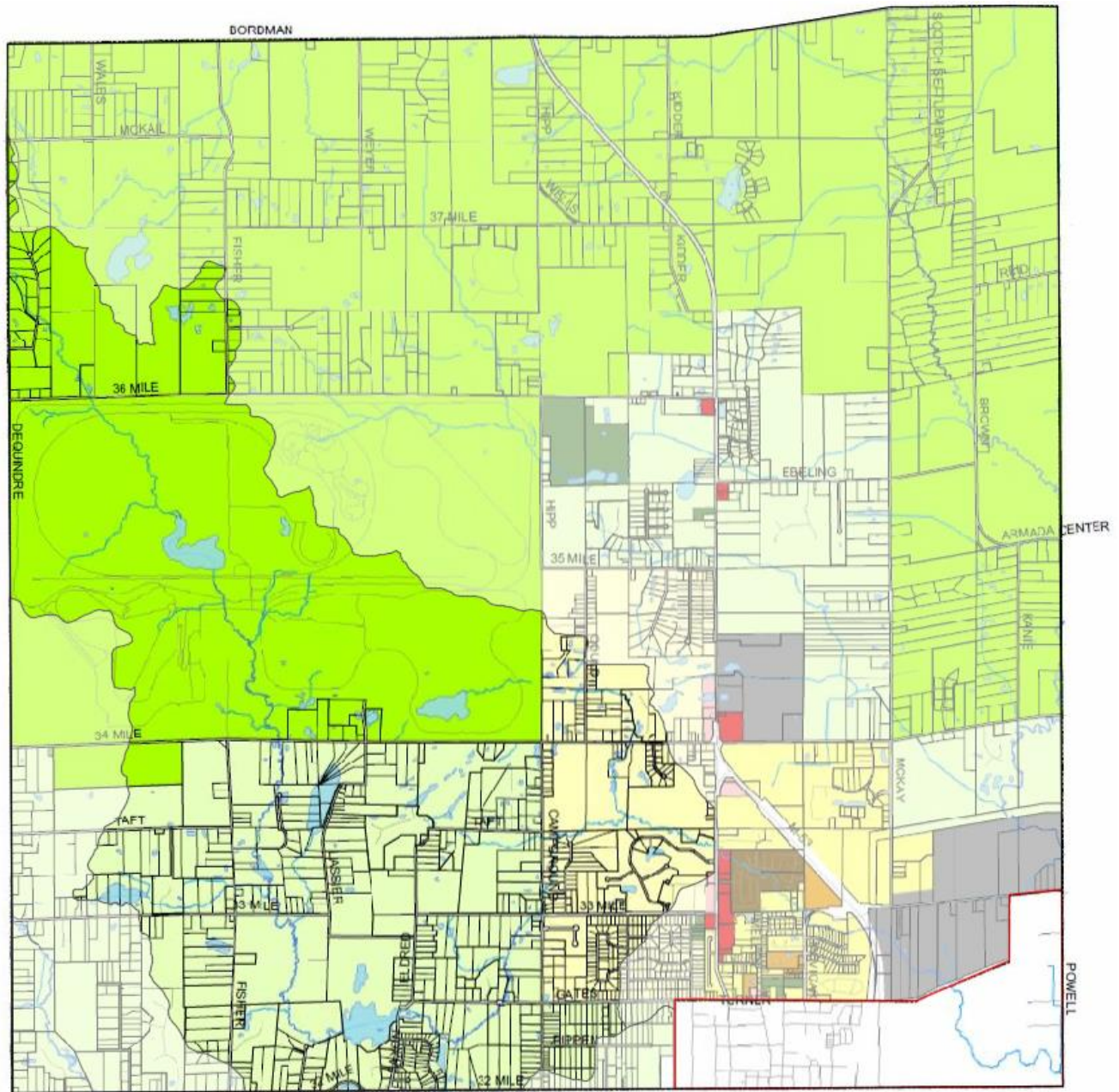
Natural Feature Impact – A number of the Township's identified natural features can be found within the East Pond Creek sub-watershed. This includes two (2) of the three (3) most desirable or sensitive areas which have been identified. The preservation of these areas along with those other identified areas is paramount to keeping a sustainable environmental system in the Township. These areas will need to be maintained through the implementation of the

Township's current open space residential development policies, the Township's requirement for wetland assessment, woodland preservation ordinance and its natural features setback ordinance.

In those areas which are already developed, such as the area east of Fisher, west of Lassier, between 33 and 34 Mile Road, the Township should encourage those homeowners to limit their impact on the identified natural features through education. Concepts such as low nitrogen and phosphorus fertilizers, "no mow" and "no fill" areas, etc. will help preserve the integrity of the wetland and woodland area.

Stormwater Quality – The presence of the Ford Proving Grounds while limiting development within the Township brings its own potential impacts for stormwater quality. The large amounts of impervious surfaces at the facility should be properly drained into sedimentation ponds and through filter strips and the like to ensure that stormwater being discharged into the drainage ways either directly or indirectly is cleaned.

Stormwater quality will also need to be maintained for those areas which are currently farmed and may at some point be converted to residential housing. This is also applicable to the likely development of small private roads with five (5) to ten (10) lots on some of the large acreage residential properties which front on nearly every roadway within the sub-watershed. The use of retention or detention facilities in conjunction with sedimentation devices, rain gardens and the like should ensure that water quality will be maintained as it leaves a development site.



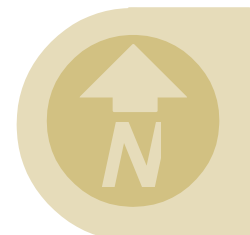
9-3

EAST POND CREEK SUBWATERSHED

- RURAL - AGRICULTURAL
- RURAL - ESTATE
- LOW DENSITY SINGLE FAMILY RESIDENTIAL
- LOW-MODERATE DENSITY SINGLE FAMILY
- RESIDENTIAL MODERATE DENSITY RESIDENTIAL
- MANUFACTURED HOUSING COMMUNITY
- OFFICE
- COMMERCIAL
- INDUSTRIAL
- PUBLIC - PARK

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MIDDLE BRANCH CLINTON RIVER WATERSHED

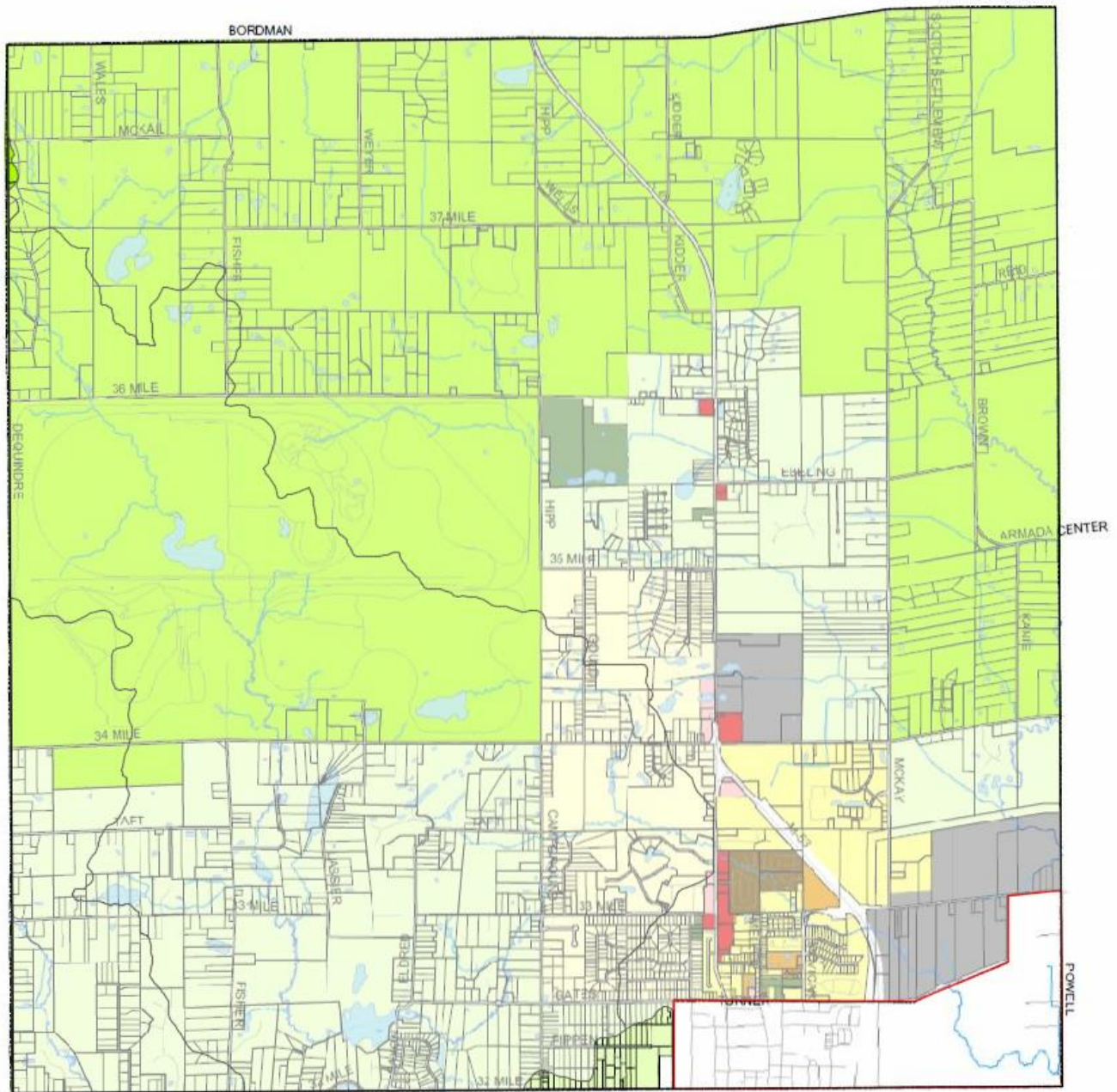
General Land Use Character

Only a very small portion of the Township is within the Middle Branch Watershed. This area is immediately west of the Village of Romeo. The area is made up of large lot residential housing on parcels over two (2) acres in size and is essentially already fully developed. The Romeo High School complex is also located within the watershed area. See Illustration 9-4.

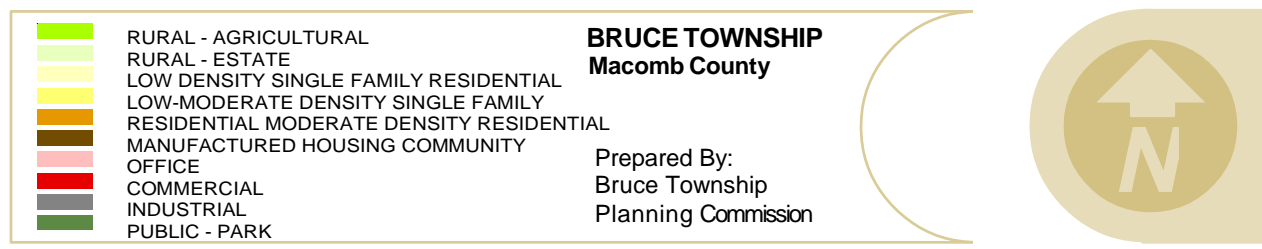
Potential Watershed Impacts from Land Use

Septic system failure or seeping – See above

Storm Water Quality – The only major development site within the Middle Branch is the Romeo High School. The vast majority of this site is covered by either building or parking area. Therefore the site generates almost one hundred percent runoff. Maintenance of the existing stormwater system is essential to ensure the quality of stormwater entering the sub-watershed.



9-4 MIDDLE BRANCH SUBWATERSHED



STONY CREEK WATERSHED

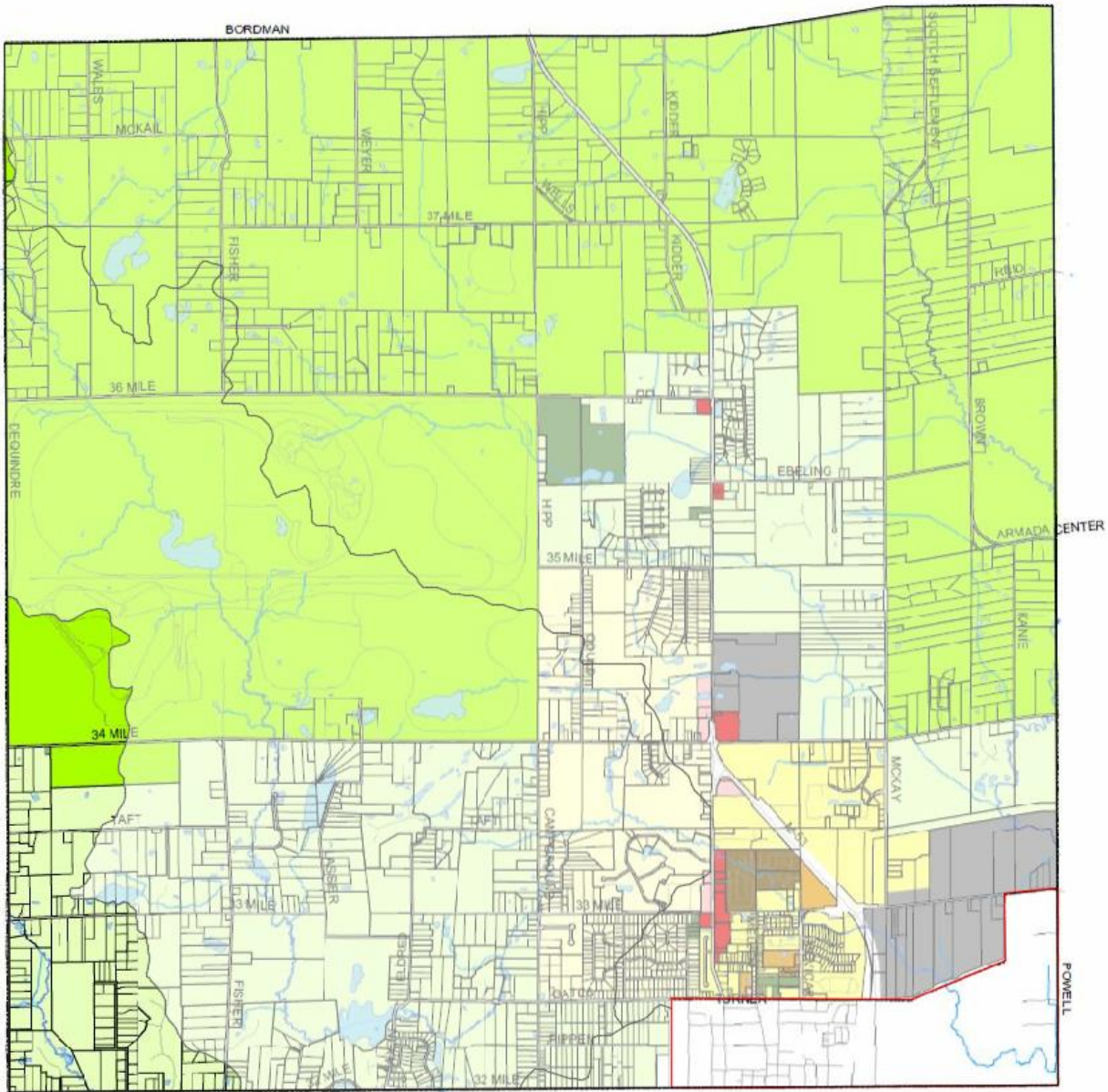
General Land Use Character

The extreme western portion of the Township lies within the Stony Creek Watershed. This area is mainly large lot residential with homes residing on properties of at least two (2) acres. The majority of the residential property is already split or developed. The northern portion of the sub-watershed lies on the Ford Proving Ground Property. Most of that area is vacant, however, there are several small roadways developed for the Proving Grounds. See Illustration 9-5.

Potential Watershed Impacts from Land Use and Recommendations

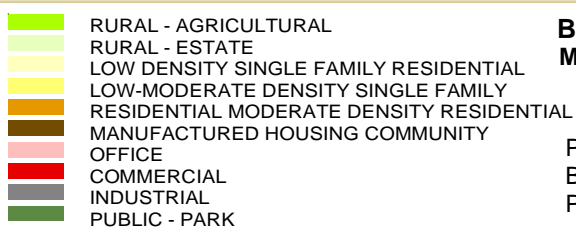
Septic system failure or seeping – A number of the residences in this area of the Township have been in place for a substantial time. This is important due to increased potential for septic failure. Naturally as the system ages, the potential for failure increases and the potential for lack of maintenance also grows. Education on proper maintenance as well as the implementation of the County's point of sale program will help minimize the impacts.

Natural Feature Impact – One of the two identified natural features within this watershed lies directly adjacent to two (2) large developable properties. If and when these properties develop, the previously noted development techniques and natural features ordinances will need to be implemented to help preserve the identified natural features.



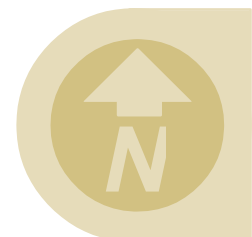
9-5

STONY CREEK SUBWATERSHED



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COMMUNITY | Section 10.0 facilities

B R U C E
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C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

Community facilities are an important part of a municipality's overall development and, consequently, need to be considered in the preparation of the Master Plan. Those community facilities considered in this report include schools, parks, utilities, protective services, libraries, and other municipal buildings. Each of these facilities has an impact on a community's future land use pattern and is important to the operation of the community. These facilities also make a significant contribution to a community's overall identity. Often, the impression created by a particular community is directly related to its municipal buildings, schools, parks, libraries and other public buildings. This is particularly true for those suburban communities where development is dispersed over a large geographic setting, as compared to the more compact physical form of many older cities.

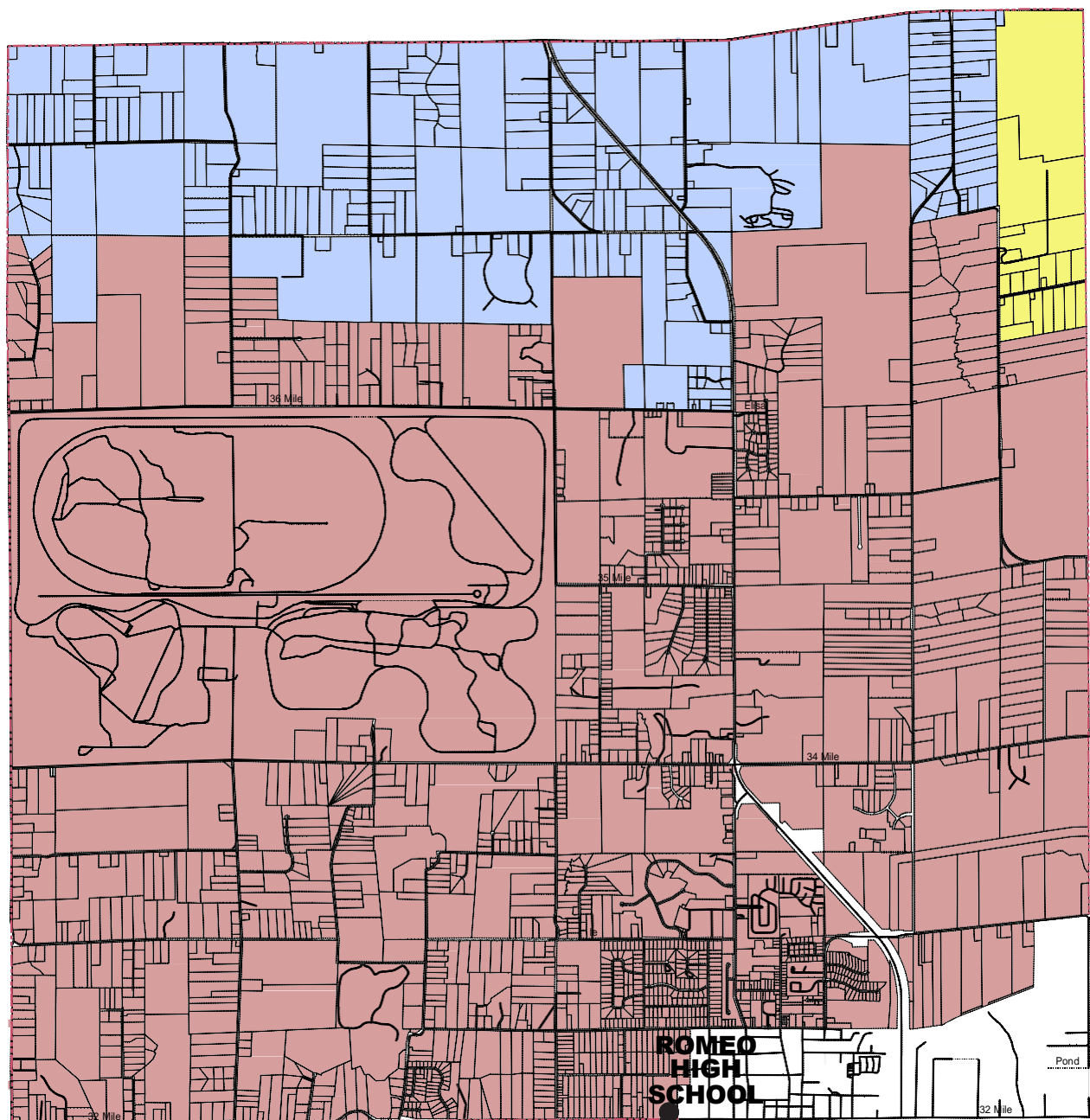


SCHOOLS

Bruce Township has limited control over school operations or functions, school needs, the location of schools, or the impacts of schools on the community's overall land use plan based on State Statute. However, schools are considered as a part of the analysis for coordination purposes.

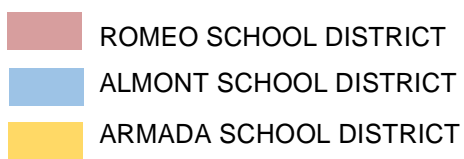
Three (3) school districts operate within Bruce Township. These include the Romeo School District, the Almont School District, and the Armada School District. The Romeo School District makes up the majority of the Township, approximately the southern two thirds (2/3) of the Township. The Almont School District traverses the top one third (1/3) of the Township, generally north of 36 Mile Road. The Armada School District is located in the far northeast corner of the Township, east of Brown Road.

The Romeo School District operates the Romeo High School within the Township. This facility has long been home to the High School, but as the District continues to grow, the facility will likely be turned in to a junior high school or middle school and the high school will be moved to a larger property. This however is likely dependent on additional bond monies being approved by the District residents. The Almont or Armada School Districts do not operate any school facilities within Bruce Township.



10-1

SCHOOL DISTRICTS



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Bruce Township
Planning Commission

As the Township continues to grow, it can be anticipated that an elementary school for the Romeo School District will be necessary. There are currently three (3) elementary schools in Washington Township, two (2) elementary schools in the Village of Romeo and one (1) elementary is located in Addison Township, north of 32 Mile Road and west of Dequindre Road. Additional populations in Bruce will likely generate the need for an elementary within the central or eastern portions of the Township. Careful attention will need to be given regarding the potential impact of a new school facility within the Township. Impacts on adjoining neighbors including, noise, light, and general school operation, as well as traffic will all provide major impacts to adjoining neighbors as well as those living in the general neighborhood. The Township should request to create a joint committee to help resolve planning issues revolving a new school as the need and funding arises.

COMMUNITY FACILITIES

TOWNSHIP FACILITIES

Bruce Township Hall is located on Gates Street just outside of the Village of Romeo. The Hall provides administrative offices, the Township's meeting hall facilities as well as one of the Township's fire halls. Parking is provided at the rear of the site. The parking also services as parking for the Township Hall Park located immediately behind the Township Hall.

The need to expand Township Hall is not foreseen within the timeframe of the Master Plan. When expansion becomes necessary based on growth or the need for an updated facility, it is unlikely that such expansion will be feasible at the current location without either moving the fire hall to a new location and converting the fire hall into additional administrative offices or removing portions of the park for additional parking and expanding the building into the existing parking lot. The feasibility of each scenario will need to be reviewed by the Township, architects, planners, administrative professionals, and the like.

POLICE, FIRE, AND EMERGENCY SERVICES

Police protection is provided by the Macomb County Sheriff's Department as well as the Michigan State Police. The Township does not have its own police force. For those residents within the Village, police protection is provided by the Village of Romeo Police. As the Township continues to grow, additional contracts within the County Sheriff's Department or an adjacent community such as Romeo, will be necessary for increased coverage and protection. These additional services will need to be factored into the Township's overall budget.



Photo 3
Bruce Township Fire Hall on Van Dyke



10-2

COMMUNITY FACILITIES



TOWNSHIP HALL - FIRE HALL



FIRE HALL



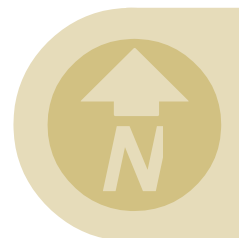
TOWNSHIP PARK



SCHOOL

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



Bruce Township maintains three (3) fire halls within the Township. Two (2) are located at the Township Hall and the third is located on Van Dyke near Ebeling Road. The location along Van Dyke is a recent facility constructed within the last decade.

The Bruce Township Fire Department is made up of fourteen (14) full time fire fighters and emergency personnel and ten (10) on-call paid volunteers.

The need for an additional fire hall is not foreseen within the timeframe of the Master Plan. The location of the fire hall at Van Dyke and Ebeling Road provides a central location to the entire Township.



Photo 4

Bruce Township Fire Hall at Township Hall

MUNICIPAL WATER SYSTEMS

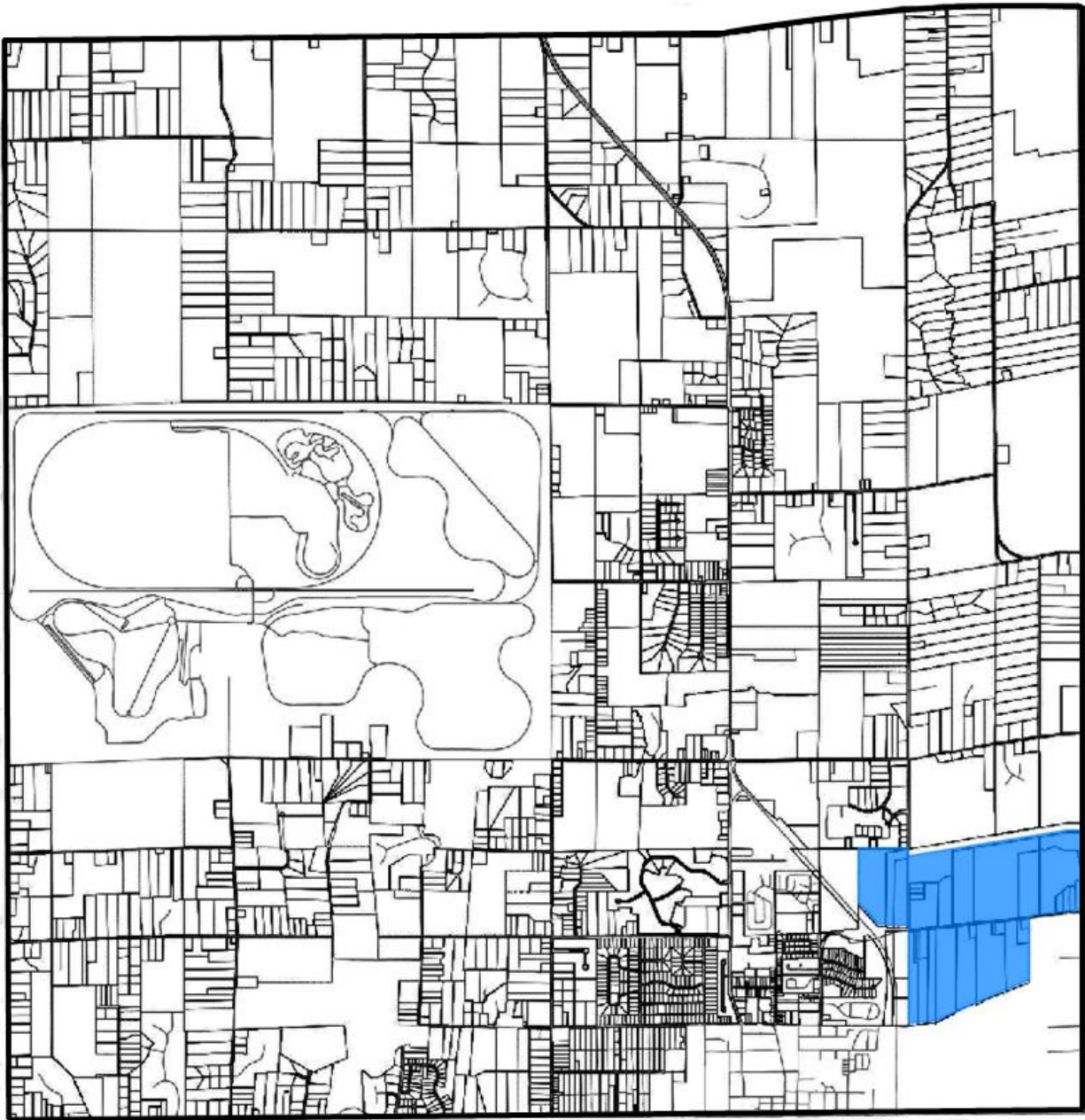
The 2008 Master Plan indicated that as the Township determined what water source would be most practical and feasible to service the Township and as a district was developed, that the Master Plan would need to be amended to reflect the chosen policy(s) and district(s).

In the summer of 2010, the Bruce Township Board of Trustees in conjunction with Armada Township worked with the Detroit Water and Sewer Department to establish a water agreement and associated water district for each community utilizing the same tap located at approximately 33 Mile Road and McKay Road. The line servicing both Bruce and Armada Township is a dual 12-inch line within Bruce Township. This system design provides redundancy in the system to the Township boundary. The overall Bruce Township water district largely mimics that of the Township's primary industrial district. Further, the Township has already indicated that water service will be limited to the District established in Illustration 10-3. The water district has a total of 750 residential equivalent units or REU's. This is equal to a total usage of approximately 225,000 gallons per day.

As a part of the extension of water service, the Township has already allocated all of the water taps to the properties within the industrial district. No further expansion of the water system is foreseen during the time frame of the Master Plan.

MUNICIPAL SANITARY SYSTEMS

The Township has a defined sanitary sewer district which resides within the Central Planning Area. In 2010, the Township extended the sanitary sewer district beyond the Clinton River to the north, along Van Dyke to the Twin Brooks development as well as the remaining properties between Twin Brooks and Van Dyke and M-53.



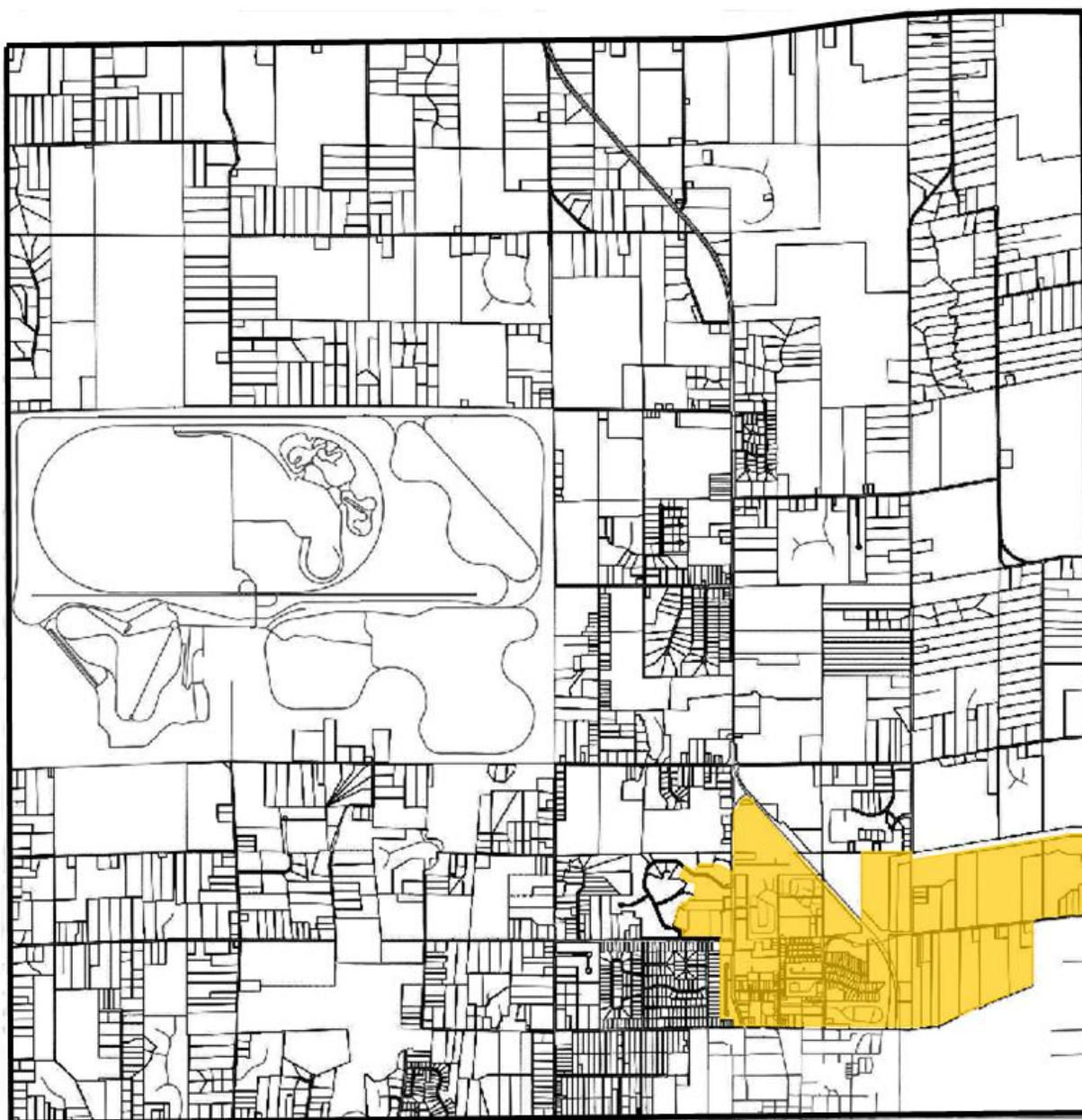
10-3

WATER DISTRICT

BRUCE TOWNSHIP
Macomb County

Prepared By:
Bruce Township
Planning Commission



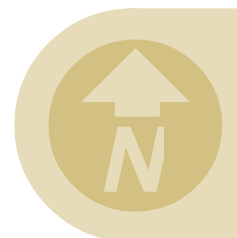


10-4

SANITARY SEWER DISTRICT

BRUCE TOWNSHIP
Macomb County

Prepared By:
Bruce Township
Planning Commission



The Village of Romeo operates a municipal waste water collection and treatment system in cooperation with Bruce Township. The treatment plant is located in the Village's industrial area, just north of 32 Mile Road and west of Powell Road. Bruce Township has contracted with the Village of Romeo for approximately twenty four (24) percent of the capacity of the plant. The plant is currently undergoing an expansion which will expand the plant to its ultimate capacity. The total capacity of the plant will be 2.1 million gallons per day. The Village of Romeo is entitled to approximately 1.6 million gallons per day; Bruce Township is entitled to slightly over 500,000 gallons per day. Bruce Township has allocated the majority of the forthcoming capacity to the Township's industrial district. This totals approximately 255,000 gallons. The remaining capacity will provide sewer service to the remaining residential properties within the defined sanitary sewer district.

The Township and land owners have recently passed a special assessment to extend the necessary sanitary sewer lines down 33 Mile Road to service the Township's industrial district. The majority of the remainder of the district is already serviced by sewer lines and simply needs to be tapped to provide service.

As a part of ongoing maintenance, the Township continues to monitor the sewer lines checking for cross ties and infiltration. However, at this time it is believed that the majority of such issues have been addressed.

LIBRARIES

Bruce Township residents have access to the Romeo Community Library. The library maintains two library locations. This includes the main branch, the Graubner Library located in Washington Township as well as the Kezar Library located in the Village of Romeo. The Graubner Library was constructed in 2000 and totals approximately 20,000 square feet. The original plans for the library allowed room for nearly doubling the size of the library as the need arose. The Kezar Library is an historic building located adjacent to the downtown. This facility is used largely for special materials as well as some general circulation.



*Photo 5
Kezar Branch Library*

PARKS AND RECREATION

The Romeo-Washington-Bruce (RWB) Recreation Commission is a public agency, formed by both Bruce and Washington Townships, which is responsible for providing recreation services to area residents. The purpose of the Commission is to promote, plan, coordinate and operate a system of indoor and outdoor public recreation programs and facilities for all residents of those areas encompassed by the boundaries of Bruce and Washington Townships along with the Village of Romeo. The Commission was organized pursuant to Public Act 156 of 1917.

The Commission consists of one Township Board representative from both Bruce and Washington Townships. The administrative duties of the Commission are the responsibility of the Director of Parks and Recreation, who is answerable directly to the Commission. A Recreation Coordinator, a Program Supervisor, a Senior Program Supervisor, and a Senior Citizen Coordinator, all of which are full-time positions, assist the director. Other full-time staff include a bookkeeper and two secretaries. The STAR Transportation program also has a full-time coordinator, who is responsible to the Director. The Director is also assisted by a number of permanent, part-time, and temporary staff who direct many of the individual programs offered by Parks and Recreation.

As indicated earlier, the duties and responsibilities of the Recreation Commission has evolved and expanded since its initial formation in 1968. Today, the Recreation Department is responsible for the coordination and delivery of recreation services and programs available to residents of all three communities. Its main responsibility lies in the area of recreational programming. The Department offers a diverse range of programs, which feature instructional classes, athletic competition and special events for all age groups. These programs change from time-to-time to reflect both the needs and preferences of area residents.

The Department operates two Older Adult Centers, one at The Romeo Community Center and the other at the Washington Township Municipal Building. Both centers focus on the needs of senior citizens. Programs offered by these centers emphasize the recreational, nutritional and health needs of senior citizens. Transportation services for seniors are provided by the STAR transportation program, which offers door-to-door transportation for eligible seniors or handicapped residents. A separate millage supports this service.

BRUCE TOWNSHIP PARK SITES

Bruce Township maintains three (3) park sites. These include, Orchard Hills Park, located at the intersection of 33 Mile Road and Morency; Crystal Diamonds, also along 33 Mile Road toward the east boundary of the Township and finally the Bruce Township Hall Park site. These three (3) park sites provide recreational opportunities to the three (3) distinct areas of the Township since one (1) park is west of Van Dyke, another park is located east of M-53, and the final park lies between Van Dyke and M-53. Van Dyke and M-53 provide major pedestrian obstacles and traversing the roads to access park sites is not always desirable.

Orchard Hills Park has been developed nearly to its full potential. The park includes a number of amenities including parking, a walking path, numerous climbers, swings and the like as well as some active sports areas.

Crystal Diamonds has been developed primarily as an active sports facility with ball diamonds and parking areas. Bruce Township Hall Park site has been developed with a walking path and has access to play structures. The site also includes benches and trash receptacles.

PLANNED PROJECTS

Bruce Township Park Site: While many improvements have been made to this park site, the RWB Plan suggested that additional improvements should be made. These include high priority projects, such as the expansion and improvement of trail connections, medium priority projects, including a fitness trail and water and electric services, and low priority improvements to the sporting fields.

Orchard Hills Park: The Plan recognizes that the park is substantially built out and the primary planned improvements include connecting the park to the 33 Mile Road sidewalk, developing additional parking and shared roadway signage along Morency, the installation of electrical outlets for security lighting, and the continued maintenance and repair of existing facilities.

Crystal Diamonds: The Parks and Recreation Plan identifies improvements to the Crystal Diamonds park, including the lighting of the ball fields, the development of a play structure, pathway connections to the Township Hall and park sites, permanent restroom facilities, and additional tree plantings.

Community Center: The Plan called for several structural improvements to the actual building. This included the repair of the existing roof structure which was leaking also any additional structural damage which resulted from the leaking. This has now been completed. Further, the plan called for the creation of an extension to the kitchen facilities and the creation of a multiple purpose room. These improvements have also been completed.

Kezar Library: The Recreation Plan considers the potential for creating more of a coffee shop or cafe feel for the existing library building. Wireless internet access, small areas for socialization and the like may also be appropriate. This would be done in conjunction with RWB and the Library District.

Bruce/Romeo Loop: The Recreation Plan envisions the creation of pathways along roads like McVicar, Morency, and Gates for the completion of the loop in conjunction with Romeo to provide access to the Village core and the Macomb Orchard Trail. Thirty three Mile Road should also be included in this loop to provide access to the Township's commercial core.

Macomb Orchard Trail: Now complete, the Master Plan encourages the continued maintenance of the trail, along with providing the proper maintenance. Further, as developments come forward opportunities to provide access via a pathway system should be implemented.

Filling the Gaps: The Recreation Plan identified the need for each community to “fill the gaps” in the existing sidewalks and pathways. The Township has been extending pathways along McVicar and has been requiring pathway funding for all new developments which come to the Township.

LONG RANGE IMPROVEMENTS

The RWB Parks, Greenways and Open Space Plan, preliminary adopted in 2011, identified several long term projects or improvements to the recreational structure of the three (3) communities. These projects or improvements are envisioned as being necessary but potentially not feasible within the five year time frame of the RWB Master Plan. The Plan suggests the following:

- The acquisition of additional parks is desired within Bruce Township; two (2) main areas should be targeted in the southwest and northeast corners of the Township. In the southwest, parkland in the area of Fisher Road between 32 and 34 Mile Roads should be sought. The two (2) closest parks are Simpson Park on Campground which is a private park with limited facilities in terms of playground equipment and the Hamilton Parsons Elementary School on the west side of Dequindre in Addison Township. The other area in which park land should be sought is the northeast corner of the Township. Several vacant natural areas exist in the northern portion of the Township; however, no parks are present. The area of Scotch Settlement, McKay and Brown Roads may be an appropriate location for potential land acquisition. Large tracts of open land exist in this area which may be suitable for future park sites in addition to preservation areas. It is noted that properties in the northern portion of the Township are larger. Typically, the need for park land is not as great when individual property owners have 5-20 acres of property. However, the ability to provide a more formalized park is still desirable.
- The continued development of the pathway and sidewalk system between public facilities and parks is another improvement that is proposed the Plan. In particular, the Township is seeking to connect the Township Hall Park site and the Orchard Hills Park by developing a sidewalk along Van Dyke from Kaeding to 33 Mile Road.

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

Section 11.0

THOROUGHFARE | plan

B R U C E
T O W N S H I P

C O M P R E H E N S I V E
M A S T E R P L A N

INTRODUCTION

The automobile has a larger role in the everyday lives of suburban residents than ever before. This heightened reliance on the automobile affects the urban landscape, which has been dramatically changed during the automobile craze of the post World War II era. The evidence of this change is evident in almost any community in southeast Michigan. Much of the suburban growth in Macomb and Oakland Counties is the direct result from the gain in technology and the freedom that comes with the ownership of an automobile.

It is important to realize the direct relationship between the automobile and roadways and the new land use patterns that have been evident in recent years. It is essential to coordinate the plans for the expansion of residential development and commercial goods and services, with the long-range plans of expanding and improving these roadways.

Preparation of a Thoroughfare Plan has several practical applications that have important consequences for the community's theoretical capacity development pattern. Through the identification of future right-of-way locations and standards, the Township establishes the system of streets and roads that will provide access to future development. Furthermore, the cost of acquiring future road rights-of-way can be significantly reduced if the necessary reservation is accomplished well in advance of future road construction. By establishing right-of-way locations and standards through the Master Plan process, the community is provided with a basis for requesting right-of-way reservations during the site planning and land development process.

Designating right-of-way widths also helps a community establish uniform setback requirements, which is accomplished through planning administration of implementing regulations. This minimizes the potential of having to acquire homes or businesses when road widening or public utility installation becomes necessary.

Three topics are considered in this report — commonly accepted traffic planning principles, characteristics of the roadway system in Bruce Township, and the future plan for roadways in Bruce. The first of these is an identification of thoroughfare planning concepts. Broadly accepted concepts are offered as a way of providing a common basis of understanding or vocabulary. The next section describes the characteristics of Bruce Township's local road system. This includes traffic volumes along major roads, accident locations, and identification of major traffic generators, among other factors. The section concludes with a description of the Thoroughfare Plan and how the Plan relates to Bruce Township's Land Use Plan. Major proposals and recommendations for the future are also offered.

Orderly development and a desirable environment can only be achieved if full consideration is given to the relationship between the type and intensity of land uses and the need for proper access and the resulting traffic generation movements. Improved planning of the thoroughfare system will likely result in a better urban development pattern and consequently, a much improved environment and efficient use of land.

CONCEPTS AND STANDARDS

TRANSPORTATION PLANNING CONCEPTS

Traditional transportation standards arrange roadway systems into a series of roadway classifications. These classifications are based on the different volumes and service areas for which they are intended to serve. These general roadway classifications usually consist of the following: freeways, arterials, collectors, and local roads. Each different classification carries with it its own minimum design standards.

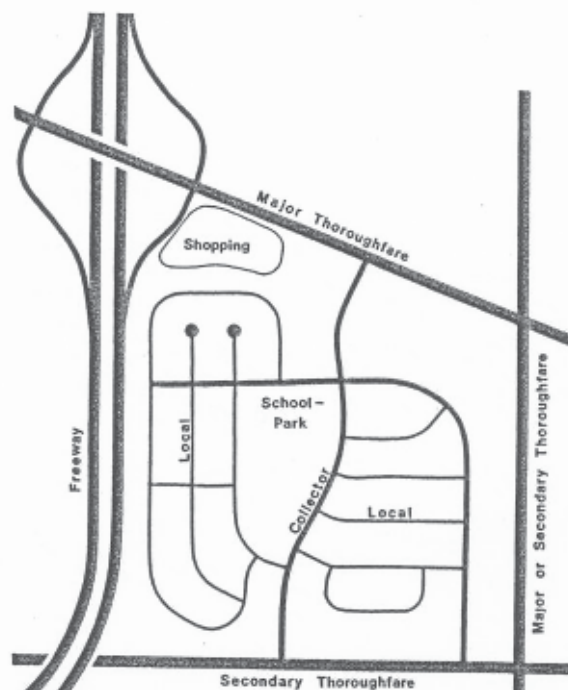
Each roadway classification carries a specific purpose within the overall transportation system. This system strives to efficiently move traffic while still providing a safe environment for residents and pedestrians. The different levels of the classification system should reflect the specific category and intensity of land use that they are designed to serve. In applying a classification system, the through-traffic movements and the access requirements of abutting property should be considered. A commonly accepted classification system prepared by the National Committee on Urban Transportation follows and is shown in Illustration 11-1.

Freeway - This class is devoted to traffic movement with little or no land service function. Thus, it is characterized by at least some degree of access control. Except in rare instances, this classification should be reserved for multi-lane, divided roads with few, if any, intersections at grade. Expressways serve large volumes of light speed traffic and are primarily intended to serve long trips.

Arterial/Major - This class of streets brings traffic to and from the expressway and serves the major movements of traffic within or through the urban area that are not served by expressways. Arterials interconnect the principal traffic generators within the community, as well as important rural routes. Arterials handle trips between different areas of the community and should form a reasonably integrated system. The length of the typical trip on the system should exceed one mile.

Collector - This class of streets serves internal traffic movements within a limited area of the community, such as a subdivision, and connects this area with the larger arterial system. Collectors do not handle long through-trips and are not, of necessity, continuous for any great length. In gridiron street patterns, however, a street of several miles in length may serve as a collector, rather than an arterial if the predominant use is to reach the next junction with an arterial.

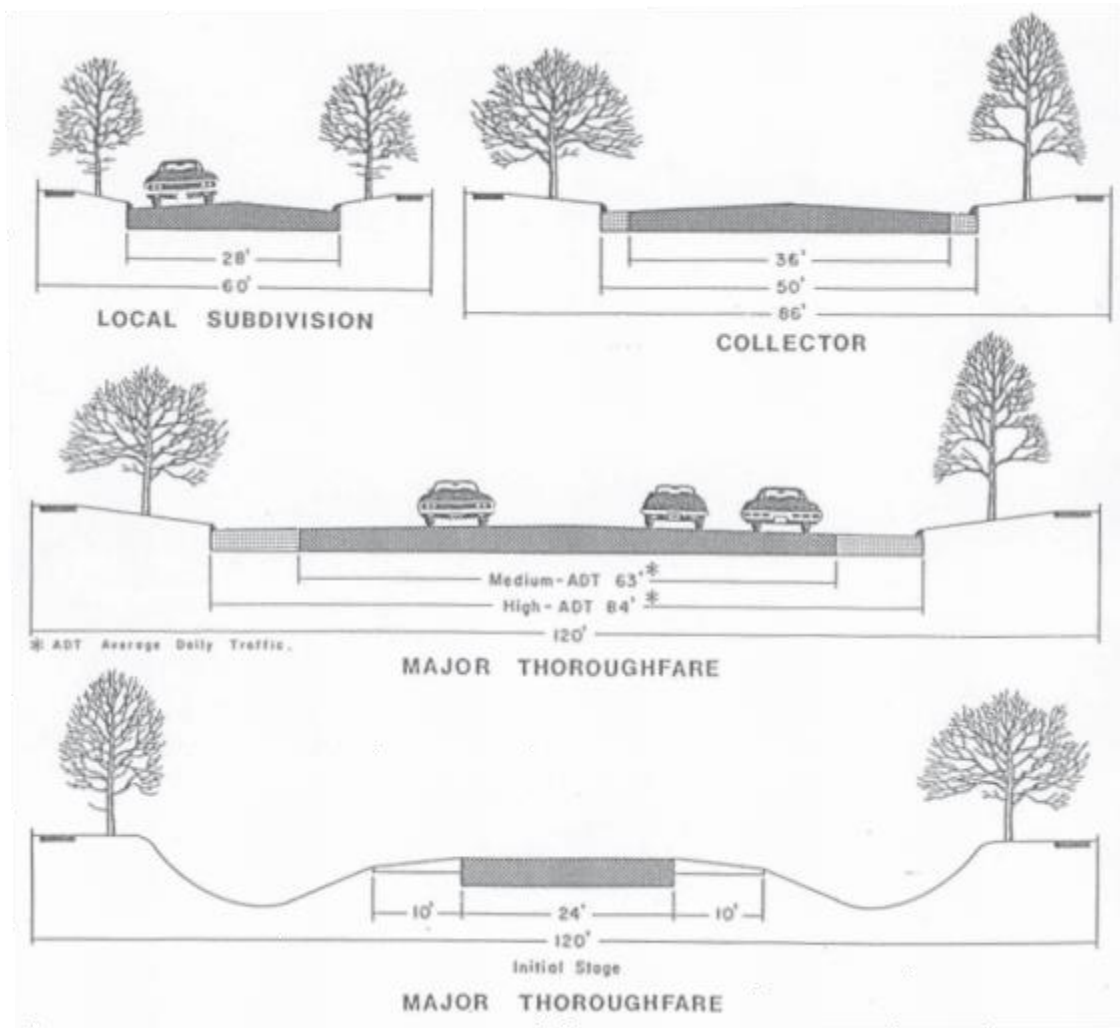
11-1 ROAD CLASSIFICATION SYSTEM



Local - The sole function of local streets is to provide access to adjacent land. These streets make up a large percentage of the total street mileage of the township, but carry a small proportion of the vehicle miles of travel. In and around the central business district (CBD), local streets may carry traffic volumes measured in thousands, but this is the exception. Local residential streets, in most cases, carry daily volumes of 1,000 or less.

11-2

MACOMB COUNTY ROAD COMMISSION STANDARDS



ROADWAY STANDARDS

The configuration of the highway system throughout much of the Nation, including southeast Michigan and Bruce Township, is, in large part, a product of the Northwest Ordinance of 1787. This noteworthy legislation continues to exert a broad and lasting impact on land use and transportation patterns of the region.

The Northwest Ordinance of 1787 divided the Country into one-mile square grids, which serve as the paths for an extensive network of major thoroughfares or section line roads. This pattern is likewise evident in Bruce Township.

Road standards, including rights-of-way, pavement widths, and specifications, were developed by the Inter-County Highway Commission and remain in use today by the Macomb County Road Commission. Cross-section standards and right-of-way designations recommended for various categories of road are specified in Illustration 11-2.

EXISTING CONDITIONS

STREET INVENTORY

Freeways - The M-53 Freeway has helped to alleviate traffic congestion within the southern half of the Township. Van Dyke Avenue has been partially freed up by the completion of the freeway. The freeway does create problems for the Township though; the intersection of Van Dyke Avenue and the Freeway causes congestion due to the fact that the freeway carrying capacity is far greater than that of Van Dyke Avenue. The capacity difference between the four bidirectional lanes of the freeway and the two lanes of Van Dyke/M-53, north of 34 Mile Road causes congestion problems on Van Dyke Avenue within the northern section of the Township as well as the Village of Almont and Almont Township to the north.

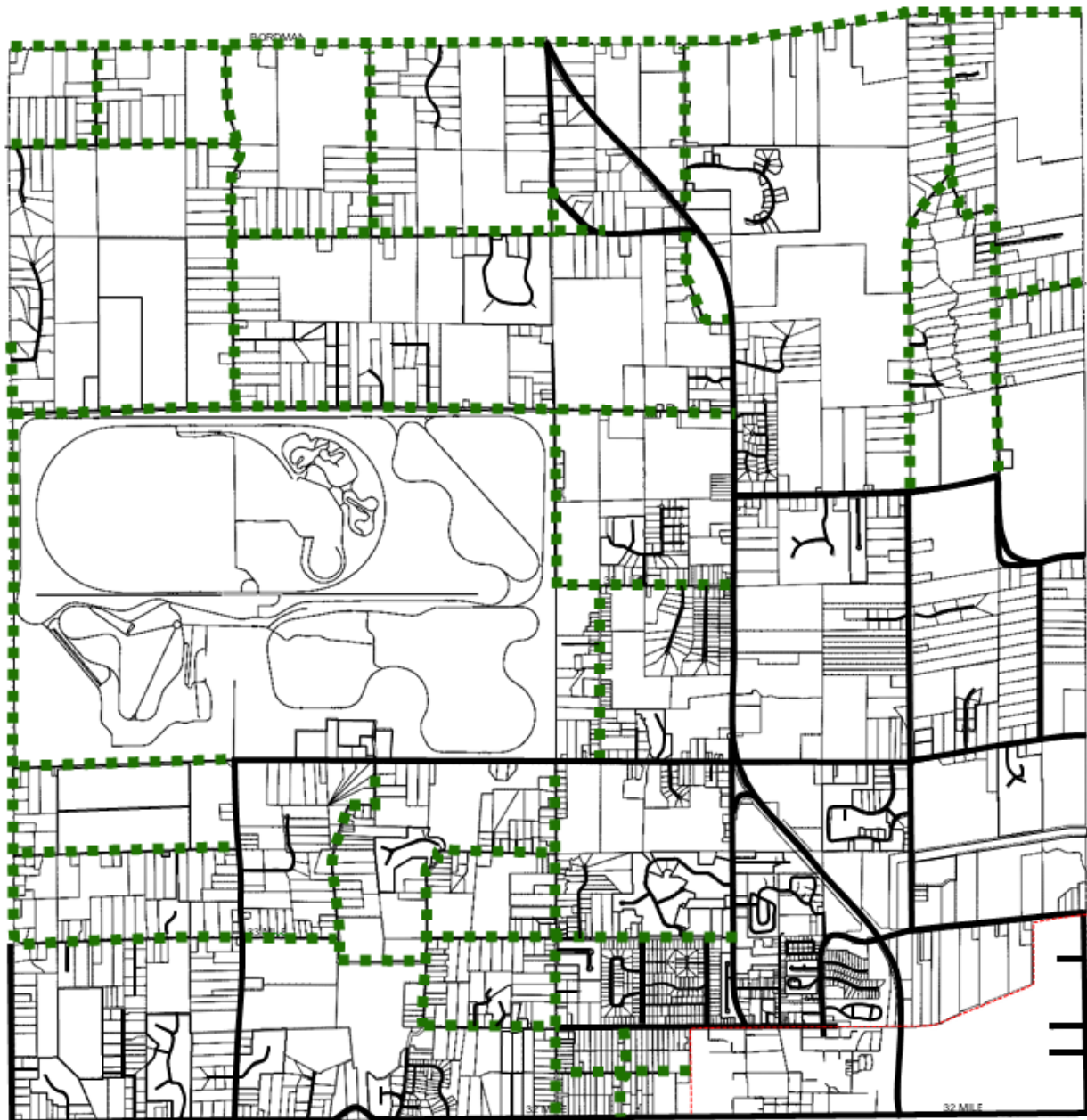
Major Streets - The major street system serving Bruce Township attempts to follow section-line alignments. A number of roads actually follow half-section lines to complete the system where section line roads were not feasible or constructed. This system provides a framework for major and secondary roads, which permits access through and within the Township. The principal function of these major streets is to efficiently move larger volumes of traffic from an origin to a destination within a fairly close proximity.

The continuity of the east/west roadway “grid pattern” is interrupted at 35 Mile Road by the presence of the Ford Proving Grounds within the western half of the Township. A number of roadways terminate east of Van Dyke. These include 33 Mile Road, which is absent between Van Dyke Avenue and McKay Roads, as well as 35 Mile Road, which does not extend east of Van Dyke Avenue until Armada Center. Further north, 37 Mile Road does not extend east of Van Dyke Avenue or west of Fisher Road.

The Ford Proving Grounds also interrupts several north/south arterials. Fisher Road and Lassier Road are interrupted from completing north and south connections. Weyer Road only extends one section to the south of the northern boundary of the Township (Bordman Road). Hipp Road is intermittent along the eastern edge of the proving grounds.




Subdivision Streets - A large number of the Township's residential streets, particularly in newer subdivisions, are constructed to Macomb County Road Commission standards. These standards incorporate a 60-foot right-of-way width, with a 24-foot wide pavement cross-section with open drainage ditches. Some developments are constructed to the Township's private road standards. These feature slightly narrower pavement widths and open drainage. These roadways are found largely within the Township's open space developments.

Private Roads - The Bruce Township Zoning Ordinance allows for the construction of private roads to facilitate the development of single-family home sites in the more rural portions of the Township that are not intended to be served by municipal utilities and where lots of over two (2) acres are planned and zoned. This development option allows property owners to divide their property for single-family purposes. Individual property owners, who share frontage on the road, share maintenance responsibilities. Private roads are also permitted within site condominium developments. Again, maintenance of the roadways is the responsibility of the residents of the site condominium.



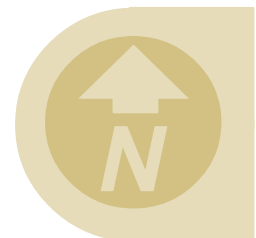
11-3

ROADWAY CONDITIONS

-  PAVED ROAD
-  GRAVEL ROAD
-  RESIDENTIAL ROAD

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



TRAFFIC VOLUME

Traffic counts were obtained from the Southeast Michigan Council of Governments through the year 2014. The most recent counts were utilized for planning purposes.

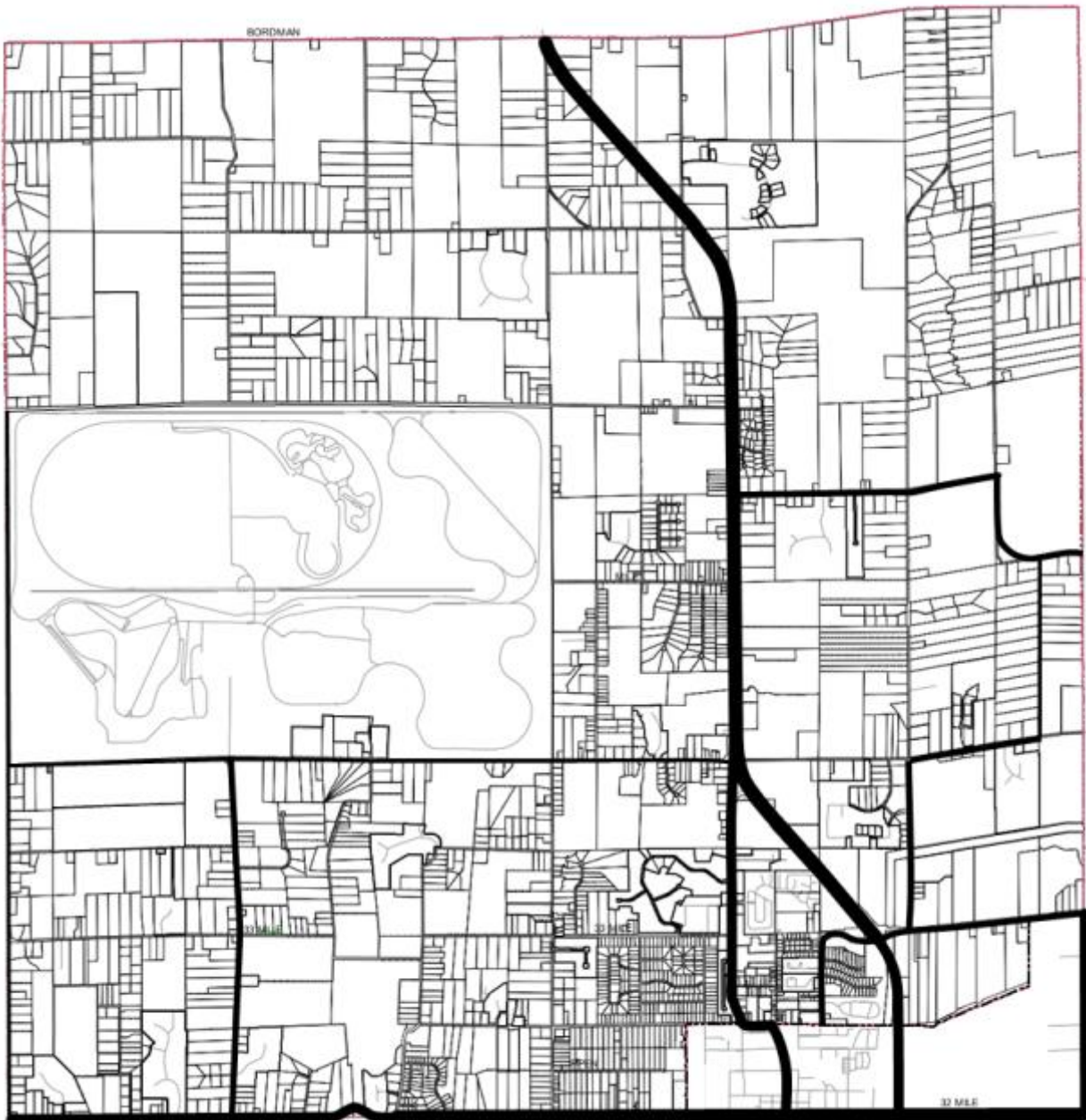
M-53 Expressway and Van Dyke - Traffic counts for M-53 indicate that approximately between 15,000 and 26,000 vehicles travel M-53 on a daily basis. By far, M-53 is the highest traveled roadway within the Township. Traffic counts for M-53 indicate that higher counts are present between 34 Mile and 36 Mile Road, while the lowest counts are near the Township's northern boundary. This is a result of residents of the Township traveling to M-53 to head southward for employment, shopping, and entertainment opportunities within the more developed communities of Shelby, Sterling Heights, and Warren, among others.

32 Mile Road - Traffic counts for 32 Mile Road, west of the Village of Romeo, show a total of approximately between 7,500 and 24,000 vehicles per day. Higher traffic volumes are recorded along 32 Mile between Mound Road and the Village of Romeo. Traffic volumes drop significantly west of Mound. This indicates that a large number of vehicles utilize Mound Road for southern access rather than traveling into Romeo to Van Dyke or M-53.

Major Thoroughfares - The other roadways and roadway segments within the Township which have traffic volumes in excess of 1,000 vehicles per day are;

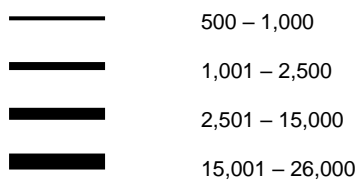
- 33 Mile Road from McVicar Street to Powell Road,
- 34 Mile Road from McKay to Kanie,
- Ebeling Road from M-53 to Brown Road,
- Brown Road from Armada Center Road to Ebeling Road,
- McKay Road from 33 Mile to 34 Mile Road,
- Van Dyke from 32 Mile to M-53,
- Fisher Road from 32 Mile to 34 Mile Road

All of these roadways are paved. Higher traffic patterns have a tendency to follow paved roadways in an effort to avoid gravel roads as well as to allow traffic to travel at higher speeds.



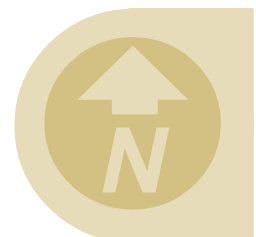
11-4

TRAFFIC VOLUME – SEMCOG



BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



MASTER PLAN RECOMMENDATIONS

Right-of-Way Preservation

Many roadways in Macomb County were originally designed for much lower traffic volumes than they are expected to handle now or in the future. Acquisition of additional right-of-way to accommodate desired improvements can delay projects and escalate costs. The advance right-of-way acquisition process suggested within the County's Master Plan, also reduces later disruption to homes and businesses that would otherwise need to relocate or redesign their site. A cooperative effort to preserve right-of-way in advance of the planned roadway improvements could help address this issue.

Collector Roads

In an effort to help maintain the rural character of the Township, the Township has determined that a number of section-line roads, which would typically be considered major roads and require the dedication of 120 feet, be planned as only a collector road with an 86-foot right-of-way. With the planned low densities to the far west, east and north of the Township, this type of roadway is feasible. These roads will serve to move residents who reside on two and five-acre lots to the major roadways of the Township and ultimately to their destination, typically to the south.

Major Roads

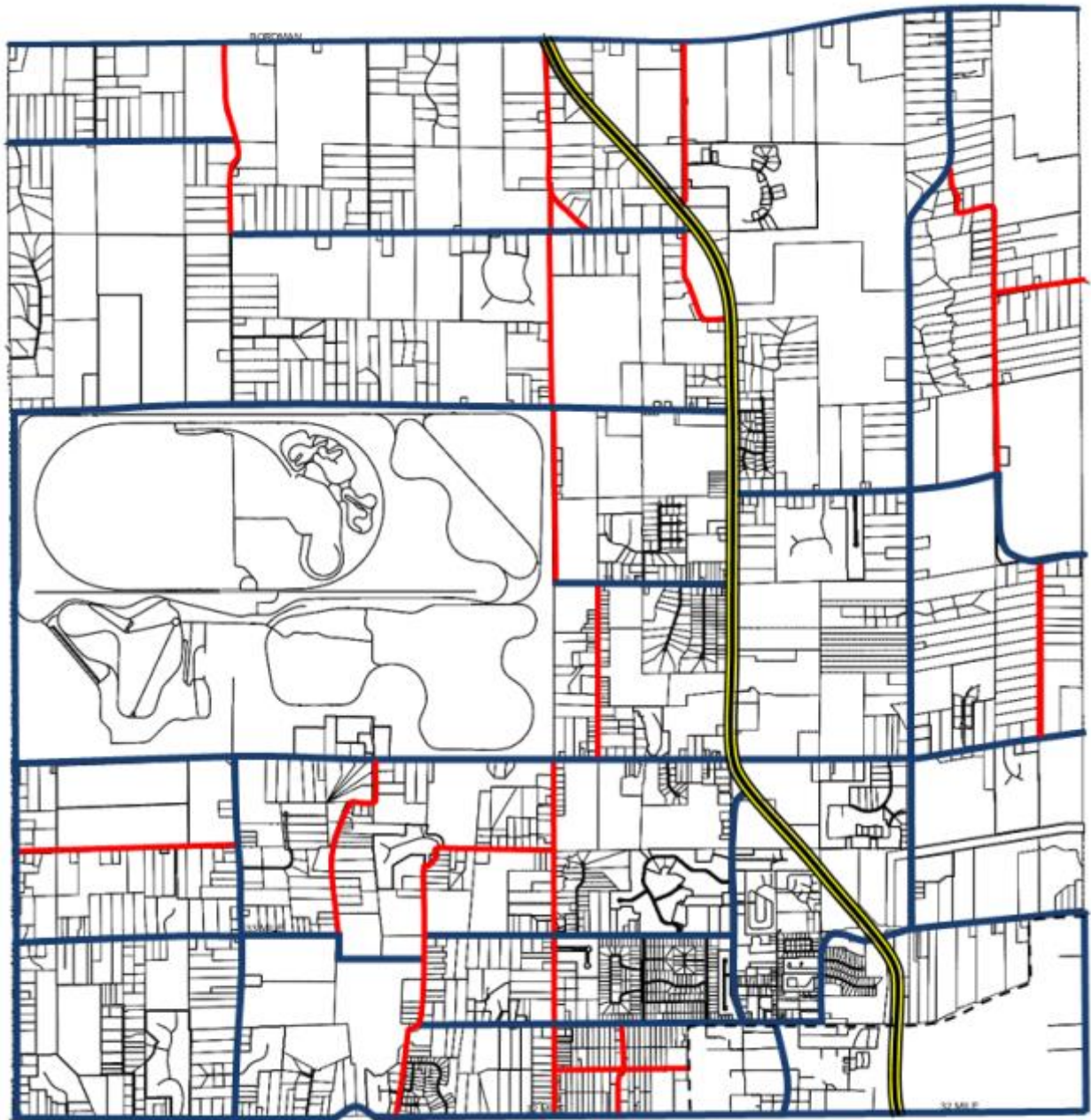
The roadways listed to the right are designed to be the major traffic carrying roads of the Township. These roads, in conjunction with the designated collector roads, would provide for the efficient and safe movement of vehicles within the Township. At this time, no plans are intended for the paving of any major roadways which are currently not paved.

Planned 86-foot Rights-of-Way

- Brown Road - Ebeling Road to Scotch Settlement
- Campground Road
- Eldred Road
- Gates Road – Eldred Road to Campground Road
- Gould Road - 34 Mile Road to 35 Mile Road
- Hipp Road
- Kanie Road
- Kidder Road
- Lassier Road
- Reid Road - Brown to Romeo Plank
- Taft Road




Planned 120-foot Rights-of-Way

- 32 Mile Road
- 33 Mile Road
- 34 Mile Road
- 35 Mile Road
- 36 Mile Road
- 37 Mile Road
- Armada Center
- Bordman Road
- Dequindre Road
- Ebeling Road
- Fisher – 32 to 34 Mile Roads
- Gates Road – Campground Road to Van Dyke Road
- McVicar Road
- McKay Road
- Scotch Settlement



11-5

RIGHT-OF-WAY MASTER PLAN
 MACOMB COUNTY ROAD COMMISSION

-  MDOT ROADWAY
-  120' ROW
-  86' ROW

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission

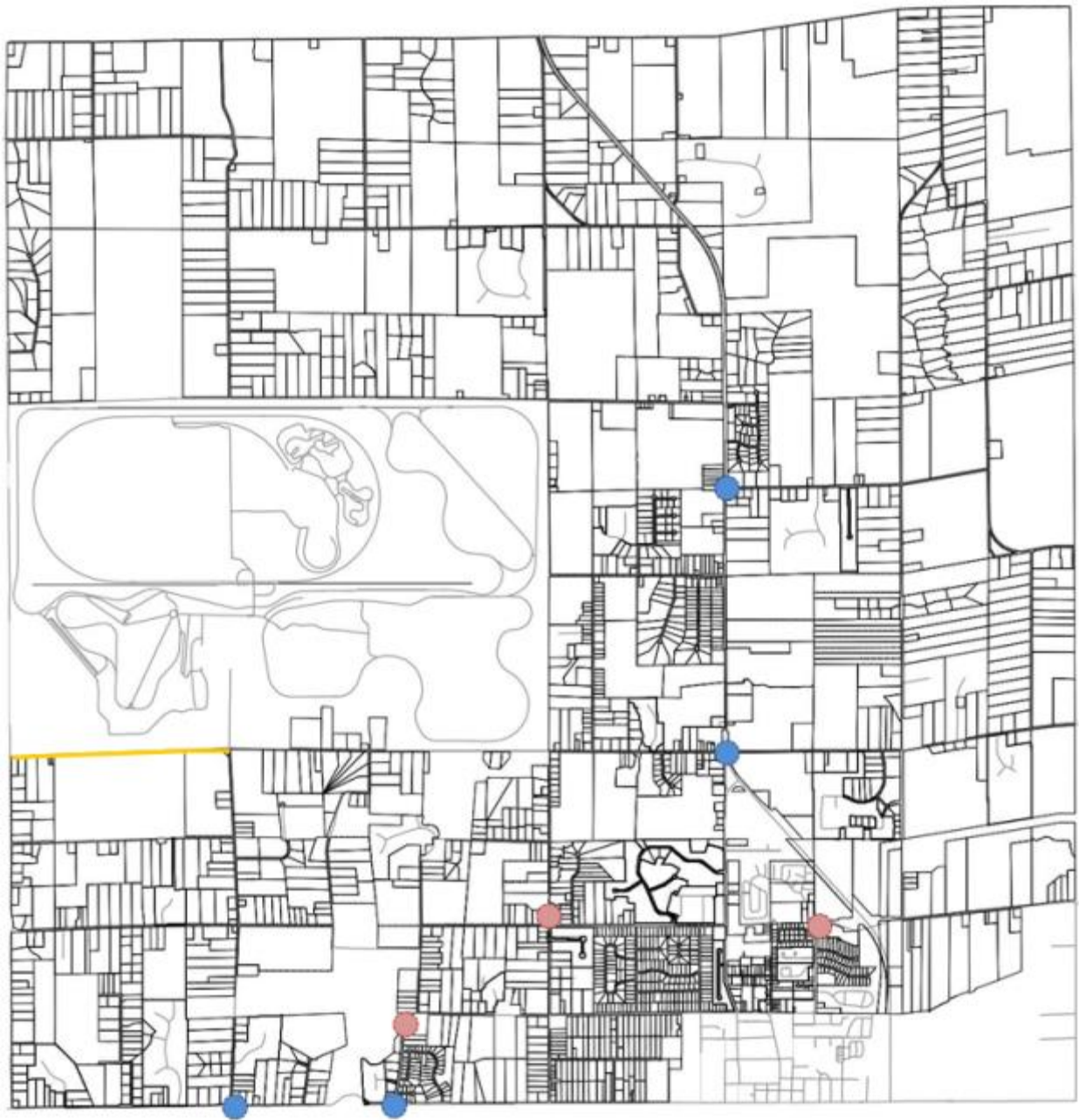


Macomb County Planned Improvements

The Road Commission of Macomb County released its 2030 Master Plan in 2005. As of the date of publication of this document, this is the most current, available Master Plan. The Plan provides an analysis of the county's current roadway system, evaluations of the current and expected level of service based on proposed buildout of the county through 2030, and recommends policies and improvements based on the analysis. The following is a list of proposed projects that are planned within the boundaries of Bruce Township:

Table #12
Macomb County Road Commission
Planned Improvement 2004-2030

<p>Short Term Recommendations</p> <p><u>Paving Projects:</u></p> <ul style="list-style-type: none"> • Pave the remaining segment of 34 Mile Road between Dequindre Road and Fisher Road and raise the functional classification to minor arterial <p><u>Intersection Studies:</u></p> <ul style="list-style-type: none"> • 32 Mile Road and Mound Road • 32 Mile Road and Fisher Road • 34 Mile Road and Van Dyke • Ebeling Road and Van Dyke Avenue <p><u>Bridge Repairs:</u></p> <ul style="list-style-type: none"> • Saxon Drive over East Pond Creek • Campground Road over East Pond Creek • McVicar Street over East Pond Creek <p><u>Items already addressed from the MCRC Master Plan:</u></p> <ul style="list-style-type: none"> • Rehabilitation of McKay Road Bridge over North Branch Clinton River <p>Mid Term Recommendations</p> <p><u>Paving Projects:</u></p> <ul style="list-style-type: none"> • Resurface M-53 from 32 to 34 Mile Road <p><u>Bridge Repairs:</u></p> <ul style="list-style-type: none"> • 36 Mile Road over East Pond Creek • Bordman Road over North Branch Clinton River <p>Long Term Recommendations</p> <p><u>Paving Projects:</u></p> <ul style="list-style-type: none"> • Pave Dequindre Road from 33 to 36 Mile Road <p><u>Roadway Extensions / Connections / Construction:</u></p> <ul style="list-style-type: none"> • Connect Hipp Road from 36 Mile Road to 37 Mile Road • Connect 36 Mile Road to Irwin Road <p><u>Bridge Repairs</u></p> <ul style="list-style-type: none"> • 33 Mile Road over East Pond Creek • Brown Road over North Branch Clinton River



11-6

PLANNED ROAD IMPROVEMENTS – SHORT TERM

ROAD COMMISSION OF MACOMB COUNTY



Intersection Study



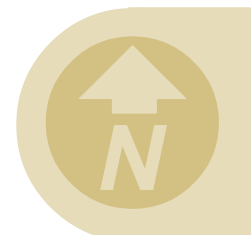
Bridge Repair



Pave 34 Mile Road from Dequindre to Fisher Road

BRUCE TOWNSHIP
 Macomb County





Prepared By:
 Bruce Township
 Planning Commission





11-7 PLANNED ROAD IMPROVEMENTS – MID TO LONG TERM

ROAD COMMISSION OF MACOMB COUNTY

-  Bridge Repair
-  Pave Dequindre from 33 to 36 Mile Road
-  Resurface M-53 to 34 Mile
-  Roadway Extension

BRUCE TOWNSHIP
 Macomb County

Prepared By:
 Bruce Township
 Planning Commission



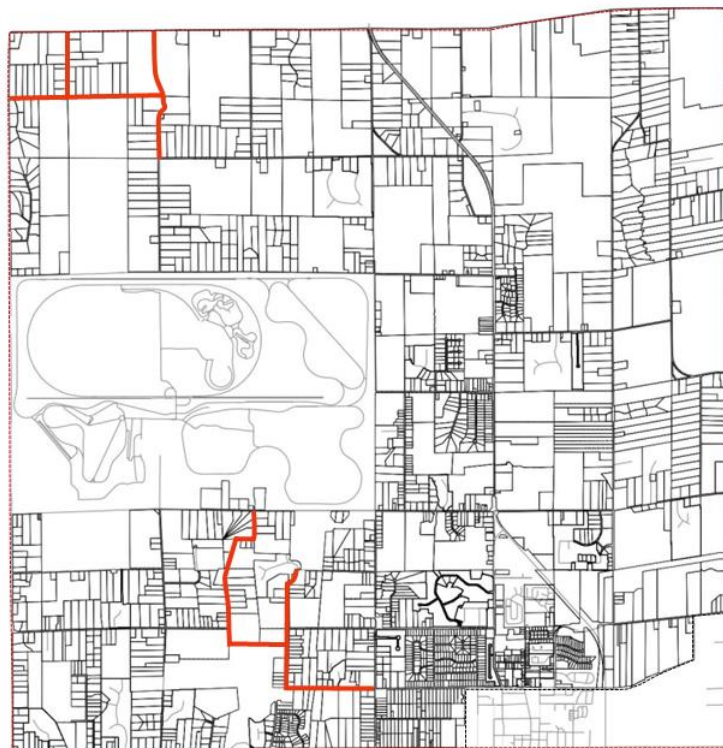
Scenic Roads

Frequently, local, scenic roads make a significant contribution to a community's sense of rural character. Gravel roads, with dense vegetation along both sides of the road, are common features in the rural setting of the Township. This sense of character is frequently lost as roads are widened and paved to accommodate higher traffic volumes associated with suburban development. The Natural Beauty Roads Act of 1970 allows County road commissions to designate specific roads as natural beauty roads. This legislation is designed to minimize road improvements, such as widening or brush removal, unless needed to improve safety. Limiting unnecessary road improvements helps to ensure that the rural character of the road is maintained.

The Township has designated on its own Master Plan a number of roads as scenic roadways. These include the following:

- Wales Road, between Bordman Road and McKail Road
- McKail Road, between the western Township border and Fisher Road
- Fisher Road, between 37 Mile Road and Bordman Road
- Lassier Road
- 33 Mile Road, between Lassier Road and Eldred Road
- Eldred Road, between Gates Street and Taft Road

With this designation the Township has taken the stance that future improvements, widenings, and road right-of-way reservations are not desirable. It is desired that these roadways be left as is in order to help preserve the rural character of the Township. Moving forward, the Road Commission should be approached to ensure that the planning designation of the Township is also respected by the County. Official designations for all of the designated roadways should be sought.



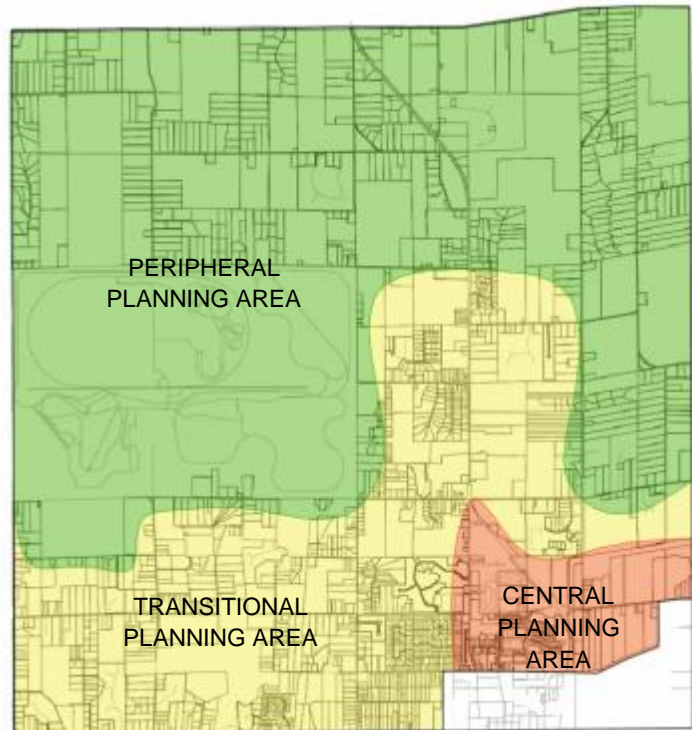
11-8

SCENIC ROADS

Planning Areas

As a part of the overall planning process, the Township was broken down into planning areas to help better describe what improvements are necessary and the rationale for such improvements.

Peripheral Planning Area - Within this planning area, north and south access is provided by several different roadways including Van Dyke, McKay, Brown, and Dequindre. Bordman, Ebeling, and 34, 36, and 37 Mile Roads provide east and west access to and from Van Dyke and are therefore designated as major thoroughfares. However, minimal future road improvements are planned for this area. As shown previously, McKail, Wales, and Fisher Roads are designated as Scenic Beauty Roads, limiting the potential for any improvements. The roadways within the Peripheral Planning Area



11-9

PLANNING AREAS

significantly contribute to the extremely rural character of this area of the Township. The planned densities for this area of the Township coincide with the scenic roadway restrictions. The Township's planned densities of one (1) unit per (5) five acres will limit traffic generation and therefore reduce the necessity for roadway improvements.

An additional light at 36 Mile Road or to the north may be necessary to help facilitate turning movements for residents traveling north and south on Van Dyke. Appropriate studies should be undertaken along with those already proposed to the south prior to the occurrence of such development. Additionally, any development which is constructed with Van Dyke frontage will need to incorporate necessary acceleration and deceleration lanes as well as bypass lanes to allow for safe turning movements and efficient traffic flow.

The County has plans for the redevelopment of the bridge on McKay Road near Scotch Settlement. This improvement while necessary will not accommodate any additional traffic. However, the County's plans to construct 36 Mile Road, east of M-53 will provide additional traffic relief for the area. As development occurs in this area, right-of-way should be secured in conjunction with the Road Commission. Finally, any development which is constructed with Van Dyke frontage will need to incorporate necessary acceleration and deceleration lanes as well as bypass lanes to allow for safe turning movements and efficient traffic flow.

The Township's Master Plan promotes the long term continuation of the Ford Proving Grounds. Being such, no real roadway improvements are planned in this area of the Township. Should the

Proving Grounds ever be redeveloped, it is anticipated that each of the section or half section roads affected by the Proving Grounds will be connected as a part of the overall development plan.

As noted in the County's plans, Dequindre Road is scheduled to be paved from 32 Mile Road to 36 Mile Road, providing more convenient access to this area of the Township as well as Addison Township to the west. Further, the paving of 34 Mile Road along the Proving Grounds southern boundary, which was completed in August of 2015, provides an east/west access route to Van Dyke and M-53 from the Township's western boundary of Dequindre Road. Additional traffic from communities to the west will likely be experienced due to the roadway paving. For those persons traveling to the north or south, access will then be easier to M-53.

Transitional Planning Area - The Transitional Planning Area contains five (5) main north/south roadways. These include Dequindre, Fisher, Campground, Van Dyke, and McKay. Fisher and Van Dyke are the only paved roads of the five at this time. A portion of Dequindre is paved, essentially to the Hamilton Parsons Elementary School. Additionally, McKay is paved from 33 Mile Road to Ebeling. The only major east/west access is provided by 32 Mile Road and 34 Mile Road. 33 Mile Road and Lassier Road are designated natural beauty roads and do not provide a continuous, uninterrupted thoroughfare. Like much of the western side of the Township, the roadways in this planning area are primarily narrow, gravel, tree lined roadways which establish the character of the Township.

The only planned improvements in this planning area are the paving of Dequindre Road and the review of the 32 Mile Road and Mound Road intersection. As development continues to occur along Mound Road, as well as 32 Mile Road to the west, traffic congestion will only continue to escalate. The need for a full functioning traffic light at 32 Mile Road and Mound will aid in left hand turn movements. Concern has also been raised with the safety of the "Cusick Lake Curves" located immediately to the west of the 32 Mile and Mound Road intersection. The Plan recognizes the need to straighten these curves which will also likely require additional right-of-way to be obtained.

Due to the fact that Van Dyke is the main thoroughfare carrying traffic north and south through the community, traffic volumes over the last five years have continued to escalate and are anticipated to continue to escalate over the timeframe of the plan. Currently, turning movements onto and off of Van Dyke need improvement. The intersections of 34, 35, and 36 Mile Roads and Ebeling Road have been improved with dedicated turning lanes; this should help with turning movements and traffic efficiency. In addition, as noted in the County's plans, intersection studies at 34 and 36 Mile Roads as well as Ebeling Road are planned. Traffic signals in these areas will likely be warranted to help facilitate traffic movements over the timeframe of the plan.

Further, the long-standing plans for the expansion of M-53 north of Romeo to Almont and beyond will also affect land use in this area. It is anticipated that M-53 will eventually be constructed to three (3) lanes, much like Van Dyke is constructed south of Romeo, in Washington Township. The introduction of this roadway improvement will help alleviate backups resulting from left hand turns against traffic. Should this improvement occur, the Transitional Planning Area will need to accommodate for the addition of some commercial land

uses. Careful attention will need to be given to access points for each of these developments as it relates to the overall carrying capacity and efficiency of Van Dyke/M-53. The use of joint access drives, cross access easements and secondary road access points will help minimize unnecessary conflicts and congestion. As each development comes forward attention should be given to the alignment of drives and maneuvering lanes to allow for future connections. Further, easements should also be secured granted cross access as each development is approved.

Central Planning Area - This area of the Township is essentially built out, with the exception of the industrial district. The possibility for new roadway construction or expansion is not foreseen. Therefore no improvements are planned. However, the continued maintenance of the roadways in this area of the Township is desirable at their current level of service.

The development of 33 Mile Road into a Class A roadway has allowed for continued and future development of the Township's industrial property by easing concerns of weight restrictions on the roadway during frost law times. The Township still has a large amount of vacant land within the planned industrial district. The development of vacant parcels or the redevelopment of existing parcels should be utilized as an opportunity to review access management standards for this area of the Township while still recognizing the needs for individual industrial users and their associated truck traffic.

With the allocation of sewer and water infrastructure within this district, there is a potential for small industrial subdivisions, much like the industrial subdivisions found within the Village of Romeo. The development of industrial roadways onto 33 Mile Road will help minimize curb cuts along 33 Mile Road from individual properties and users. Finally, the redirection of industrial traffic to the east to Powell Road and then to 32 Mile Road is desirable to help protect the residential character of the 33 Mile Road and McVicar west of the M-53 Expressway.

ACCESS MANAGEMENT

Access management and internal circulation are critical elements in creating a safe and efficient roadway system. The capacity of a regional or major thoroughfare can be enhanced, and its useful life extended, by careful attention to access controls and circulation between adjacent sites. This coordination and review will also likely reduce the total number of access drives as well as the total number of conflict points. The Township has the ability to implement access management standards which will allow for the proper planning and placement of access drives in the Township. If not implemented as new development occurs, the Township will be faced with the difficult task of eliminating access drives on a piecemeal basis.

The concept of access management is based on granting owners of property along a specified roadway, specifically those owning commercial, office, or industrial, access to their property, but not unlimited access. There are many access management standards which can be implemented within the Township. These include driveway spacing, limiting the number of access drives, and shared drives. As part of the Master Plan, the Township has noted the following objectives for access management.

Joint Access Easement

One method of reducing the need for access drives onto major thoroughfares is to provide joint or cross access easements between sites. During the site planning process, consideration should be given to the alignment of parking lot maneuvering lanes which would allow for continuous and safe travel between parking lots. Joint access easements allowing for such travel should be required prior to site plan approval. These documents will require review by the Township Attorney, as well as the Township Engineer.

Maximizing Corner Clearance

Curb cuts for properties located on a corner parcel require special attention. Access drives and curb cuts should provide the maximum amount of spacing possible from the intersection to the curb cut. Further, in most cases, the access drive should be limited to the secondary roadway rather than the primary. This will help in channeling vehicles to a common intersection rather than creating new turning areas.

11-10 DRIVEWAY SPACING & LOCATION

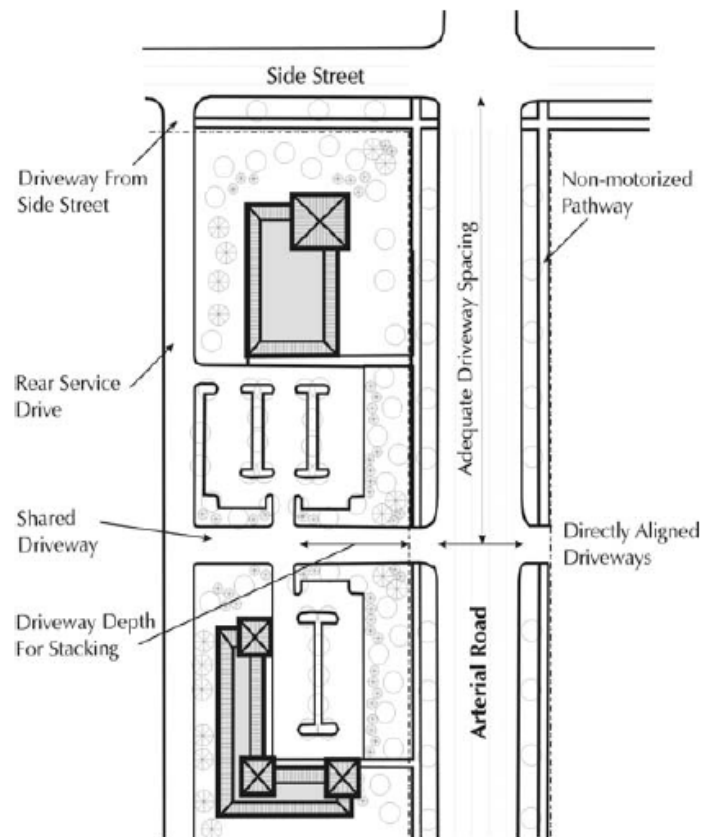
Maximize Clear Vision

Particular attention should be given to the areas of the Township where commercial access drives would be located on curves or portions of roadways with varying topographic height. Clear vision for motorists in this area should be reviewed carefully due to potential blind spots. If possible, access drives should be located in such a manner where clear vision in both directions is maximized.

Driveway Spacing and Location:

Spacing from Intersections. The minimum distance, on the same side of the road, between a driveway and an intersecting road should be 100 feet along a major road and 250 feet from any existing or future signalized intersection. In these cases a right-turn in/ right-turn out driveway could be considered for access, with left turns accommodated through frontage roads or service drives.

For non-major roads, spacing from intersections is recommended to be 75 feet. If the amount of road frontage is not sufficient to meet these criteria the driveway should be



constructed along the property line farthest from the intersection to encourage future shared use, and/or a frontage road or rear access service drive should be developed.

Changes to these guidelines should only be considered if it can be demonstrated by a traffic impact study that the driveway operation will not result in conflicts with the vehicles at the adjacent intersection. These guidelines can also generally be applied to spacing from access points on the opposite side of the road. Preferably, major access points should be aligned with, or offset 250 feet from major access points on the opposite side. The actual dimension will vary depending upon existing and expected turning movements.

Spacing from Other Driveways.

Minimum and desirable driveway spacing requirements should be determined based on posted speed limits along the parcel frontage, based upon the Driveway Spacing Guidelines shown in the Table at right. The recommended values provided in the table are based on the sight distance necessary to allow an egressing vehicle to enter the major road traffic stream without causing oncoming traffic to decrease their speed by more than 10 miles per hour (mph), and should be required where parcel size permits. The “minimum” values in the table are based on the distances required to avoid conflicts between vehicles turning right or left from adjacent driveways.

Table #13

MDOT Driveway Spacing Requirements

Driveway Spacing		
Posted Speed Limit (mph)	Minimum Distance (ft.)	Recommended Distance (ft.)
30	150	185
35	175	245
40	200	300
45	315	350
50+	350	410

Source: MDOT: The Access Management Guidebook

Interior Parking Lot Review

The Planning Commission must give attention to interior parking lot configuration. Review of parking lot efficiency and safety will allow for traffic to move onto the site quickly, without generating traffic backups onto the adjacent roadway. Particular attention should be given to maneuvering lanes which cross the main access drive. This may cause conflict or the need for slowing or stopping.

Coordination with Other Agencies

Bruce Township does not have any direct control over the maintenance or improvement of the road system serving the community. Aside from the M-53 Freeway, which is under the jurisdiction of the Michigan Department of Transportation (MDOT), the principal control over local roads rests with the Road Commission of Macomb County (RCMC).

In spite of their limited control, the Township can influence the road improvement process by maintaining an ongoing relationship with those agencies responsible for transportation

issues, including MDOT, and the Road Commission. Sharing local planning issues with officials at these agencies assists them in their efforts to allocate available funding to address existing or anticipated transportation needs.

CONCLUSION

Continued growth and expansion of the Township can be expected in the years ahead. The roadway network proposed in the Thoroughfare Plan will provide the necessary transportation framework for the next several decades. As is the case with any Plan, periodic review of the roadway network is necessary. As residential developments are presented for approval by the Township, adequate rights-of-way should be required from the developer along exterior roadways. Similarly, when a site plan for any type of use is submitted for approval by the Township, adequate rights-of-way should also be reserved. Finally, the key to implementation of the Plan is proper review of site design as it relates to the road system. Close attention must be given to road alignment, the number of access drives, and the design of such drives, among others. This can only be accomplished in conjunction with the Road Commission of Macomb County and the Michigan Department of Transportation.