



**A**n updated existing land use inventory provides a base from which current and long-range planning recommendations and decisions can be made. By updating the parcel-by-parcel inventory of land use, the Township is able to analyze current conditions and make comparisons with past studies to identify changes and trends in the Township's land use.

A field survey of existing land use in Attica Township was conducted in July of 2003. Based on data collected through the field survey and aerial photos, the use of each parcel was recorded on a base map of the Township. Once the land uses for all of the parcels in the Township were identified, Geographic Information Systems (GIS) software was used to create a land use database that could be linked to the Township's parcel map. As a result, Map A1-1 illustrates the land use of each individual parcel, as well as the overall land use pattern throughout the Township. It is important to note that an Existing Land Use map reflects the actual current use of the land, not the zoning classification or the Master Plan designation.

## LAND USE CLASSIFICATIONS

The following is a description of the various land use classifications used in the survey.

### SINGLE FAMILY RESIDENTIAL

This category includes single family dwelling units and accessory structures.



## **MULTIPLE FAMILY RESIDENTIAL**

This category includes all apartments or multi-plex units where two or more separate dwelling units occupy a single building on a lot.

## **MOBILE HOME PARK**

This category includes planned mobile home parks and their related accessory buildings and recreational areas.

## **COMMERCIAL**

Includes land areas where retail sales and service establishments are found. This category also includes office uses such as doctors and dentists, legal, accounting, and similar professions, real estate, sales and business offices.



## **INDUSTRIAL**

Uses with or without buildings where materials are processed, fabricated, assembled, or manufactured; or where equipment, materials, or wastes are stored out-of-doors are classified as industrial.



## **EXTRACTIVE**

Includes extractive activities that are primarily carried out upon the surface of the earth through open excavation, such as topsoil, sand, gravel and rock quarry removal operations.

## **PUBLIC / QUASI-PUBLIC**

Includes public uses, such as schools, government buildings, and public cemeteries. This category also includes uses owned by private, non-profit, or religious entities that provide public services. Churches are a good example of a Quasi-Public use, as are properties owned by service organizations and clubs such as the American Legion or the Knights of Columbus.

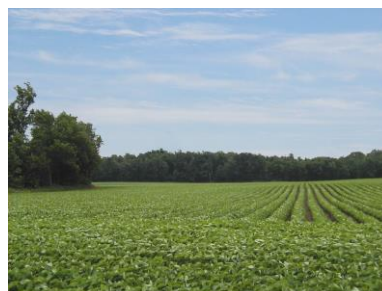


## **RECREATION**

Includes public and private outdoor recreation areas such as playgrounds, picnic areas, camps, sports fields, and the like.

## **AGRICULTURAL**

This category includes all land area used for crops and permanent pasture land. If the parcel appeared to have been farmed in the last few years, though



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not within the last growing season, it was assumed to be lying fallow and included in this classification.

### UTILITY

This category includes power and gas lines, gas compressor stations and production facilities, telephone switching stations, and electricity substations.



### VACANT AND OTHER

Included in this category are woodlands, water bodies, freeway right-of-way, open and vacant land.

## CURRENT LAND USE INVENTORY

Total acreage was calculated for the different land use categories using GIS. The following table provides a breakdown of land use in the Township.

Table A1-1  
Existing Land Use  
Attica Township, 2003

Land Use Category	Total Area (Acres)	Percent of Total Land Area
Single Family Residential	4,531.7	20%
Multiple Family Residential	11.0	0%*
Mobile Home Park	11.9	0%*
Commercial	73.9	0%*
Industrial	65.2	0%*
Extractive	557.3	2%
Public / Quasi-Public	152.7	1%
Agricultural	7,382.1	33%
Recreation	570.4	3%
Utility	2.1	0%*
Vacant & Other	9,014.0	40%

\* Less than 1% of total land area

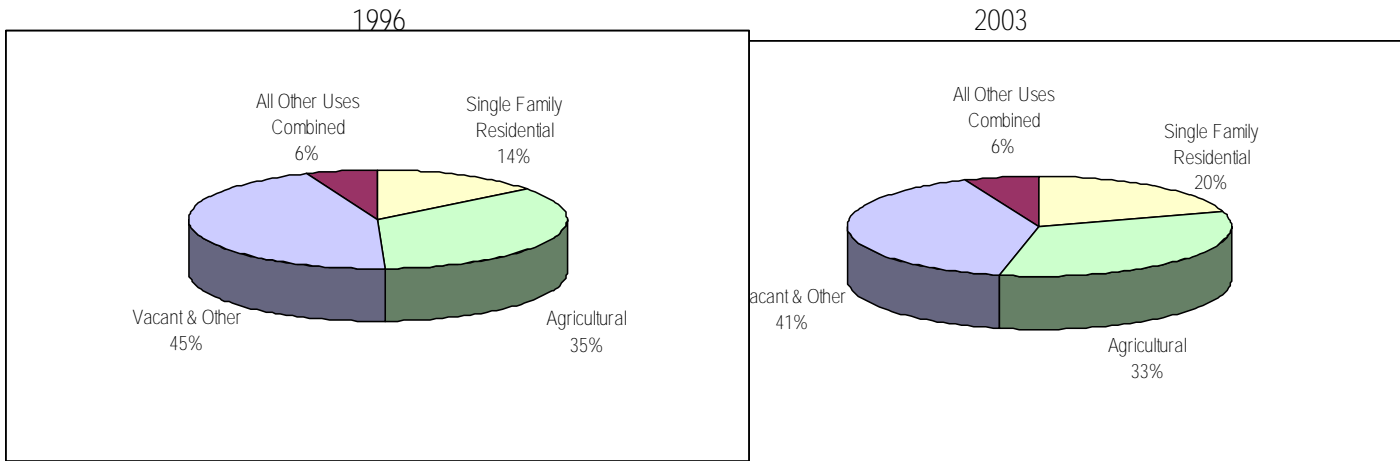
## CONCLUSION

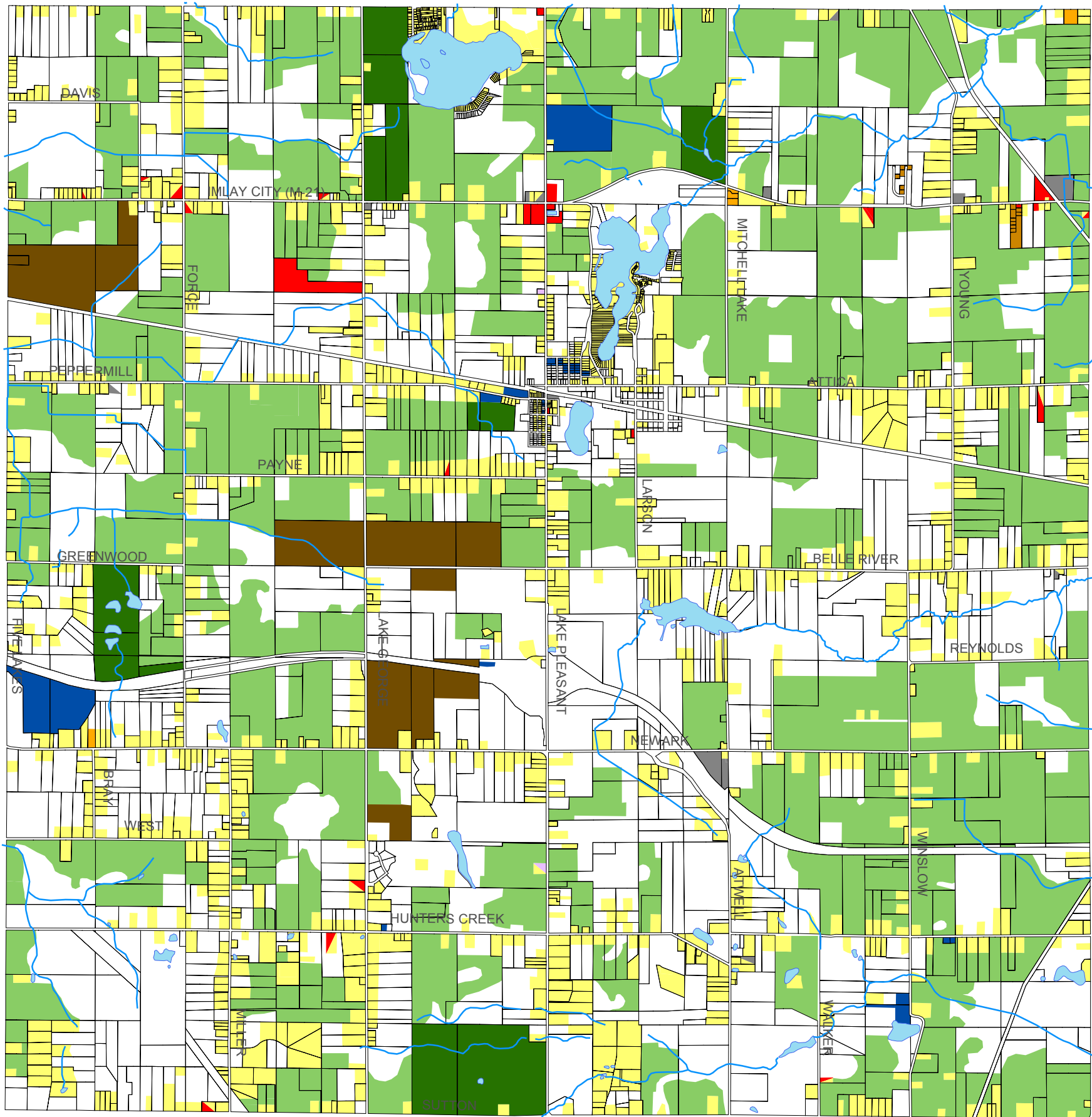
As shown in the chart below, the 2003 existing land use analysis documents the predominance of Agricultural, Vacant, and Single Family Residential land uses in the Township. All other land use categories combined only make up about 6% of the Township. By comparing the two charts, we can see that single family residential development comprises approximately 6% more of the Township in 2003 than it did in 1996. Despite the amount of residential growth, Attica has thus far retained its rural character through the maintenance of active farming and the existence of many areas

*Existing Land Use Inventory*

of open space. It is important to note that while single family residential land use increased by 6%, agricultural land use decreased by only 2% in the same time period. The remaining 4% of land use change can be seen in the decrease of vacant land from 45% to 41%.

Figure A1-1  
Percent of Total Land Use  
Attica Township, 1996 and 2003





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**T**he planning process begins with an evaluation of a community's characteristics such as population, housing, workforce, income, local market potential, development patterns, natural resources and other pertinent factors. This information is a basic ingredient in planning for the future. Historical and current population trends can be used in various ways to illustrate problem areas of development, identify opportunities for growth and improvement, and provide an indication of probable future needs. Once a database of existing conditions is compiled, a community can first evaluate the data, then use the findings to help set goals for the future development of the community.

## POPULATION AND HOUSING

### POPULATION

Since 1950, Attica Township has more than tripled its population—from 1,457 in 1950 to 4,755 in 2010. As shown in Table A2-1 below, in the last decade the Township's population has only modestly increased by 1.6% due in part to the aging population across the State. For most communities in Lapeer County, the decade between 1990 and 2000 was one of high growth; led by Almont Township, Metamora Township, Dryden Township, and Imlay City. The decade between 2000 and 2010 saw growth rates stable in most communities led by Dryden Village at 16.7%. This decade also experienced declining population in a few communities including Imlay City, Almont Village, and Arcadia Township. Mayfield Township, northwest of Attica, has experienced the largest amount of growth over the last sixty years of any of the communities adjacent to Attica—the population has increased by 562%. During the

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last decade, Imlay Township has experienced the highest growth rate of any of the communities adjacent to Attica.

Table A2-1  
Population  
Attica Township & Adjacent Communities, 1950-2010

Community	1950	1960	1970	1980	1990	2000	2010	% Change, 1990-2000	% Change, 2000-2010	% Change, 1950-2010
Attica Twp	1,457	1,880	2,695	3,642	3,873	4,678	4,755	20.8%	1.6%	272.1%
Almont Twp	997	1,174	1,529	2,297	2,361	6,041	6,583	155.9%	9.0%	528.7%
Almont Village	1,035	1,279	1,634	1,857	2,346	2,803	2,674	19.5%	-4.6%	189.4%
Arcadia Twp	1,078	1,253	1,666	2,347	2,447	3,197	3,113	30.6%	-2.6%	181.5%
Dryden Twp	1,256	1,427	2,129	2,327	3,399	4,624	4,768	36.0%	3.1%	283.6%
Dryden Village	476	531	654	650	636	815	951	28.1%	16.7%	131.4%
Goodland Twp	1,011	1,013	1,261	1,543	1,476	1,734	1,828	17.5%	5.4%	91.4%
Imlay Twp	1,474	1,847	2,170	2,238	2,143	2,713	3,128	26.6%	15.3%	150.6%
Imlay City	1,654	1,968	1,980	2,495	2,921	3,869	3,597	32.5%	-7.0%	148.8%
Lapeer Twp	1,313	1,875	2,574	4,261	4,519	5,078	5,056	12.4%	-0.4%	482.5%
Lapeer City	6,143	6,160	6,270	6,225	7,759	9,072	8,841	16.9%	-2.5%	64.8%
Mayfield Twp	1,275	2,125	3,645	7,098	7,133	7,659	7,955	7.4%	3.9%	561.8%
Metamora Twp	1,127	1,445	1,988	2,668	3,094	4,184	4,249	35.2%	1.6%	364.4%
Metamora Village	390	452	468	552	450	507	565	12.7%	11.4%	101.1%
Lapeer County	35,794	41,926	52,317	70,038	74,768	87,904	87,904	17.6%	0.5%	175.0%

Source: U.S. Census, 1940-2010

For the purpose of evaluating likely future population outcomes, it is useful to compare the Township's population trends with those of adjacent communities. **Table A2-2 below illustrates the Township's share of Lapeer County's growth.** In 2010, Attica Township comprised 5.4% of the County's population, and the Township's growth during the decade contributed 18.6% to the County's total growth. **Attica Township's share of the County population has increased slightly since 1940, when it contributed 4.0% of the total.** The Township contributes slightly more than its proportional share to the County's growth.

Table A2-2  
Attica Township Population and Growth  
as a Percent of Lapeer County, 1940-2010

Year	Attica Township Population	Lapeer County Population	Attica Share of County Population	Attica Share of County Growth
1940	1,278	32,116	4.0%	N/A
1950	1,457	35,794	4.1%	4.9%
1960	1,880	41,926	4.5%	6.9%
1970	2,695	52,317	5.2%	7.8%
1980	3,642	70,038	5.2%	5.3%
1990	3,873	74,768	5.2%	4.9%
2000	4,678	87,904	5.3%	6.1%
2010	4,755	88,319	5.4%	18.6%



**HOUSEHOLDS**

As discussed previously, Attica Township's population increased by 1.6% between 2000 and 2010. The number of households in the community increased by 9.6%-- a rate slightly higher than the population increase (see Table A2-3). This is consistent with the national trend, which reflects a rising number of households relative to population increases due to decreasing household size. In keeping with this trend, the Township's average household size has increased over the last two decades. In 1980 the Township had an average household size of 3.12 persons. Household size decreased to 3.07 in 1990, and in 2000 it dropped again to 2.89 persons. Although in 1980 average household size in Attica Township was smaller than in Lapeer county, in the last two Census counts average household size in the Township was larger than that for the County (See Table A2-4).

Table A2-3  
Total Households  
Attica Township and Ajaent Communities, 2000 and 2010

Community	2000 Households	2010 Households	% Change, 2000-2010
Attica Twp	1,602	1,756	9.6%
Almont Twp	2,094	2,412	15.2%
Almont Village	1,022	1,030	0.8%
Arcadia Twp	1,089	1,159	6.4%
Dryden Twp	1,586	1,772	11.7%
Dryden Village	285	368	29.1%
Goodland Twp	589	660	12.1%
Imlay Twp	879	1,069	21.6%
Imlay City	1,496	1,356	-9.4%
Lapeer Twp	1,765	1,864	5.6%
Lapeer City	3,443	3,446	0.1%
Mayfield Twp	2,685	2,993	11.5%
Metamora Twp	1,533	1,609	5.0%
Metamora Village	188	216	14.9%
Lapeer County	30,729	32,776	6.7%

Source: U.S. Census, 2000, 2010

Table A2-4  
Average Household Size, 1980-2000

	1980	1990	2000
Attica Township	3.12	3.07	2.89
Lapeer County	3.23	2.97	2.8

Source: U.S. Census, 1980-2000

## HOUSING UNITS

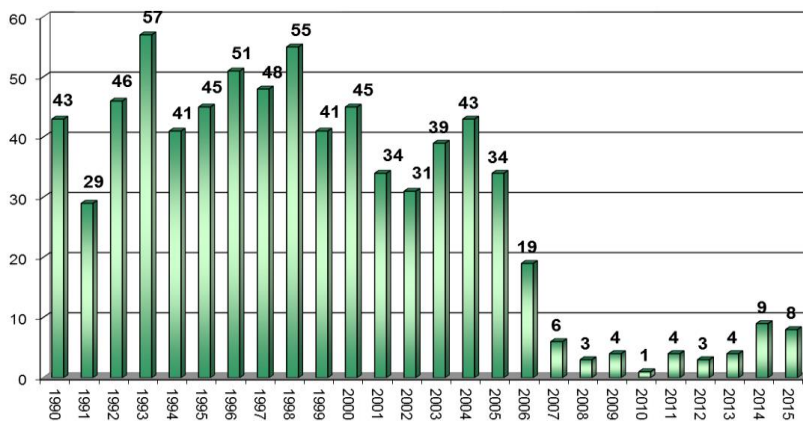
As demonstrated in Table A2-5 below, the number of housing units in Attica Township increased by nearly 24% during the last decade – consistent with the 20.8% increase in population reflected in Table A2-1. These figures indicate that Attica Township is growing at about the same rate as Lapeer County as a whole.

Table A2-5  
Total Housing Units  
Attica Township and Adjacent Communities, 1990 and 2000

Community	Total Housing Units, 1990	Total Housing Units, 2000	% Change, 1990-2000
Attica Twp	1,444	1,789	23.9%
Almont Twp	1,630	2,185	34.0%
Almont Village	867	1,058	22.0%
Arcadia Twp	796	1,134	42.5%
Dryden Twp	1,154	1,673	45.0%
Dryden Village	198	312	57.6%
Goodland Twp	512	621	21.3%
Imlay Twp	700	920	31.4%
Imlay City	1,261	1,599	26.8%
Lapeer Twp	1,510	1,831	21.3%
Lapeer City	3,070	3,658	19.2%
Mayfield Twp	2,390	2,774	16.1%
Metamora Twp	1,283	1,634	27.4%
Metamora Village	156	188	20.5%
Lapeer County	26,445	32,732	23.8%

Source: U.S. Census, 1990 and 2000

Figure A1-1  
Residential Building Permits Issued, 1990-2015  
Attica Township



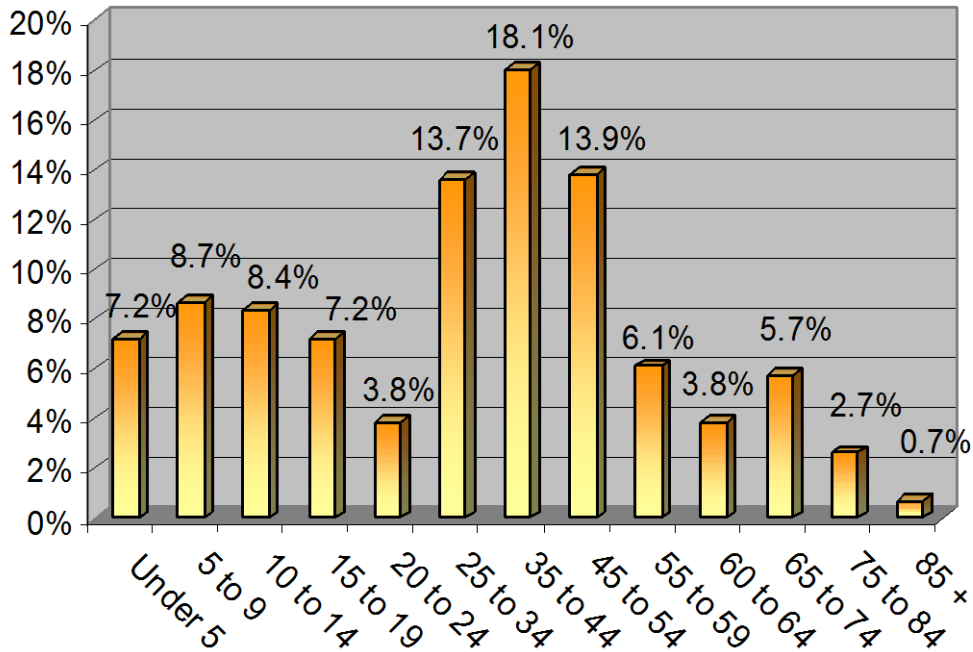
Source: Construction Code Authority

Over the past thirteen years, Attica Township has experienced steady rates of construction of new, site-built single family homes. The average number of residential building permits per year is forty-four. The last two years have seen a decrease in the number of permits issued, but housing starts have been low nationally due to the minor downturn in the economy.

**AGE**

In addition to total population, housing units, and household size, it is also important to **examine the overall age groupings of a community's population.** The overall age grouping provides figures for the number of school-age children, the size of the workforce (i.e. 18-64 year groups), and size of the elderly population. This data can be used for school enrollment projections, planning for recreation facilities, special services for the elderly, and other governmental services. Figure A2-2 illustrates the age distribution of the Township's residents in 2000.

Figure A2-2  
Age Distribution, 2000  
Attica Township



These demographics indicate that there is a large percentage (over 45%) of adults in the “parenting” years—ages 25 to 44—and a large proportion of school-aged children. Children between the ages of 5 and 19 make up almost one quarter of Attica Township's residents. It is important for the community to plan for the needs of people of all ages, but it may prove particularly beneficial to emphasize programs and facilities for families and children.

**POPULATION PROJECTIONS**

It is important to have a good estimate of the future population so that planning for infrastructure, municipal services, and administrative capabilities can be well managed and directed for the growth and development that occurs. Underestimating future population when planning renders the community unprepared; overestimating can lead to **wasted resources**. To properly plan for Attica Township’s future, an accurate estimate of its population for the next twenty years is essential.

There are a variety of methods that can be used to project the Township’s future population. The constant proportion, growth rate, and increasing proportion methods are relatively easy to administer and can generate alternative projections based on historical trends and growth rates.

The growth rate method, shown below, assumes that the 2000-2010 growth rate will be the same as between 1990-2000 and the 2000-2020 growth rate will be the same as between 1980-2000. **The Township’s low growth rate of 6.3% during the 1980’s may lead to an underestimation of future populations using this method.**

Table A2-6  
Population Projections, Growth Rate Method  
Attica Township

2000 Population	1990-2000% Change	1980-2000 % Change	2010 Projection	2020 Projection
4,678	20.8%	28.0%	5,651	5,987

The constant proportion method assumes that the Township will maintain the same **percentage of the County’s projected 2010 and 2020 population it contributed in 2000**. The population projections for Lapeer County in 2010 and 2020 are from the Office of the State Demographer and are based on 1990 Census data. **Again, the County’s low growth rate in the decade between 1980 and 1990 may result in the population projections being too low.** In 2000, **Attica Township represented 5.32% of the County’s population**. Projections for the Township using State of Michigan projections for the County are as follows:

Table A2-7  
Population Projections, Constant Proportion Method  
Attica Township and Lapeer County

	2000 Population	2010 Projection	2020 Projection
Lapeer County	87,904	101,100	111,500
Attica Township	4,678	5,378	5,932

If State projections for the County are correct, this method should be fairly accurate, **since Attica’s proportional contribution to the population of Lapeer County has stayed**

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relatively constant over the last sixty years. However, as mentioned previously, the Growth Rate Method used to calculate the County population projections likely results in projections that are too low, due to the unusually low growth rate from 1980-1990.

The increasing proportion method assumes that the rural areas and small Townships on the fringe of growth centers will expand over the next two decades as the growth centers approach their build-out. This method requires that the forecaster apply a growth rate to the community. The data below assumes that Attica Township will comprise 6.2% percent of the County population in 2010 and 7.0% percent in 2020. The results are as follows:

Table A2-8  
Population Projections, Increasing Proportion Method  
Attica Township and Lapeer County

	2000	2010	2020
Lapeer County	87,904	101,100	111,500
Increasing %	5.32%	6.20%	7.00%
Attica Township	4,615	6,268	7,805

Table A2-9  
Population Projection Summary

Method	2000 Census	2010 Projection	% Change, 2000-2010	2020 Projection	% Change, 2010-2020
Constant Proportion	4,678	5,379	15.0%	5,932	10.3%
Growth Rate	4,678	5,651	20.8%	5,987	5.9%
Increasing Proportion	4,678	6,268	34.0%	7,805	24.5%

Most of the above methods of projection rely upon estimates for a larger jurisdiction that may or may not be accurate. It is important for a community planning for its future not to underestimate its potential for growth. Underestimation can result in being unprepared. For that reason, the Master Plan will use the following assumptions of future Township population, which are slightly higher than the numbers generated by **the increasing proportion method, as the basis for the community's long range plans:**

Table A2-10  
Population Projections, Attica Township

	2000	2010	2020
Attica Township	4,678	6,500	8,000



**EMPLOYMENT**

As shown in Table A2-11 below, the largest number of Attica Township residents is employed in “production, transportation, and material moving” occupations. Another large group is employed in “management and professional” occupations. Service, sales and office, and construction, extraction, and maintenance each make up about an equal amount of the total occupations of Attica Township residents. The employment by industry distribution in Attica Township is generally consistent with the distribution of employment in Lapeer County. The Township exceeds the County by a small amount in terms of production, transportation, and material moving occupations, while the County has a slightly higher proportion of residents in management and professional, and sales and office occupations. Also consistent with the County data is the low percentage of Attica Township residents employed in farming, fishing, and forestry occupations.

Table A2-11  
 Employment by Occupation and Industry  
 Attica Township and Lapeer County, 2000

Occupation	Attica Township	% of Township Total	Lapeer County	% of County Total
Management, professional, and related occupations	549	23.8%	11,043	26.9%
Service occupations	385	16.7%	5,608	13.7%
Sales and office occupations	352	15.3%	8,581	20.9%
Farming, fishing, and forestry occupations	0	0.0%	165	0.4%
Construction, extraction, and maintenance occupations	344	14.9%	5,687	13.9%
Production, transportation, and material moving occupations	674	29.3%	9,928	24.2%
		100.0%		100.0%
<b>Industry</b>				
Agriculture, forestry, fishing and hunting, and mining	11	0.5%	610	1.5%
Construction	227	9.9%	3,767	9.2%
Manufacturing	836	36.3%	12,237	29.8%
Wholesale trade	55	2.4%	767	1.9%
Retail trade	193	8.4%	4,486	10.9%
Transportation and warehousing, and utilities	88	3.8%	1,433	3.5%
Information	33	1.4%	655	1.6%
Finance, insurance, real estate, and rental and leasing	55	2.4%	1,499	3.7%
Professional, scientific, management, administrative, and waste management services	129	5.6%	2,537	6.2%
Educational, health and social services	351	15.2%	7,209	17.6%
Arts, entertainment, recreation, accommodation and food services	128	5.6%	2,298	5.6%
Other services (except public administration)	183	7.9%	2,259	5.5%
Public administration	15	0.7%	1,255	3.1%
		100%		100%

Source: U.S. Census, 2000

**Attica Township residents' commuting patterns are generally in line with the county as a whole.** According to the 2000 U.S. Census, the mean travel time to work for Attica residents was 39.1 minutes, compared with a mean travel time of 35.3 minutes for Lapeer County. This relatively long commute time indicates that Attica is an attractive enough place to live to warrant a long commute, but also that the majority of residents have not been able or have not wanted to find jobs within the Township itself.

Almost all Attica Township residents (86.3%) drive alone to their place of work, just as 83.6% of Lapeer County residents do. The other significant means of transportation to and from work is carpooling, which accounts for 9.8% of the trips. In the County as a whole, the carpool rate is a relatively similar 11.3%. Currently 1.8% of Attica Township residents walk to work and 2.2% work from home. There are no opportunities for public transportation to places of employment for Attica Township residents at this time.

## EDUCATION

Table A2-12 below shows the educational attainment levels for Attica Township and Lapeer County. As shown, the educational attainment of residents in Attica Township is fairly consistent with that of the County. The number of Township residents with a Graduate or Professional Degree is lower than the County as a whole. The number of Attica residents who do not have a high school diploma is slightly higher than the County as a whole.

Table A2-12  
Educational Attainment  
Attica Township and Lapeer County, 2000

	Attica Township*	% Attica Township	Lapeer County*	% Lapeer County
Not A High School Graduate	545	18.2%	8,744	15.5%
Graduated From High School	1,203	40.2%	21,751	38.5%
Some College- No Degree	746	24.9%	14,560	25.8%
Associate Degree	254	8.5%	4,217	7.5%
Bachelor's Degree	199	6.6%	4,950	8.8%
Graduate or Professional Degree	49	1.6%	2,232	4.0%
Population 25 Years and Older*	2,996	100.0%	56,454	100.0%

Source: 2000 U.S. Census

\* Census figures on educational attainment are based on population 25 years and over.

## INCOME

Table A2-13 shows the per capita and median household incomes of Attica Township and adjacent communities. The 2000 Census figure for Attica Township represents an increase of approximately 32% in median household income over the past 10 years **(1990 median household income was \$38,250)**. **Attica Township's 2000 per capita income of \$22,226 is slightly higher than that of Lapeer County overall (\$21,462);** however, the median household income for the Township (\$50,392) is lower than that

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of Lapeer County (\$51,717). Of the adjacent communities, Dryden and Almont Townships have the highest median household incomes, while Imlay City and the City of Lapeer have the lowest.

Table A2-13  
Income  
Attica Township and Adjacent Communities, 2000

Community	2000 Median Household Income	2000 Per Capita Income
Attica Twp	\$50,392	\$22,226
Almont Twp	\$65,000	\$23,608
Almont Village	\$53,984	\$21,252
Arcadia Twp	\$56,458	\$22,080
Dryden Twp	\$69,659	\$26,902
Dryden Village	\$54,375	\$21,180
Goodland Twp	\$51,313	\$19,999
Imlay Twp	\$60,362	\$21,222
Imlay City	\$32,436	\$16,021
Lapeer Twp	\$63,411	\$23,383
Lapeer City	\$35,526	\$16,608
Mayfield Twp	\$50,822	\$20,399
Metamora Twp	\$61,250	\$29,255
Metamora Village	\$58,088	\$19,548
Lapeer County	\$51,717	\$21,462

Source: U.S. Census, 2000

**UNEMPLOYMENT AND LOW INCOME**

According to the 2000 Census, 2,374 Attica Township residents 16 years and over were in the labor force. The unemployment level for the Township was 2.0%, which is lower than the 3.6% unemployment rate for the County as a whole. The Census also reported that only 1.7% of Attica Township families were living below the poverty line. This is a lower percentage than Lapeer County as a whole, which had a 3.8% family poverty rate. Unemployment rates may be higher currently than those recorded in 2000 due to the recent economic downturn.

## NONRESIDENTIAL LAND USE MARKET POTENTIAL

An important part of the existing conditions analysis is an examination of demand or market potential for non-residential land uses. A balanced supply of industrial, office and retail development is critical to a community for a number of reasons. If there are fewer acres available than the market can support, a community could lose potential tax base and employment opportunities, and decrease the quality of life for residents who need the goods and services that such uses provide. If there is an overabundance of commercial, office and industrial land, marginal businesses may develop and/or building vacancy rates may increase creating the potential for blight.

### RETAIL SPENDING

In order to determine how much commercial land Attica Township can support, an analysis of income levels in Attica is necessary. As noted above, the year 2000 per capita income for Attica Township was \$22,226. Based on this income level, the table below estimates Attica's 2000 ("current") retail expenditures and projected retail expenditures. The population and per capita income are multiplied to find the total yearly income for the Township. Then retail expenditures, estimated to be 55% of total income, are calculated.

Table A2-14  
Current Neighborhood, Community, and Regional Expenditures, 2000  
Attica Township

Total Year 2000 Income	Current ('00) Retail Expenditures	Current ('00) Neighborhood Expenditures	Current ('00) Community Expenditures	Current ('00) Regional Expenditures
\$103,973,228 <sup>1</sup>	\$57,185,275 <sup>2</sup>	\$14,153,356 <sup>3,4</sup>	\$16,154,840 <sup>3,5</sup>	\$11,437,055 <sup>3,6</sup>

1. \$22,226 (2000 per capita income) x 4,678 people (2000 Census population)
2. Assumes 55% of total income is spent on retail purchases (PAS Report #358, *Analyzing Neighborhood Retail Opportunities*, Published by American Planning Association)
3. Assumes 33% of total retail expenditures is spent in Convenience goods stores, 40% spent in Comparison goods stores (PAS Report #358, Published by American Planning Association).
4. Assumes 75% of Convenience goods spending will be made within Neighborhood Shopping Center categories.
5. Birchler Arroyo Associates, Inc. estimates that 25% of Convenience goods and 50% of Comparison goods spending will be made within Community Shopping Center categories.
6. Birchler Arroyo Associates, Inc. estimates that 50% of Comparison goods spending will be made within Regional Shopping Center categories.

Table A2-15  
Forecast Retail & Neighborhood Expenditures, 2010 & 2020  
Attica Township

Forecast 2010 Income	Forecast 2010 Retail Expenditures	Forecast 2010 Neighborhood Expenditures	Forecast 2020 Income	Forecast 2020 Retail Expenditures	Forecast 2020 Neighborhood Expenditures
\$188,572,823 <sup>1</sup>	\$103,715,053 <sup>2</sup>	\$25,669,476 <sup>3,5</sup>	\$302,942,475 <sup>4</sup>	\$166,618,361 <sup>2</sup>	\$41,238,044 <sup>3,5</sup>

1. \$29,011 x 6,500 people (2010 population estimate with income adjusted for 2.7% inflation)
2. Assumes 55% of total income is spent on retail purchases (PAS Report #358, *Analyzing Neighborhood Retail Opportunities*, Published by American Planning Association)
3. Assumes 33% of total retail expenditures is spent in convenience goods stores, 40% spent in comparison goods stores (PAS Report #358, Published by American Planning Association)
4. \$37,868 X 8,000 people (2020 population estimate with income adjusted for 2.7% inflation)
5. Assumes 75% of Convenience goods spending will be made within Neighborhood Shopping Center categories.

Table A2-16  
Forecast Community and Regional Expenditures, 2010 & 2020  
Attica Township

Forecast 2010 Retail Expenditures	Forecast 2010 Community Expenditures	Forecast 2010 Regional Expenditures	Forecast 2020 Retail Expenditures	Forecast 2020 Community Expenditures	Forecast 2020 Regional Expenditures
\$103,715,053 <sup>1</sup>	\$29,669,476 <sup>2,3</sup>	\$20,743,011 <sup>4</sup>	\$166,618,361 <sup>1</sup>	\$47,069,687 <sup>2,3</sup>	\$33,323,672 <sup>4</sup>

1. Assumes 55% of total income is spent on retail purchases (PAS Report #358, *Analyzing Neighborhood Retail Opportunities*, Published by American Planning Association)
2. Assumes 33% of total retail expenditures is spent in convenience goods stores, 40% spent in comparison goods stores (PAS Report #358, Published by American Planning Association)
3. Birchler Arroyo Associates, Inc. estimates that 25% of Convenience goods and 50% of Comparison goods spending will be made within Community Shopping Center categories.
4. Birchler Arroyo Associates, Inc. estimates that 50% of Comparison goods spending will be made within Regional Shopping Center categories.

## COMMERCIAL DEVELOPMENT

Once the amount of retail spending within a community is estimated, the amount of needed retail space the community can support (in square feet) can be estimated. This can be determined by looking at two factors: retail spending and supporting population. There are three shopping center classifications used for analysis: neighborhood convenience, community comparison, and regional comparison.

According to the latest retail data published in the Dollars & Cents of Shopping Centers: 2002 (Urban Land Institute) the average annual sales per square foot of gross leasable area for neighborhood shopping centers is \$271.53. Community centers had average annual sales per square foot of \$229.84 and regional centers had an average of \$218.77. Based on the previous retail spending analysis, Attica Township could support the following square footages in commercial centers.



Table A2-17  
 Shopping Center Classifications  
 Commercial GLA based on 2020 Population

Type	Forecasted 2020 Sales per Square Foot	Forecasted 2020 Township Resident Expenditures	Expenditures made within Township <sup>2</sup>	GLA Based on Attica Township 2020 Retail Spending
Neighborhood (Convenience)	\$439 <sup>1</sup>	\$43,815,422	\$21,907,711 <sup>2</sup>	49,947
Community (Minor Comparison)	\$371 <sup>1</sup>	\$50,011,542	\$12,502,886 <sup>2</sup>	33,676
Regional (Major Comparison)	\$353 <sup>1</sup>	\$35,406,402	\$8,851,600 <sup>2</sup>	25,048

1. ULI- 2002 data with 2.7% annual inflation for 2020 forecast.
2. Birchler Arroyo Associates, Inc. estimates that 50% of neighborhood item purchases and 25% of community and regional item purchases made by Township residents could take place within the Township.

As reflected in Table A2-17 above, with \$21,907,711 estimated available for convenience spending within the Township in 2020, Attica Township could support 49,947 square feet of neighborhood retail. This would be roughly equivalent to a grocery store. The Township could support 33,676 square feet of community comparison, which would make up less than half of a Target store, and 25,048 square feet of regional comparison shopping.

**SUPPORTING POPULATION**

A general comparison with the results of the retail spending analysis can be made using an analysis of the supporting population in the Township. As the table below illustrates, neighborhood retail centers are the smallest and serve the daily needs of nearby residents by providing basic goods and services such as groceries, hardware, dry cleaning, banking, etc. A population of 5,000 - 10,000 people living within a five to ten minute drive is generally required to support such a development.

Table A2-18  
 Shopping Center Classifications  
 GLA Based on Supporting Population

Type	Leading Tenant	General Range (Typical GLA)	Minimum Site	Supporting Population	GLA Based on Attica 2020 Population
Neighborhood (Convenience)	Supermarket	30,000 - 100,000 sq. ft. (50,000 sq. ft.)	3 - 10 ac.	5,000 - 10,000	30,000 - 100,000 sq. ft.
Community (Minor Comparison)	Junior Dept. or Discount Store	100,000 - 300,000 sq. ft. (150,000 sq. ft.)	10 - 30 ac.	20,000 - 60,000	0
Regional (Major Comparison)	1 or more Full Line Dept. Store	300,000 - 900,000 sq. ft. (400,000 sq. ft.)	30 - 60 ac.	60,000 - 100,000	0

Source: Shopping Center Development Handbook, 2<sup>nd</sup> Edition, Urban Land Institute

Based on the previous analysis, Attica Township’s projected 2020 population of 8,000 could support between 30,000 sq. ft. and 100,000-sq. ft. of neighborhood commercial development. Population projections do not reflect an adequate supporting population for Community Commercial or Regional Commercial development within the Township.

Table A2-19  
 Summary of Commercial Development Forecast Methods

Type	GLA Based on Retail Spending Analysis	GLA Based on Attica Township Supporting Population Analysis
Neighborhood (Convenience)	49,947	30,000 – 100,000 sq. ft.
Community (Minor Comparison)	33,676	0
Regional (Major Comparison)	25,048	0

According to *Urban Planning and Design Criteria*, neighborhood commercial developments typically need approximately one acre per 12,500 square feet of space, community commercial developments typically need approximately one acre per 15,000 square feet, and regional centers need approximately one acre per 13,300 square feet. Based on the summary table above, in order to provide for neighborhood convenience shopping within Attica, approximately four acres of land would be needed. The total amount of land area planned for retail might need to be larger than these numbers because limitations occur on total buildable area due to wetlands, steep slopes, woodland preservation, on-site utilities and the like. Also, the Township may experience some mix of comparison goods stores in a neighborhood center, since

residents need the products but cannot support an entire community commercial center. For example, a neighborhood center with a grocery store anchor might attract a carpet and flooring store as one of its tenants.

## **INDUSTRIAL DEVELOPMENT**

The demand for industrial development is related to many factors including materials, labor, transportation, energy, and public policy. Industrial developers examine the availability of utilities, affordable housing for the work force, suitable characteristics of the land, and good transportation access.

There are two common methods of forecasting future industrial needs for an area: 1) based on total population, and 2) based on total land area. According to *Urban Planning and Design Criteria*, a typical planning standard for industry is 12 acres per 1,000 population. Based on an estimated 2010 population of 6,500 for Attica Township, approximately 78 acres of industrial land can be supported within the community. The total land area method estimates that within a rural community industrial land typically consumes 2-5 percent of total land area. Two percent of the estimated 23,040 acres of land area within the community equals roughly 460 acres. This percentage approach cannot be related to a particular point in time; therefore, it is **more closely associated with a “rural build-out” scenario.**

**Given Attica’s rural character, a range between the total population and the total land area methodologies may be a more appropriate estimate for forecasting the Township’s need for industrial land.** Most of this demand will likely be filled by such uses as local contractors who need a storage yard and building to repair equipment, or small independent shops, fabricators, and auto repair facilities.

## **OFFICE DEVELOPMENT**

There are two types of office buildings: single-tenant and multi-tenant. Single tenant buildings can be located in almost any location satisfactory to the tenant, who may often be the building owner. Multi-tenant office buildings, which are often built on the speculation that tenants will be found, are much more tied to market factors. Multi-tenant office developers look at access, proximity to professional and clerical labor, parking, transit opportunities, proximity to professional and personal services and the **overall “image” of the community.**

Around 40% of the employed residents of Attica Township work in professions that typically operate within an office setting (i.e. managerial, technical, sales, etc.). The Census reported that the median travel time for employed residents to their workplaces was 39.1 minutes. Assuming that this commuting pattern occurs evenly among all office professions, we can estimate that 901 office professionals may work within a forty-minute drive of Attica Township.

The Urban Land Institute estimates that approximately 202 square feet of office space is needed per employee. Based on this projection and the estimate of office employees of businesses close to Attica Township, approximately 182,002 square feet of office

### *Population, Housing, & Economic Analysis*

space could be supported within the Township. However, it is not reasonable to expect that multi-tenant office buildings would be marketable at present, nor that a significant portion of Attica residents would suddenly find their office jobs relocated to the Township. Small professional office, medical office, and combination office/industrial buildings are likely to be more viable within the community over the next 15-20 years. Sites for future office development can play an important role as transitional uses between residential areas and retail or industrial uses.



The following is a brief overview of the community facilities and services within Attica Township (see Map A3-1).

## CIVIC CENTER

The Attica Township Civic Center is located on the south side of Peppermill Road on the west edge of Attica Village. It includes the Township Hall, Park, Library, and Fire Station.

### TOWNSHIP HALL

The Township Hall provides administrative office space for Township officials as well as a meeting hall for public meetings and functions.



*Attica Township Hall*

### LIBRARY

The Attica Township Library is a Branch of the Ruth Hughes Memorial District Library located in Imlay City. As mentioned above, the Township Library is located in the Civic Center complex on Peppermill Road adjacent to the Township Fire Department. The library offers approximately 7,000 books, audiocassettes, and videos for loan. Inter-library loans are also available for books and resources not held at the Attica Township Library. In addition, the library offers Internet access to the public, as well as several **children's** programs including storytime sessions for preschoolers during the school year and a summer reading program for children of all ages.



## **PUBLIC SAFETY**

Police protection is provided to Attica Township by the Lapeer County Sheriff's Department and the State Police. In addition, the Township contracts with two deputies of the Lapeer County Sheriff's Department to patrol the Township for eighty total hours per week.

Attica Township has one fire station, located on the south side of Peppermill within the Township Civic Center complex. The department has one engine, one tanker, one pumper tanker, one equipment van, and a grass rig. Since Attica Township does not have a water system, the two tankers are vital pieces of equipment. The department has also recently purchased a thermal imaging camera that enables firefighters to locate fire hotspots and body heat through smoke and darkness.



*Attica Township Fire Station*

The Department serves all of Attica Township and responds to calls from any nearby communities on a request basis. Department personnel consists of 23 firefighters who are paid on a per call basis. Nearly all personnel have been state-certified as Firefighter II, while several **have the state's highest certification of Firefighter III. In 2002, the Attica Township Fire Department responded to 73 calls, and by mid-July the department had responded to 50 calls so far in 2003.**

## **PARKS AND RECREATION**

### **PUBLIC PARKS & FACILITIES**

There are two Township-owned recreation facilities in Attica Township: the Attica Township Park and a 51-acre wooded parcel that is presently undeveloped. The 35-acre Attica Township Park, adjacent to the Township Hall, is located on Peppermill Road just west of the Village. The park includes three ball diamonds, tennis courts, a basketball court, shuffleboard courts, horseshoe pits, playground equipment, walking / fitness trail, two main picnic pavilions, a smaller handicapped picnic shelter with paved parking and walkway, and a large gravel parking lot.

The undeveloped wooded parcel is on Mitchell Lake Road, north of Imlay City Road. It is one of the major wooded areas in Attica with an estimated 50 - 100 different types of trees. This property would be an excellent location for such passive uses as nature trails, picnicking, and the like.

In addition to the Township-owned recreation facilities, the school district and private property owners also contribute to the number of recreation facilities available in the Township. The Attica Elementary School, located just east of Lake Pleasant Road and

## *Community Facilities Inventory*

north of Attica Road, has a small playground adjacent to the school building. The playground is primarily designed for use by students attending the school; however, the playground does provide limited opportunities for youngsters who live in the area. The typical service area for a small playground of this type would limit its use to persons north of Attica Road and east of Lake Pleasant Road in the immediate neighborhood.

### **PRIVATE FACILITIES**

There are three privately owned recreation facilities in the Township: the Michigan Christian Youth Camp, Camp David, and the Huntsman Hunt Club. The Michigan Christian Youth Camp, located on Lake George Road just south of Bowers, is available to groups only. In addition to a camping area, the 129 acres includes four heated dormitories, modern restrooms and showers, and a lodge building with a fireplace. Activities such as tennis, sledding, and a rifle range are available, and the camp is open year round.

Camp David, located off Force Road, occupies approximately 100 acres of heavily wooded land. There are also a number of small lakes on the property. The owner of the land has been developing the property as a nature study camp with special facilities and programs for physically handicapped persons.

The Huntsman Hunt Club, which is located in Dryden Township, has 240 acres of hunting fields located in Attica Township. Besides providing an area for hunting, the large open spaces also conserve the natural environment and protect unspoiled viewsheds.

### **SCHOOLS**

Attica Township is served by three school districts. About half of the Township is in the Imlay City Community School District. The west side of the Township is in the Lapeer Community School District, while just a small portion along the southern border of the Township is in the Dryden Community School District.

There is one school, Country Day Academy located on Imlay City Road is a state charter school.

In addition to these public facilities, the Lapeer County Vocational Technical Center is also located within Attica Township. The vocational school, located off Lake Pleasant Road, has a total enrollment of 700 - 750 students and employs about 60 people. The school offers classes in trades, such as auto mechanics, heating and air conditioning, horticulture, and health services as part of its Career Technical Education Program for 11<sup>th</sup> and 12<sup>th</sup> grade students.



*Lapeer County Vocational Tech*

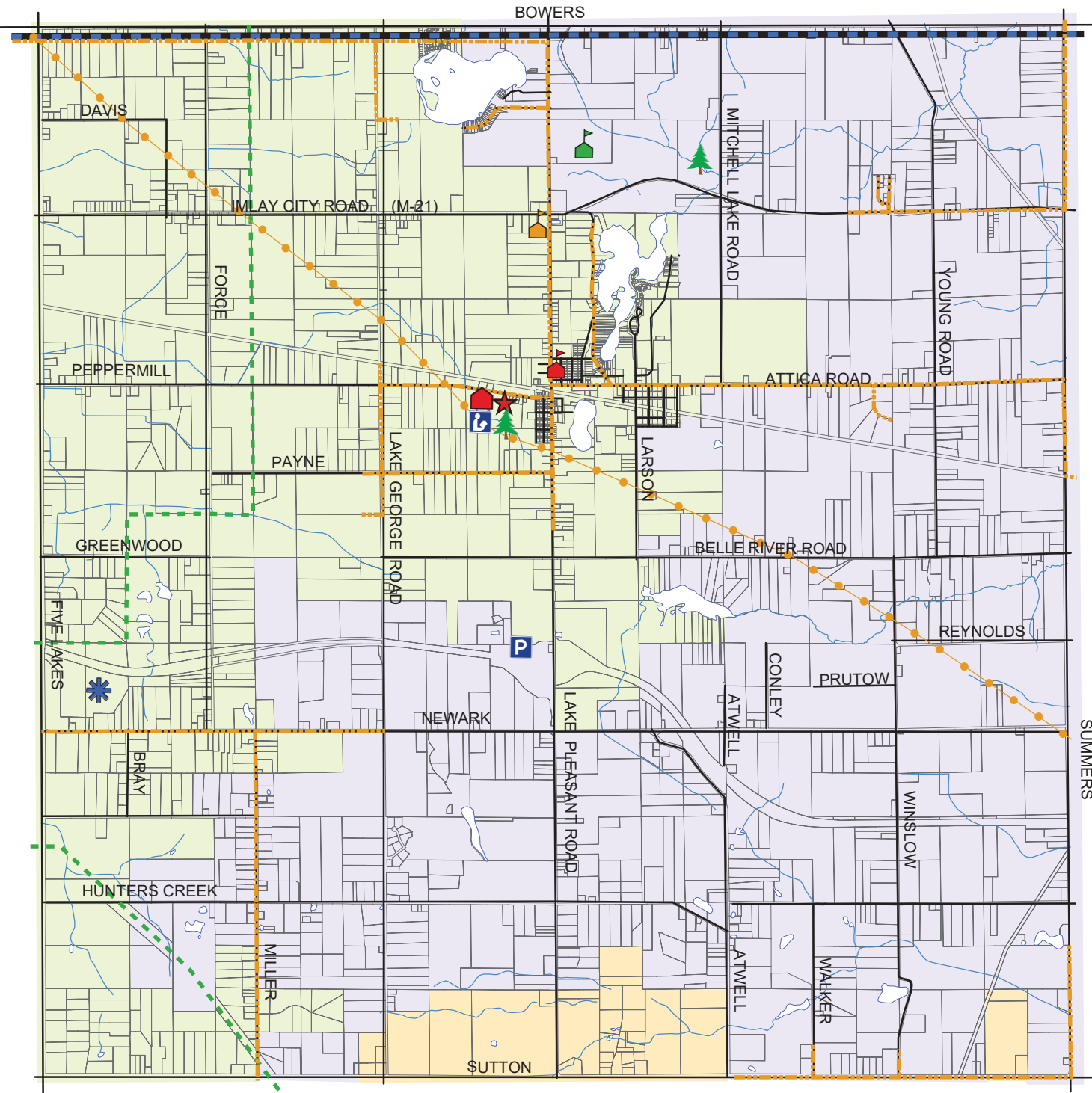
**UTILITIES**

The Township does not have a municipal sewer or water system. Any development **must rely on individual well and septic systems.** A 72" City of Detroit water main runs along Bowers Road providing service to the City of Flint.

Attica Township is partially served by Consumers Power for residential natural gas service as shown on Map A3-1.

**HIGHWAY REST AREA AND PARK & RIDE LOT**

A Michigan Department of Transportation (MDOT) rest area, located on the south side of I-69 on the extreme western side of the Township, serves the eastbound motoring public. MDOT also maintains a Park & Ride lot off Campbell Road at the I-69 / Pleasant Lake Road interchange.



- Towerline Easement (Electric)
- Pipeline (Gas)
- Residential Service Lines (Gas)
- Water Main (72')

- Dryden Community School District
- Imlay City Community School District
- Lapeer Community School District

- Attica Township Hall
- Attica Township Fire Station
- Attica Township Library
- Attica Township Park
- Attica Elementary School
- Country Day Charter School
- Lapeer County Vocational Tech Center
- I-69 Rest Area
- MDOT Park & Ride Lot

**COMMUNITY FACILITIES  
ATTICA TOWNSHIP  
LAPEER COUNTY, MICHIGAN  
MAP A3-1**



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**T**he identification of the natural features that presently exist in the Township is an important step in the Master Plan process. With such knowledge, decision-makers can make informed proposals for the preservation and protection of **the Township's natural resources.**

## **TOPOGRAPHY**

Attica Township lies within an area that was covered and uncovered by glaciers as ice ages came and went.<sup>1</sup> The last glacier to affect Lapeer County was during the Late Wisconsinan period, around 9,000 years ago. Glaciers can have several different **effects on the land as they retreat. For example, they may act as “steamrollers”** across the land, flattening it as they go; they may create large depressions that later fill with water; or, as they pause in their movement, they may drop large quantities of glacial till—rocks, dust, and soil caught up in the ice. A till plain is a flat to gently undulating area of land where a glacier dropped relatively evenly spread out quantities of till, which was not subsequently rearranged and smoothed down by water.

An area where a glacier paused for a significant amount of time, long enough to drop large deposits of glacial till in a concentrated manner, is called a moraine. The result on the topography of the land, as is evident in Attica, is level ground or gently rolling hills. There are two moraines in Lapeer County.

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<sup>1</sup> Topography and soils information from: United States Department of Agriculture & Michigan State University Extension. “Soil Survey, Genesee County, Michigan.” Washington, D.C.: U.S. Government Printing Office. 1972.

## *Natural Features Inventory*

**Attica Township's topography varies by about 160 feet from the lowest point to the highest point.** The lowest area of 843 feet above sea level is located in Section 1 of the Township, and the highest area of 1006 feet is located in Section 32. USGS Quad Map A4-1 illustrates the Township's topography.

## **SOILS**

Map A4-2, General Soils, shows the locations of the various soil types in Attica Township. These soil associations are areas with distinctive and proportional patterns of soils. Of the twelve different types of soils in Lapeer County, five are found in Attica Township.

The majority of the Township is characterized by the Lapeer-Miami-Celina association. These soils are gently sloping to strongly sloping, well-drained and moderately well-drained soils that have a dominantly loam to clay loam subsoil. These soils occur on till plains and moraines.

An area of Conover-Blount-Brookston association soils is located in the southeast corner of the Township. These level to gently sloping, somewhat poorly-drained and poorly-drained soils with a dominantly clay loam subsoil occur on till plains.

Along the northern edge of the Township is a small area of Capac-Belding-Brookston association soils. These soils are level to gently sloping, somewhat poorly-drained and poorly-drained soils that have a sandy loam to clay loam subsoil. They also occur on till plains.

Just south of this is a larger area of Boyer-Montcalm-McBride association soils. These gently sloping to very steep, dominantly well-drained soils with a loamy sand to sandy clay loam subsoil occur on outwash plains, till plains, and moraines.

Finally, an irregularly-shaped area of Fabius-Wasepi-Mussey-Gilford association soils runs through the east-central area of the Township. These soils are level to gently sloping, somewhat poorly-drained and poorly-drained soils that have a sand loam to gravelly clay loam subsoils. These soils occur on outwash plains and lake plains.

Since Attica Township does not have sanitary sewer service, new development is **restricted by the soil's ability to support septic systems.** Map A4-3 indicates areas of the Township that have soils with slight and severe limitations for developments that require sewage disposal systems. Most of the Township has severe or moderate limitations to such development, which requires serious consideration of waste disposal arrangements for any proposed developments. This map does not imply, however, that development is not possible in these areas. On-site investigation is still necessary for individual home sites and may result in finding adequate soils for individual systems even on property in the unsuitable areas.

## **SURFICIAL GEOLOGY**

The patterns of soils found in an area can generally be explained by the type of surface (quaternary) geology found below the soil. The surface geology found in southeastern Michigan can be divided into two broad zones—a lowland zone and a hill zone. These two zones parallel each other in a northeast/southwest direction, following the shoreline of Lake St. Clair. The lowland zone, consisting of St. Clair, Macomb, Wayne, Monroe, and eastern Lapeer Counties, was most likely covered by an ancient glacial lake as the last ice age came to a close. The geology in these areas consists mostly of clay and sand. The counties lying to the west of the lowland zone (Oakland, Livingston, Washtenaw, and western Lapeer Counties) are characterized as hill zones. The geology in these areas is composed mostly of sand and gravel deposits that were dropped by moving, melting ice. Attica is located somewhat on the border of these two zones, and has geology in common with both Imlay Township to the east (lowland zone) and Metamora and Hadley Townships to the west (hill zone).

The surficial geology of Attica is shown on Map A4-4. Large areas of the Township consist of lacustrine clay and silt. These materials typically occupy extensive, flat, low-lying areas formerly inundated by glacial Great Lakes. They were once deposited in lake water and were exposed by the decreasing water level.

Most of the rest of the Township consists of end moraines of coarse-textured till. An end moraine is a ridgelike deposit formed at the edge of a glacier. The coarse-textured material can result in excessive drainage of the land.

A small area including parts of Sections 1 and 2 consists of glacial outwash sand and gravel and postglacial alluvium. These areas are created as a glacier melts. The volume of the melting water has the ability to carry rocks, soil, and debris far beyond the area the glacier itself covered. The debris spreads out from the melting glacier.

## **PRIME AGRICULTURAL LAND**

Map A4-5 indicates soils in the Township that have the potential to be prime agricultural land. As this map illustrates, a significant portion of Attica Township contains soils that are excellent for agricultural purposes.

The US Department of Agriculture defines prime farmland as having the following characteristics:

- 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.
- Soil quality, a growing season, and moisture conditions necessary to produce a high yield of crops economically if managed in accordance with modern farming methods.



### *Natural Features Inventory*

- Slopes of less than six percent.
- Active rooting depth of a least 20 inches.
- Soils that are not waterlogged. Waterlogged soils are those that have standing water as much as six inches deep several times during the growing season.
- Soils that do not flood more than once every two years.
- Soils that present no particular difficulty in cultivating with large equipment (less than 10 percent is covered with coarse rock fragments).
- Soils with the potential for being made prime agriculture through economically justifiable investments and practices, including drainage, clearing, irrigation, etc.



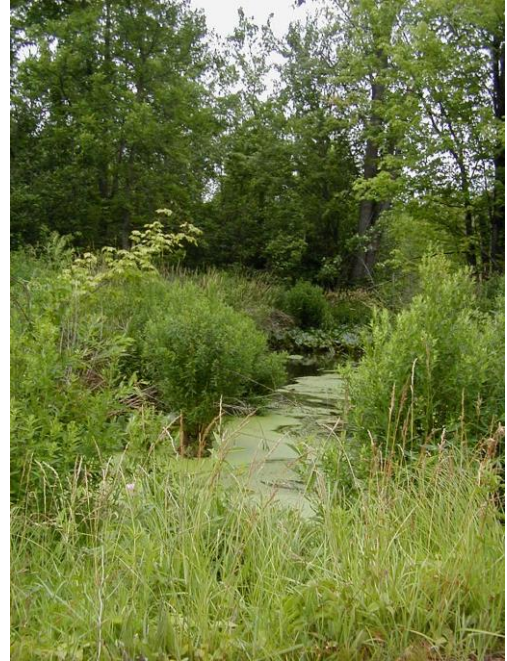
The locations of these prime farmland areas are important to note when making decisions regarding future land uses throughout the Township.

## **WATERSHEDS**

Map A4-6 shows that Attica Township falls within the Belle River, Black River, and Flint River Watersheds. In addition, there are five subwatersheds in the Township: Weston Drain and the North Branch of the Belle River drain to the Belle River, the South Branch of the Flint River drains to the Flint River, and Elk Lake Creek drains to the Black River.

## **WETLANDS**

Wetlands are valuable natural resources within the Township. They may serve as storm water holding areas to reduce flooding; provide for the settling of sediments and pollutants from surface water runoff; reduce stream bank erosion caused by storm water runoff; and provide unique habitat for fish and wildlife. Wetlands throughout the Township are depicted on A4-7. Those which are five acres or more, as well as smaller wetlands hydrologically connected to large wetlands, fall under the jurisdiction of the Michigan Department of Environmental Quality. However, individual townships are in the best position to monitor the health of their wetlands, regardless of size.



## **WOODLANDS**

Prior to settlement of southeast Michigan, the area that is now Attica Township was almost entirely covered by forests of varying types. As shown on Map A4-8, after almost two centuries of agricultural development the woodlands in the Township cover a much smaller area. Still, the remaining woodlands are valuable natural features which serve as windbreaks, aid in the absorption of rainwater, replenish oxygen, create natural beauty and character, and provide wildlife habitat. Preservation of these areas is important, and the effects of development on existing woodlands throughout Attica should be minimized.

## STATE-PROTECTED WILDLIFE AND VEGETATION

Ecologists often emphasize the concept of species biodiversity – that is, the number and variety of different species of plants and animals that naturally populate a given place. Because of the interdependence among these organisms, the loss of natural diversity can throw an ecosystem out of balance. Natural biodiversity is often **considered a measure of an ecosystem’s sustainability**, as well as its current health. In addition, species diversity is important because of the potential commercial value of rare species. Finally, many people agree that biodiversity is intrinsically valuable, regardless of human uses for the species.

The Michigan Natural Features Inventory (MNFI) has identified a variety of state-protected plant and animal species within Attica Township. The plant and animal species listed in Tables A4-1 and A4-2 with “Endangered” (E) and “Threatened” (T) classifications are protected under state law (Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection). While the specific locations of these protected species are not released for protection purposes, the general distribution of these plants and animals in the Township is identified in the tables by Section number.

An endangered species is defined as any species of fish, plant life, or wildlife that is in danger of extinction throughout all or a significant part of its range. A threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.



*Astragalus canadensis*, or Canadian Milk-vetch, is a state threatened species. It can be found in areas with mesic conditions and full or partial sunlight, including roadsides, fields, wet prairies and along streambeds. The Canadian Milk-vetch has a large white tubular flower from May to August which is then superseded by seed pods. It has not been observed in Attica by the MNFI since 1911.

Photo: Washington State University, Marion Ownbey Herbarium (<http://www.wsu.edu:8080/~wsherb/images/Fabaceae/astragaluscana.html>)



*Rallus elegans*, the King Rail, is a state endangered species. The King Rail is a marsh bird that eats insects and small crustaceans. Its habitat once extended across the lower half of the Lower Peninsula, with an especially heavy concentration along the western shore of Lake Erie. Endangerment of the King Rail has been caused by the loss of sedge and cattail marsh habitat, and by the proliferation of pesticides, which is keeping the birds away from otherwise suitable habitats. Recovery of the species can be aided by preserving and restoring the marshes, and by limiting the use and impact of pesticides.

Photo: University of Illinois Urbana-Champaign, Illinois Natural History Survey (<http://www.inhs.uiuc.edu/chf/pub/lfwis/birds/king-rail.html>)



*Clemmys guttata*, or spotted turtle, is a state threatened species. These turtles require clean, shallow, slow-moving bodies of water with muddy or mucky bottoms and some aquatic and emergent vegetation. Although spotted turtles are considered aquatic, they are frequently found on land during certain times of the year. Primary threats to this species are habitat destruction and degradation and illegal collection for the pet trade. Protection of suitable wetland and nesting habitats is crucial for the conservation of this species.



*Natural Features Inventory*

Also listed in the tables are species with the state classification of “Special Concern” (SC). While these species are not protected under state law, they have been identified as rare or their status is uncertain. Many of the species classified as “Special Concern” are noted as such because of their declining populations in the state. Should these species continue to decline, they would be recommended for “Threatened” or “Endangered” status in the future. Protection of “Special Concern” species now, before they reach dangerously low population levels, would prevent the need to list them in the future by maintaining adequate numbers of self-sustaining populations within Michigan. Some other potentially rare species are listed as “Special Concern” pending more precise information on their status in the state; when such information becomes available, they could be moved to “Threatened” or “Endangered” status or deleted from the list.

Several of the plant and animals species listed as threatened or of special concern have not been officially observed by the MNFI recently. Both state-protected plant species in Attica Township were last observed in 1911, and the King Rail was last observed in 1952. Given the length of time since these species were last observed, it is likely that many of these habitats may have been destroyed or severely compromised.

Table A4-1  
State-Protected Animal Species, Attica Township

Scientific Name	Common Name	Year Last Observed	Status	Section
<i>Rallus elegans</i>	King Rail	1952	E	21
<i>Clemmys guttata</i>	Spotted Turtle	1985	T	18, 20
<i>Emys blandingii</i>	<b>Blanding’s Turtle</b>	2000	SC	21
<i>Acris crepitans blanchardi</i>	<b>Blanchard’s Cricket Frog</b>	1989	SC	29
<i>Oecanthus laricis</i>	Tamarack Tree Cricket	2000	SC	20
<i>Dendroica cerulea</i>	Cerulean Warbler	2002	SC	7
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga rattlesnake	1993	SC	24

Source: Michigan Natural Features Inventory (MNFI)

*Natural Features Inventory*

Table A4-2  
State-Protected Plant Species, Attica Township

Scientific Name	Common Name	Year Last Observed	Status	Section
<i>Astragalus canadensis</i>	Canadian Milk-vetch	1911	T	17
<i>Astragalus neglectus</i>	<b>Cooper's Milk-vetch</b>	1911	SC	18

Source: Michigan Natural Features Inventory (MNFI)

In addition to specific plant and animal species, the MNFI has identified occurrences of other important natural elements in the Township. In 1970, a bog, which is one of the distinct natural communities that has been classified as rare or uncommon in Michigan, was identified in Section 13. A bog is defined as a peat wetland dominated by sphagnum moss and deriving all of its nutrients from rainwater (as opposed to groundwater). The peat is fairly acidic. Bogs occur at the edge of lakes and ponds, and in depressions in glacial outwash and sandy glacial lake plains.

In 1988, the Michigan Natural Features Inventory identified a Great Blue Heron rookery in Section 26. Great Blue Herons typically nest in colonies. They build their nests in trees in lowland hardwood swamps. These nesting habits are particularly susceptible to wetland filling and timber cutting. Without adequate habitat in which to nest, the survival of these beautiful birds could be in doubt.



*Great Blue Heron*

Photo: University of Illinois Urbana-Champaign, Illinois Natural History Survey ([www.inhs.uiuc.edu/chi/pub/ifwis/maos/](http://www.inhs.uiuc.edu/chi/pub/ifwis/maos/))



*Great Blue Heron Rookery*

Photo: Illinois Raptor Center ([www.illinoisraptorcenter.org/Field%20Guide/rookery.html](http://www.illinoisraptorcenter.org/Field%20Guide/rookery.html))





TOPOGRAPHY  
ATTICA TOWNSHIP  
LAPEER COUNTY, MICHIGAN

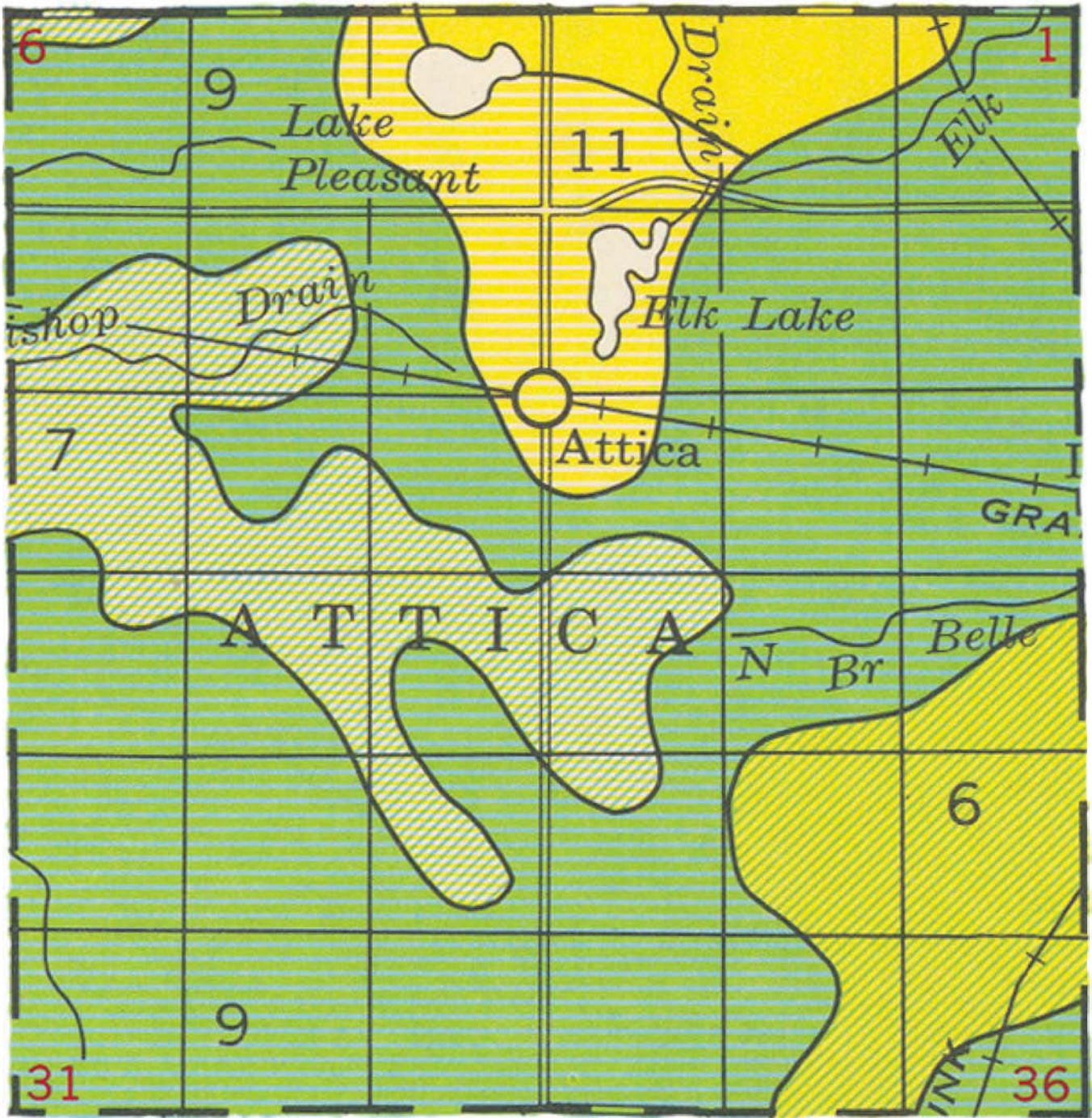
MAP A4-1

Source: USGS



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- 4
 Capac-Belding-Brookston association: Level to gently sloping, somewhat poorly-drained and poorly-drained soils that have a sandy loam to clay loam subsoil; on till plains
- 6
 Conover-Blount-Brookston association: Level to gently sloping, somewhat poorly-drained and poorly-drained soils that have a dominantly clay loam subsoil; on till plains
- 7
 Fabius-Wasepi-Mussey-Gilford association: Level to gently sloping, somewhat poorly-drained and poorly-drained soils that have a sandy loam to gravelly clay loam subsoil; on outwash plains and lake plains
- 9
 Lapeer-Miami-Celina association: Gently sloping to strongly sloping, well-drained and moderately well-drained soils that have a dominantly loam to clay loam subsoil; on till plains and moraines
- 11
 Boyer-Montcalm-McBride association: Gently sloping to very steep, dominantly well-drained soils that have a loamy sand to sandy clay loam subsoil; on outwash plains, till plains, and moraines

**GENERAL SOILS**  
**ATTICA TOWNSHIP**  
**LAPEER COUNTY, MICHIGAN**

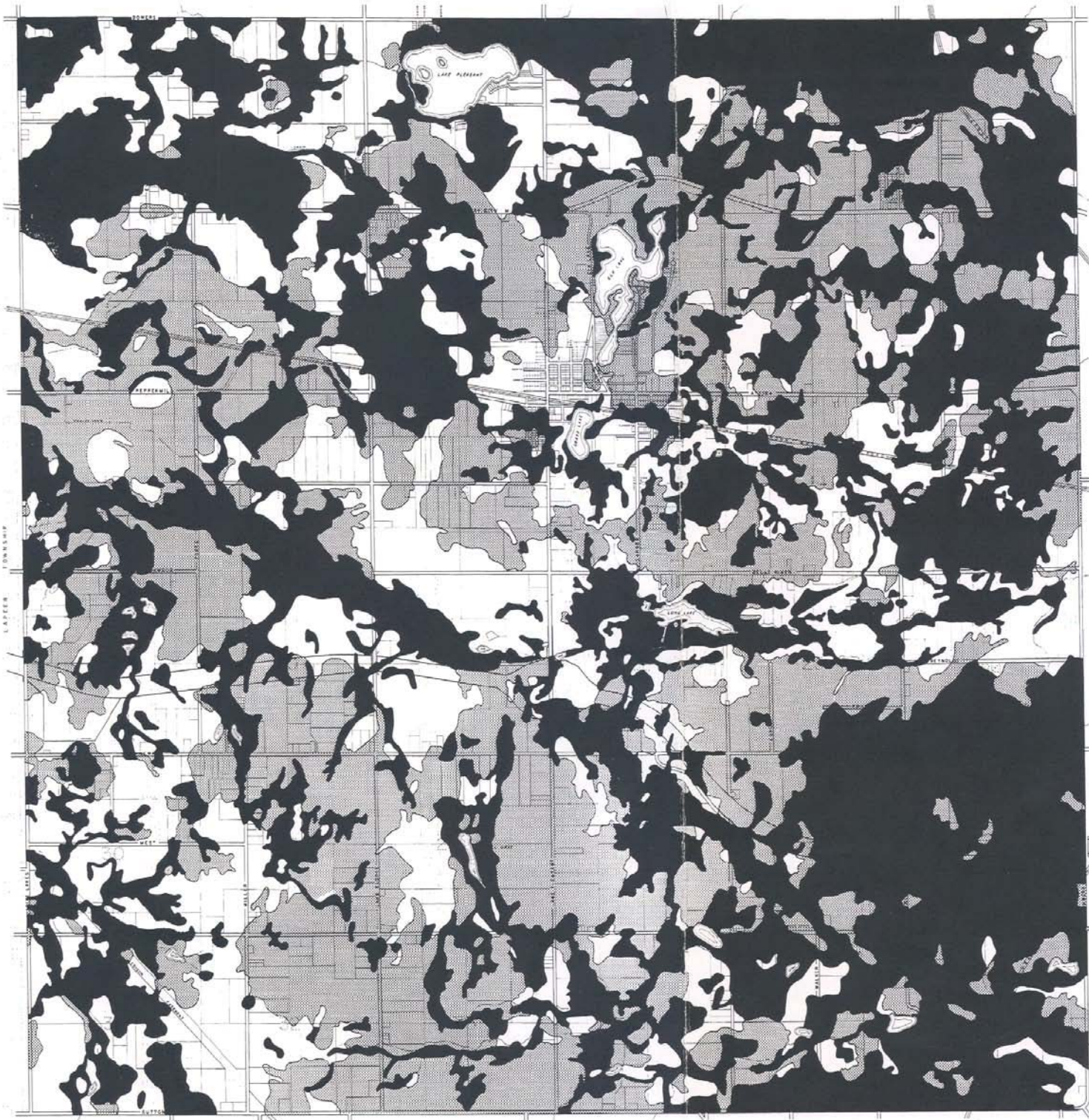
MAP A4-2

Source: USDA






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SOIL LIMITATIONS  
FOR SEPTIC SYSTEMS  
ATTICA TOWNSHIP  
LAPEER COUNTY, MICHIGAN

MAP A4-3

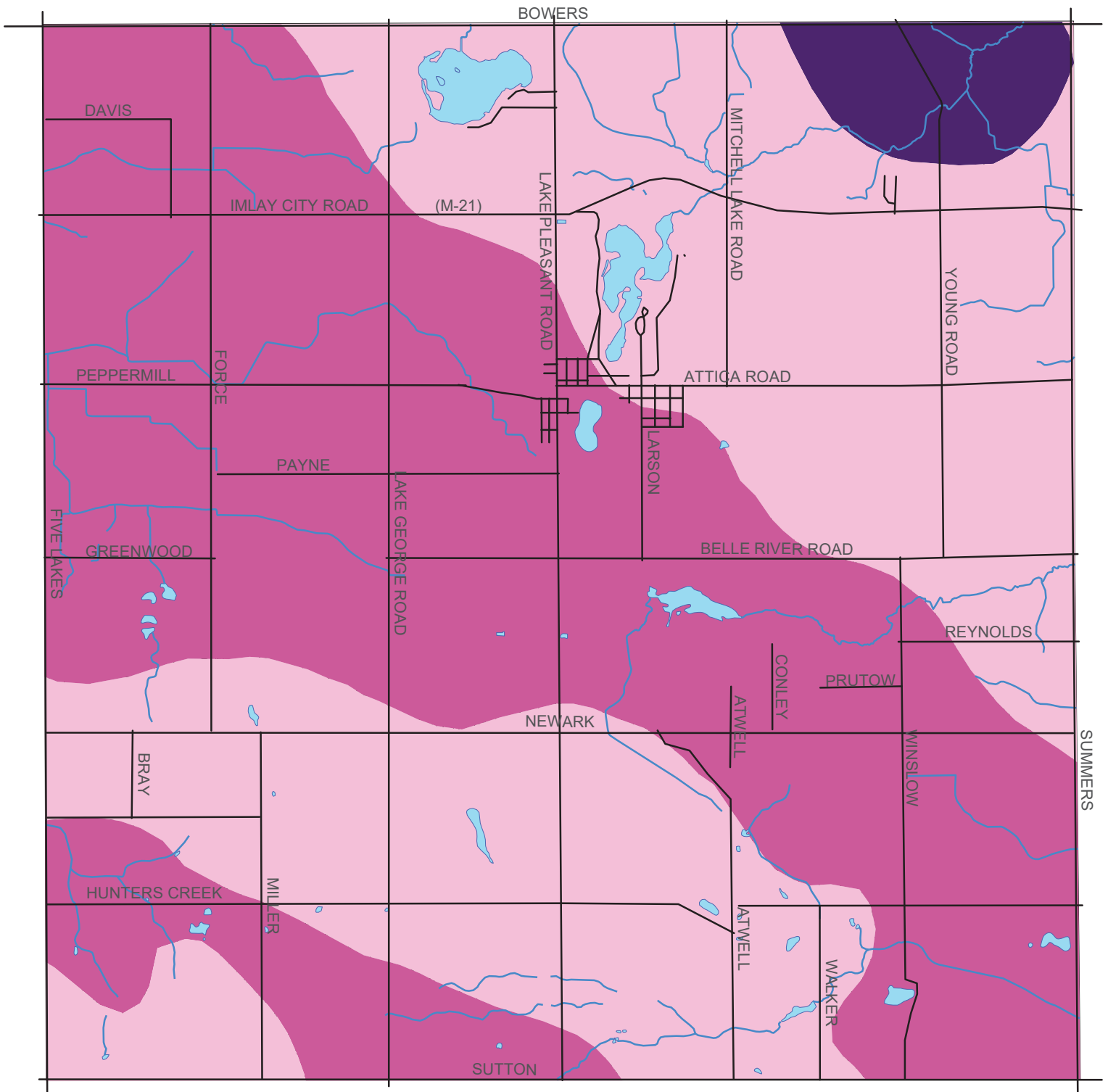
-  SEVERE LIMITATIONS FOR SEPTIC SYSTEMS
-  MODERATE LIMITATIONS FOR SEPTIC SYSTEMS
-  SLIGHT LIMITATIONS FOR SEPTIC SYSTEMS




MAP IS APPROXIMATE, BASED ON SOIL SURVEY DATA



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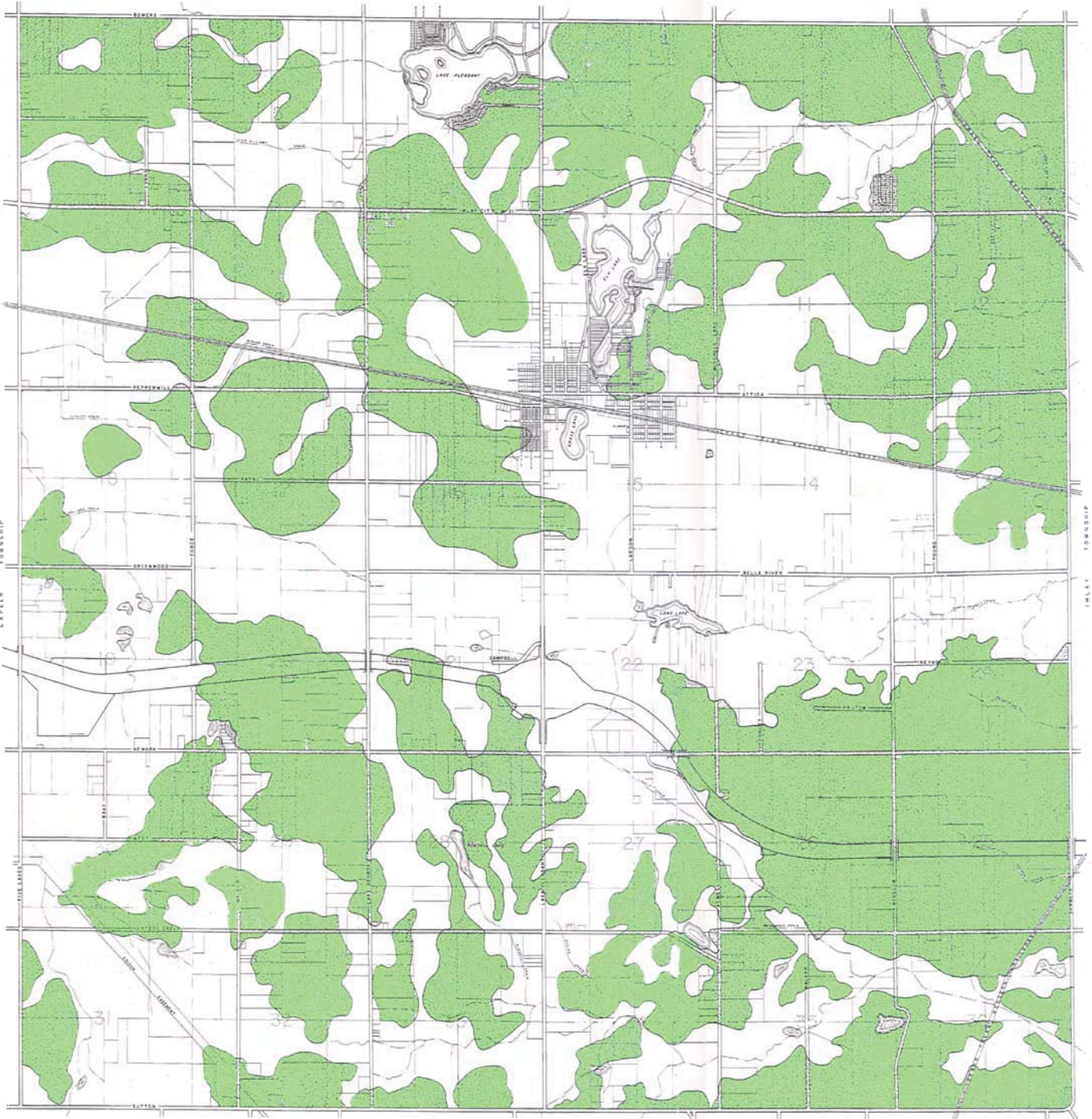
-  END MORAINES OF COARSE-TEXTURED TILL
-  GLACIAL OUTWASH SAND & GRAVEL AND POSTGLACIAL ALLUVIUM
-  LACUSTRINE CLAY AND SILT

**QUATERNARY GEOLOGY**  
**ATTICA TOWNSHIP**  
**LAPEER COUNTY, MICHIGAN**  
**MAP A4-4**

Source: MICHIGAN DNR



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**PRIME FARMLAND**  
**ATTICA TOWNSHIP**  
**LAPEER COUNTY, MICHIGAN**

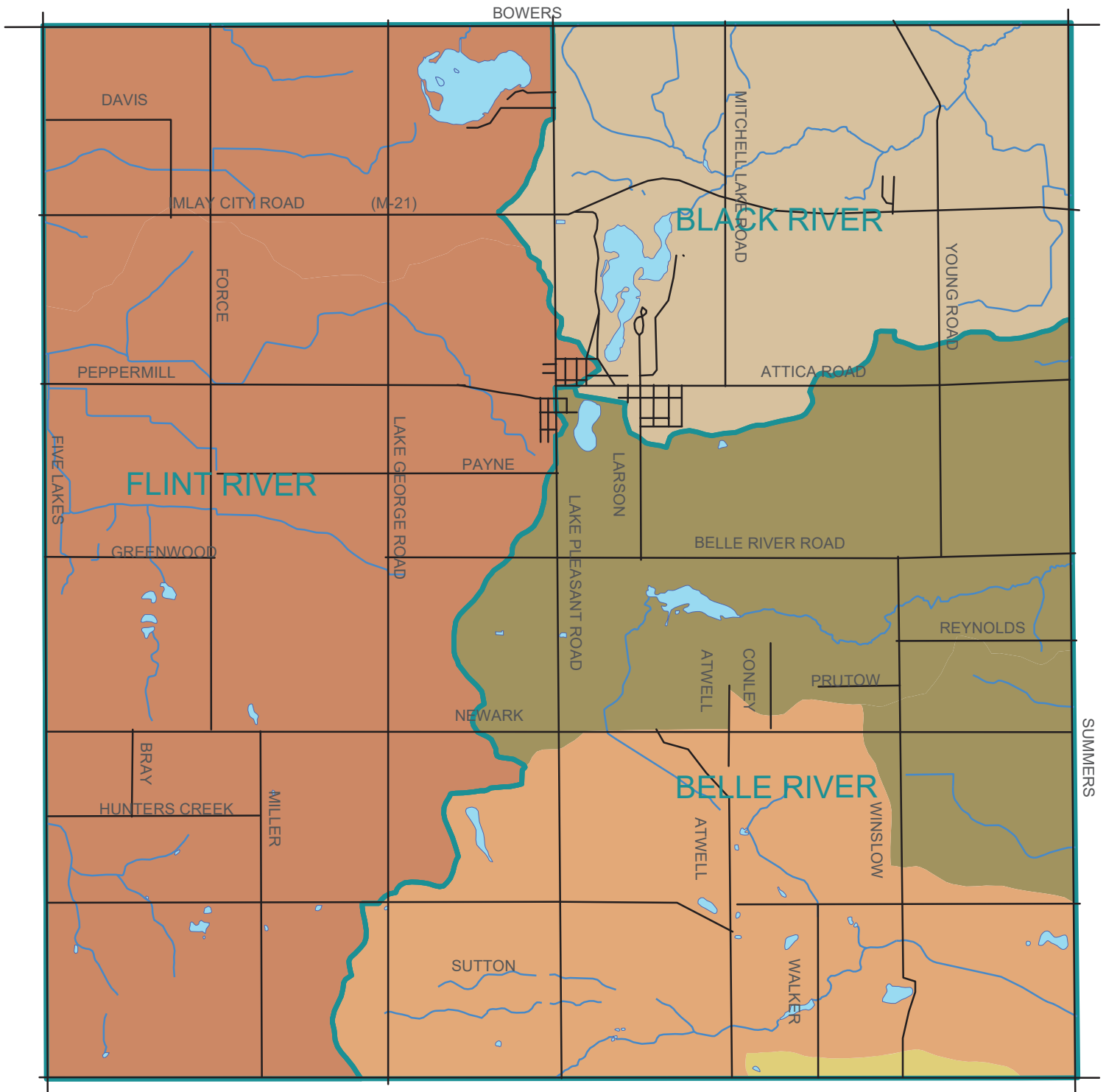
MAP A4-5

 PRIME FARMLAND

MAP IS APPROXIMATE, BASED ON SOIL SURVEY DATA



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 WATERSHED

**SUBWATERSHEDS**

-  Belle River
-  Elk Lake Creek
-  North Branch Belle River
-  South Branch Flint River
-  Weston Drain

Source: MICHIGAN DNR

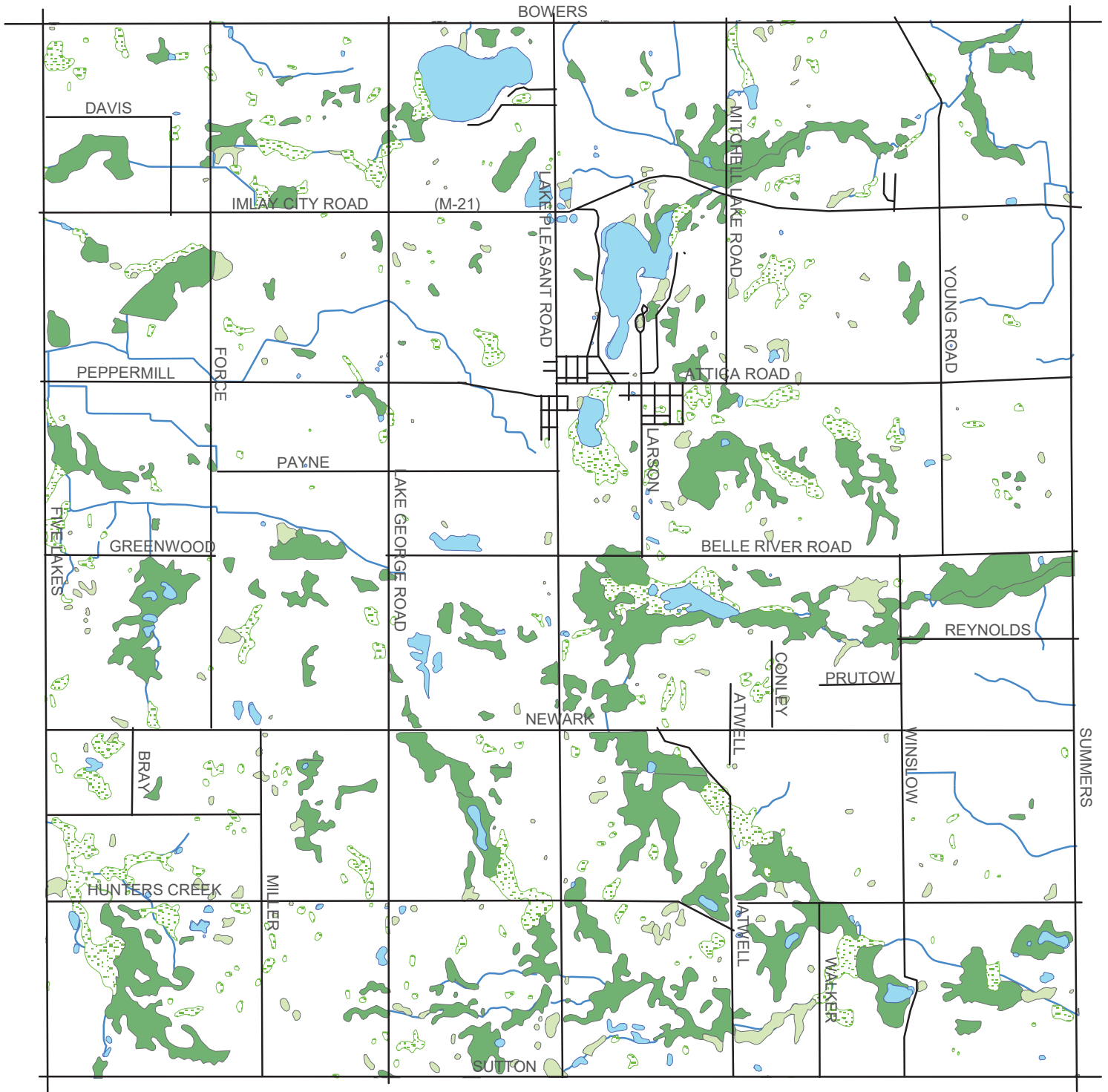
**WATERSHEDS**  
ATTICA TOWNSHIP  
LAPEER COUNTY, MICHIGAN

MAP A4-6



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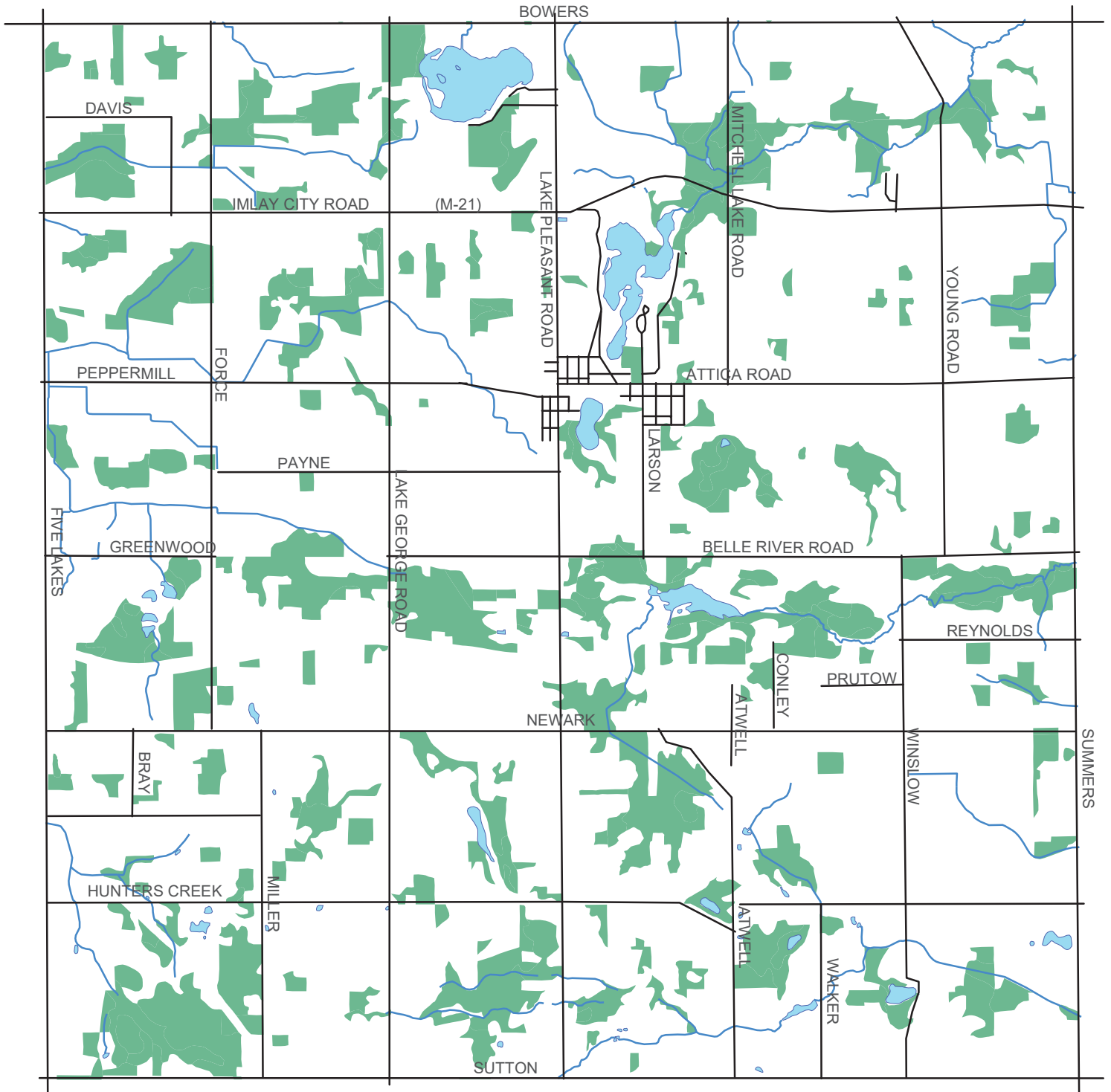
- Emergent
- Forested
- Open Water/Unknown Bottom
- Scrub-Shrub

**WETLANDS**  
**ATTICA TOWNSHIP**  
**LAPEER COUNTY, MICHIGAN**  
**MAP A4-7**

Source: National Wetlands Inventory



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 WOODLANDS

**WOODLANDS**  
 ATTICA TOWNSHIP  
 LAPEER COUNTY, MICHIGAN  
 MAP A4-8

Source: MICHIGAN DNR



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