

Tri-Townships 2017 Master Plan



Alcona, Caledonia & Hawes Townships
Alcona County, Michigan

TRI-TOWNSHIPS TOWNSHIP 2017 MASTER PLAN

Alcona Township
Caledonia Township
Hawes Township

Alcona County, Michigan

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TRI-TOWNSHIPS TOWNSHIPS
MASTER PLAN

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Chapter 1 - Introduction

Three townships located in Alcona County have a unique working agreement. Alcona, Caledonia and Hawes Townships have worked together to plan for the future since 1992. By preparing a unified comprehensive plan for future community development, these townships have more effectively worked to preserve the assets they share. Furthermore, as neighbors working together in a common cause, the "Tri-Townships" can better cope with decisions about the location, character and density of development within all three communities.

Upland forest is the predominant land cover in the three Townships, with much of that being aspen and oak. Farming is limited and tends to be concentrated in eastern parts of Caledonia and Hawes Townships; and around the community of Barton City. The natural feature that joins all of the three Townships together is Hubbard Lake. Located in the headwaters of the South Branch of the Thunder Bay River, this 8,850 acre lake is an integral part of the communities' identity and drives the local economy. This lake, over seven miles long and two and a half miles wide, is the twelfth largest inland water body in the State of Michigan. Hubbard Lake has long been a favorite seasonal and recreational home location. Caledonia Township has jurisdiction over the northern portion of the lake, Alcona Township occupies the center, and Hawes Township includes the southern shore. In all three communities, residential development is clustered around Hubbard Lake. While much of this residential platting and development occurred several decades ago, there has been considerable recent pressure to "fill in the gaps" remaining on shore, and to redevelop choice lakefront property at more intensive levels of use.

In addition to shared development pressures, the common lakefront environment brings common land use problems to all three communities: concerns about water quality, lakefront views, boating safety, and waterfront commercial development. By confronting these problems together, the Tri-Townships have developed common development policies and standards that are uniformly applied around Hubbard Lake, despite jurisdictional divisions. The three Townships have other lakefronts that have common land use interests.

Planning and Social Change

Not only do the three Townships share environmental concerns related to Hubbard Lake, these communities also share similar social and economic characteristics. A number of social and economic changes have occurred, which affect the use of land and the area's development patterns, have taken place since the adoption of the Tri-Townships 2006 Master Plan.

The Townships experienced small population growth from 1970 to 2000. However, the "Great Recession of 2008" had sizable impacts on Northeast Michigan, for example unemployment rates in Alcona County were some of the highest in the nation; and residents moved to other parts of the country in search of employment. The 2010 US Census found all communities in Alcona County experienced population losses during the past decade. Even though the area experienced population growth the number of housing units, including those classified as seasonal, increased between 2000 and 2010.

All three Townships have high percentages of housing units classified as seasonal. Seasonal residents may include retirees that winter in the south or second home owners. Given this high number of seasonal structures, large fluctuations in the population occur during peak summer times, which in turn put increased demands on a community's services, infrastructure and

natural systems.

The composition of the population has changed over the past several decades. On average, the Townships' residents are older and are part of a regional trend toward the "graying of the North" caused by an influx of retirees. 2010 US Census data shows that 68 percent of Tri-Townships' population was 45 years old or older. This percentage has increased over the past few decades as residents age in place while there has been an out-migration of younger families and an in-migration of retirees. Another demographic trend is the median age for the Tri-Townships is increasing at a higher rate than the State of Michigan and US. For example, the median age of the Tri-Townships is 20 years older than the US. Long term trends indicate the median age of Tri-Townships' residents will continue to increase at a faster rate than the State of Michigan and US.

By documenting these kinds of demographic trends within an updated master plan, the Townships will be better able to provide for suitable amounts and types of development. In addition to the permanent population, the Townships must plan for large increases in the summer tourist season population.

Background on Land Use Planning and Zoning

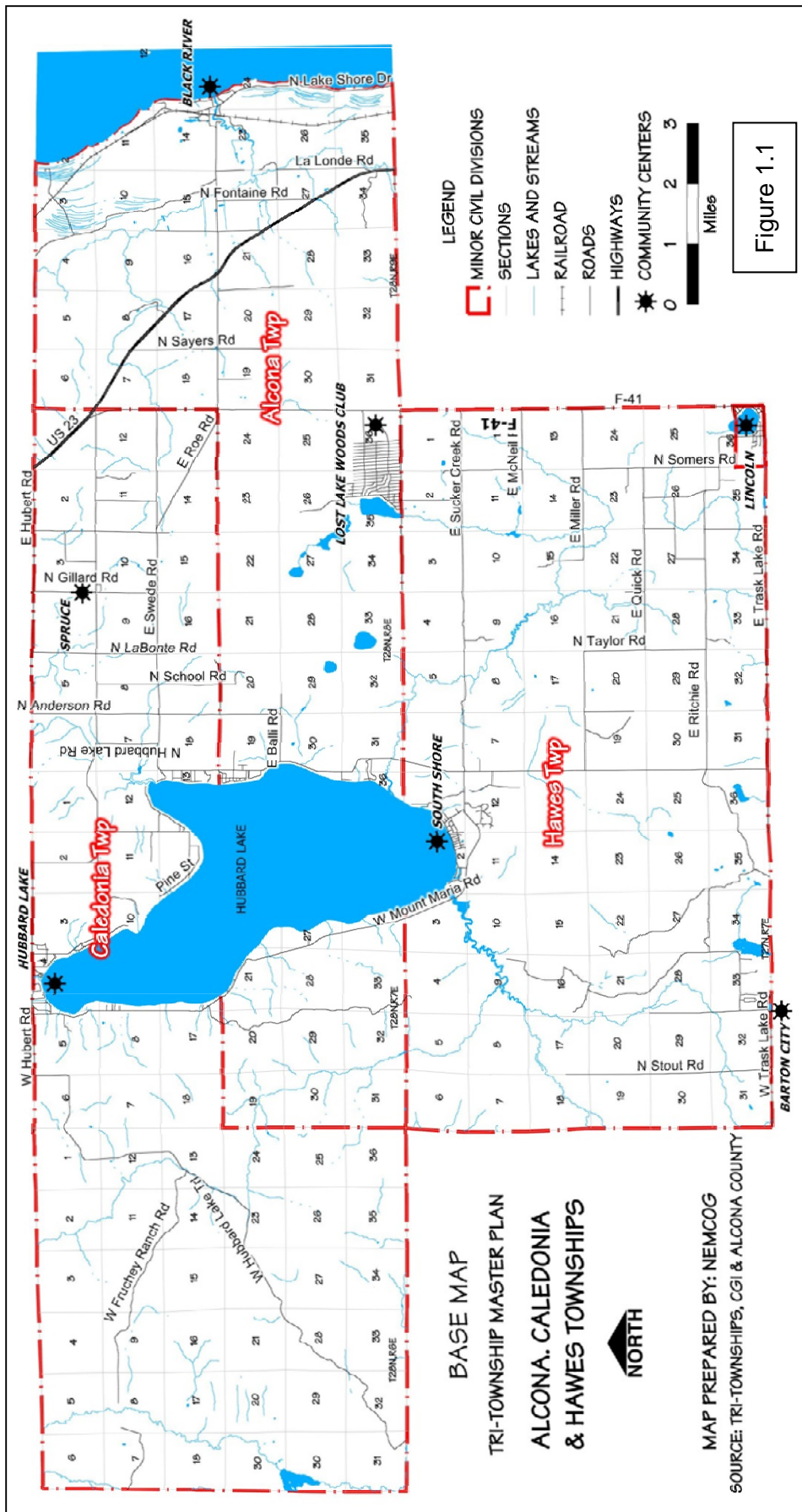
The three Townships are no strangers to long-range planning. Since 1994, the Tri-Townships have had a mutually developed Master Plan. The plan is currently being implemented by the respective townships' zoning ordinances.

Michigan law requires that a zoning ordinance correspond to a comprehensive plan in order to be valid and enforceable. With this requirement in mind, the Townships wish to revisit the comprehensive planning process, in order to bring their land use plans up to date

Regional Context and Location

Alcona, Caledonia and Hawes Townships are located in the northern half of Alcona County, in the heart of northeastern lower Michigan's "Sunrise Side" (**See Figure 1.1**). While remote from large population centers, the region shares the blessings of vast forest lands, numerous inland lakes, the Lake Huron shoreland and a growing number of vacation, recreation and retirement communities. The City of Alpena is located approximately fifteen miles north of the County's northern edge, and the City of Harrisville lies six miles south of Alcona Township's southern boundary.

In terms of transportation, US-23 is the principal north/south route, passing through the eastern side of both Caledonia and Alcona Townships. State Highway M-65, another important north/south route, is located three miles west of Caledonia Township's western boundary. State Highway M-72 lies two miles south of the southern Hawes Township boundary, and is a major regional east/west route. The location of Hubbard Lake and its associated wetlands make direct east/west travel through the Tri-Townships very difficult. Both Hubbard Lake Road and Mt. Maria Road, which circle the lake, are heavily used by residential and recreational travelers. Spruce Road and County Road F-41 are other important local routes leading to and from US-23.



Chapter 2 - Socio-Economic Profile

Overview

One of the most important steps in understanding the future needs of a community is an analysis of population, households, housing, income, education and employment characteristics. Most of the information presented in this chapter is derived from the U. S. Census Bureau.

Seasonal populations can have a significant impact on communities. Seasonal residents may include retirees that winter in the south or second home owners. The US Census Bureau does not report seasonal populations; however, seasonal structures are reported. The 2010 Census found that 1,871 houses in the Tri-Townships were seasonal; an increase of 177 units since 2000. Given this high number of seasonal structures, large fluctuations in the population occur during peak summer times, which in turn put increased demands on a community's services, infrastructure and natural systems.

Population

The 2010 Census showed that Alcona County experienced a population decrease of 6.6 percent of its population (777 people) between 2000 and 2010. The 2010 US Census found Alcona County with a population of 10,942. The County population density averages 16 persons per square mile; however, higher densities exist within the communities of Harrisville, Lincoln and Lost Lake Woods Club (LLWC) and around major water bodies such as Hubbard Lake and coastline Lake Huron. Historically, the County population had increased every decade since 1930. However, the "Great Recession of 2008" had sizable impacts on Northeast Michigan; unemployment rates were some of the highest in the nation; the auto industry in Michigan shed many jobs and residents moved to other parts of the country in search of employment. The 2010 US Census found all communities in Alcona County experienced population losses during the past decade, with the County as a whole losing 777 year round residents. All three townships and Lost Lake Woods Club Census Designated Place (CDP) lost population, with Alcona Township experiencing both the highest numeric and percent population losses. As can be seen in **Table 2.1**, the Hubbard Lake CDP actually experienced a small amount of population growth.

Seasonal Population

Obtaining accurate numbers of seasonal residents and tourists is difficult. Since the census is taken in April, persons whose primary home is elsewhere are not counted in Alcona County. The high number of seasonal structures within Tri-Townships (Alcona Township 59.0 percent, Caledonia Township 49.9 percent, and Hawes Township 45.7 percent) clearly implies resident population significantly increases during peak periods in the summer months. Using the 2.11 average persons per household for Tri-Townships and the seasonal homes, peak seasonal population could increase by nearly 4,000; thereby more than doubling the population of the townships. This figure does not include those seasonal visitors or tourists staying in area motels, campgrounds or family homes. Special recreational events such as opening of deer hunting, salmon and trout fishing seasons can greatly increase this transient population.

Municipality	1990 Population	2000 Population	Change 1990-2000	2010 Population	Percent Change 2000-2010	Change 2000-2010
Alcona Township	906	1,089	183	968	-11.1%	-121
Caledonia Township	987	1,203	216	1,161	-3.5%	-42
Hawes Township*	1,035	1,167	132	1,107	-5.1%	-60
Hubbard Lake CDP**		993		1,002	0.9%	9
Lost Lake Woods Club CDP***		339		312	-8.0%	-27
Curtis Township	1,129	1,378	249	1,236	-10.3%	-142
Greenbush Township	1,373	1,499	126	1,409	-6.0%	-90
Gustin Township*	823	832	9	795	-4.4%	-37
Harrisville Township	1,315	1,411	96	1,348	-4.5%	-63
Haynes Township	549	724	175	722	-0.3%	-2
Mikado Township	852	1043	191	947	-9.2%	-96
Millen Township	417	463	46	404	-12.7%	-59
Mitchell Township	290	396	106	352	-11.1%	-44
City of Harrisville	470	571	47	493	-4.1%	-21
Village of Lincoln	337	364	27	337	-7.4%	-27
Alcona County	10,145	11,719	1,574	10,942	-6.6%	-777

Source: U.S. Bureau of the Census
 * Includes parts of Village of Lincoln
 ** Count also included in all three Townships
 *** Count also included in Alcona Township

Age Distribution

2010 Census data shows that 68 percent of Tri-Townships' population was 45 years old or older (**Table 2.2.** and **Figure 2.1**). This percentage has increased over the past few decades as residents age in place while there has been an out-migration of younger families and an in-migration of retirees.

Another demographic trend is the median age for the Tri-Townships, which is increasing at a higher rate than the State of Michigan and US. (**Table 2.3**). By comparison, the State's median age increased from 35.5 to 38.9 years during the period 2000-2010. Furthermore, the median age of the Tri-Townships is 20 years older than the US.

Governmental Unit	2000	2010
Alcona Township	57.6	63.0
Caledonia Township	50.5	56.7
Hawes Township	49.6	52.9
Alcona County	49.0	55.2
Michigan	35.5	38.9
United States	35.3	37.2

Source: U. S. Bureau of the Census

The median age of Hawes Township is lower than the other two townships and the County as a whole. Alcona Township recorded the oldest median age at 63.0 years. The high median age in Alcona Township is attributed to the resort community development of Lost Lake Woods Club and Hubbard Lake. For example, according to the US Census Bureau, median age for the Lost Lake Woods Club CDP was 68.1 years and Hubbard Lake CDP was 63.7 years. If the

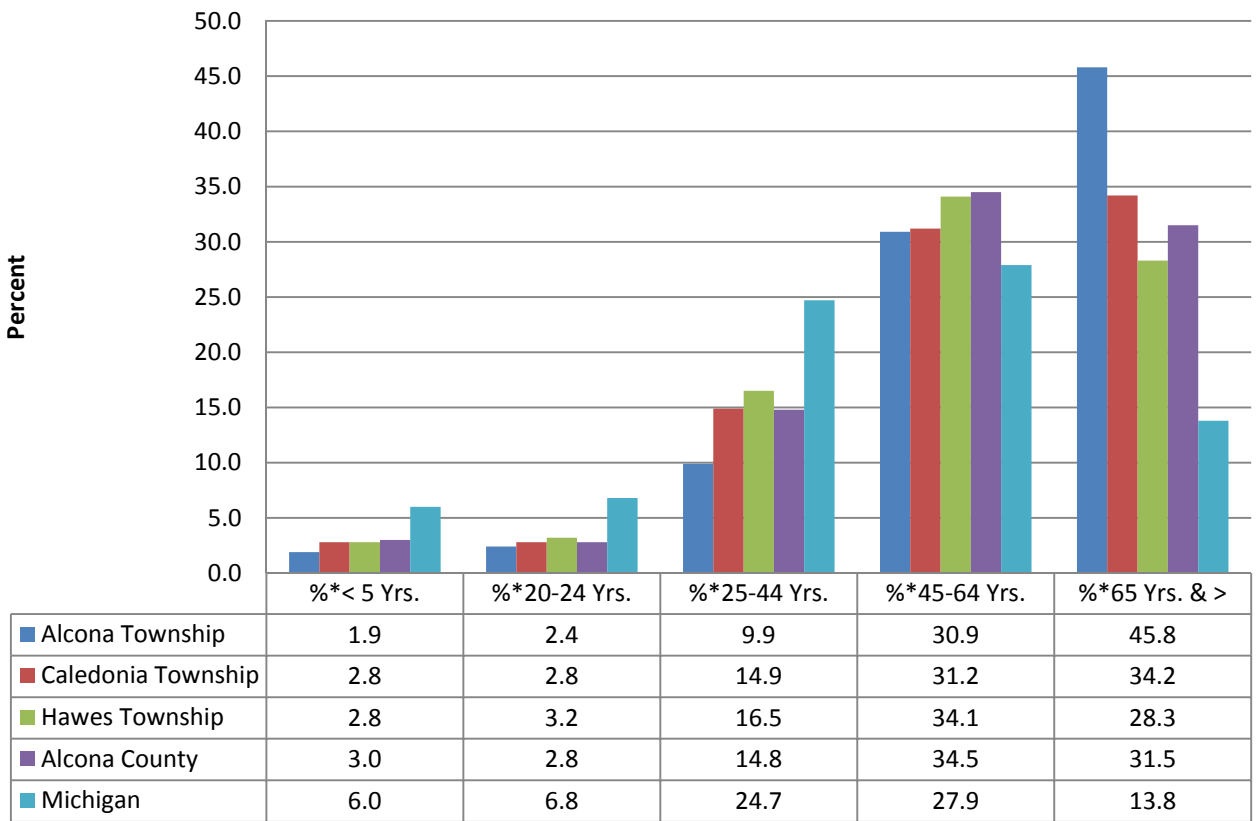
seasonal-summer population were reported for these areas, the median age would be even older.

In conclusion, shifts in the demographic make-up are changing the population structure in the communities. Long term trends indicate the median age will continue to increase at a faster rate than the State of Michigan and US. The rate has increased with the down turn in the economy, as young families move to other areas for employment. An aging population needs access to social and medical services. The community's emergency response services will likely experience an increase in demands.

Community	< 5 Yrs.	%*	5-19 Yrs.	%*	20-24 Yrs.	%*	25-44 Yrs.	%*	45-64 Yrs.	%*	65 Yrs. & >	%*	Median Age
Alcona Township	18	1.9	89	9.2	23	2.4	96	9.9	299	30.9	443	45.8	63.0
Caledonia Township	32	2.8	165	14.2	32	2.8	173	14.9	363	31.2	396	34.2	56.7
Hawes Township	31	2.8	168	15.2	35	3.2	182	16.5	378	34.1	313	28.3	52.9
Hubbard Lk CDP**	22	2.2	89	8.9	18	1.8	80	8.0	320	32	473	47.2	63.7
Lost Lake Woods Club CDP***	2	0.6	20	6.4	4	1.4	18	5.8	74	23.7	194	62.2	68.1
Curtis Township	33	2.7	155	12.6	35	2.8	161	13.0	437	35.4	415	33.6	56.4
Greenbush Township	53	3.8	148	10.5	32	2.3	200	14.1	482	34.2	494	35.0	57.9
Gustin Township	42	5.3	150	18.9	33	4.2	168	21.2	242	30.4	160	20.1	45.3
Harrisville Township	46	3.4	188	13.9	34	2.5	195	14.4	483	35.9	402	29.8	53.8
Haynes Township	14	1.9	101	14.0	16	2.2	100	13.8	270	37.4	221	30.6	56.1
Mikado Township	27	2.9	174	18.4	32	3.4	165	17.4	342	36.1	207	21.8	49.4
Millen Township	9	2.2	30	7.4	9	2.2	52	12.9	172	42.5	132	32.6	56.6
Mitchell Township	8	2.3	25	7.0	9	2.6	38	10.8	160	45.5	112	31.9	59.4
City of Harrisville	18	3.7	73	14.9	14	2.8	99	20.1	143	29.0	146	29.7	51.6
Village of Lincoln	18	5.3	57	16.8	23	6.8	78	23.1	74	21.9	87	25.8	43.2
Alcona Co.	331	3.0	1,466	13.4	304	2.8	1,629	14.8	3,771	34.5	3,441	31.5	55.2
Michigan		6.0		20.8		6.8		24.7		27.9		13.8	38.9

*Figure shows the percentage each age grouping represents of the local unit's total population.
 ** Count also included in all three Townships
 *** Count also included in Alcona Township
 Source: U.S. Bureau of the Census

Figure 2.1: Age Distribution - 2010



Household Characteristics

Table 2.4 presents information on household characteristics gathered during the 2010 US Census. Information includes total number of households, average household size, householder living alone, householder 65 years & older living alone, and households with an individual 65 years & older. As would be expected from age information previously presented in the chapter, average household sizes in the three Townships and the County are smaller than the State and US averages. Additionally, **Figure 2.2** shows the three Townships have much higher percentages of households with individuals 65 years and older and lower percentages of households with individuals under 18 years of age than the State of Michigan and US.

Race and Ethnic Composition

Information found on **Table 2.5** shows that Alcona County has a very small minority population; a situation that has changed very little over the last several decades. Since 2000, respondents are given the opportunity to choose more than one race category. In 2010, Hispanic or Latino origin was the largest minority group with 1.1 percent of the population, followed by American Indian at 0.6 percent, Asian at 0.2 percent and black at 0.1 percent. The minority percentages for the Tri-Townships reflect the countywide numbers.

Table 2.4 Tri-Townships and Alcona County: Household Characteristics - 2010					
MUNICIPALITY	Total Households	Avg. Household Size	Householder Living Alone 65 yrs. & older	% Household w/ Individuals 65 yrs. & older	% Household w/ Individuals Under 18 years
Alcona Township	496	1.95	91	58.9%	11.7%
Caledonia Township	534	2.17	85	49.6%	16.9%
Hawes Township*	497	2.22	76	43.3%	20.5%
Hubbard Lake CDP**	507	1.98	89	60.6%	9.7%
Lost Lake Woods Club CDP***	173	1.80	40	71.1%	8.1%
Curtis Township	595	2.08	94	47.9%	15.8%
Greenbush Township	676	2.08	112	49.7%	14.1%
Gustin Township*	339	2.33	59	36.6%	27.4%
Harrisville Township	588	2.19	71	40.3%	20.4%
Haynes Township.	342	2.11	50	44.2%	16.7%
Mikado Township	407	2.31	39	34.9%	23.3%
Millen Township	200	2.00	28	43.5%	13.0%
Mitchell Township	184	1.91	30	42.9%	8.2%
City of Harrisville	231	1.96	47	45.9%	18.2%
Village of Lincoln	160	2.11	37	41.3%	23.1%
Alcona County	5,089	2.13	782	45.6%	17.4%
Michigan	-----	2.49	-----	25.4%	31.6%

Source: U.S. Bureau of the Census
 * Count includes parts of Lincoln
 ** Count also included in all three Townships
 *** Count also included in Alcona Township

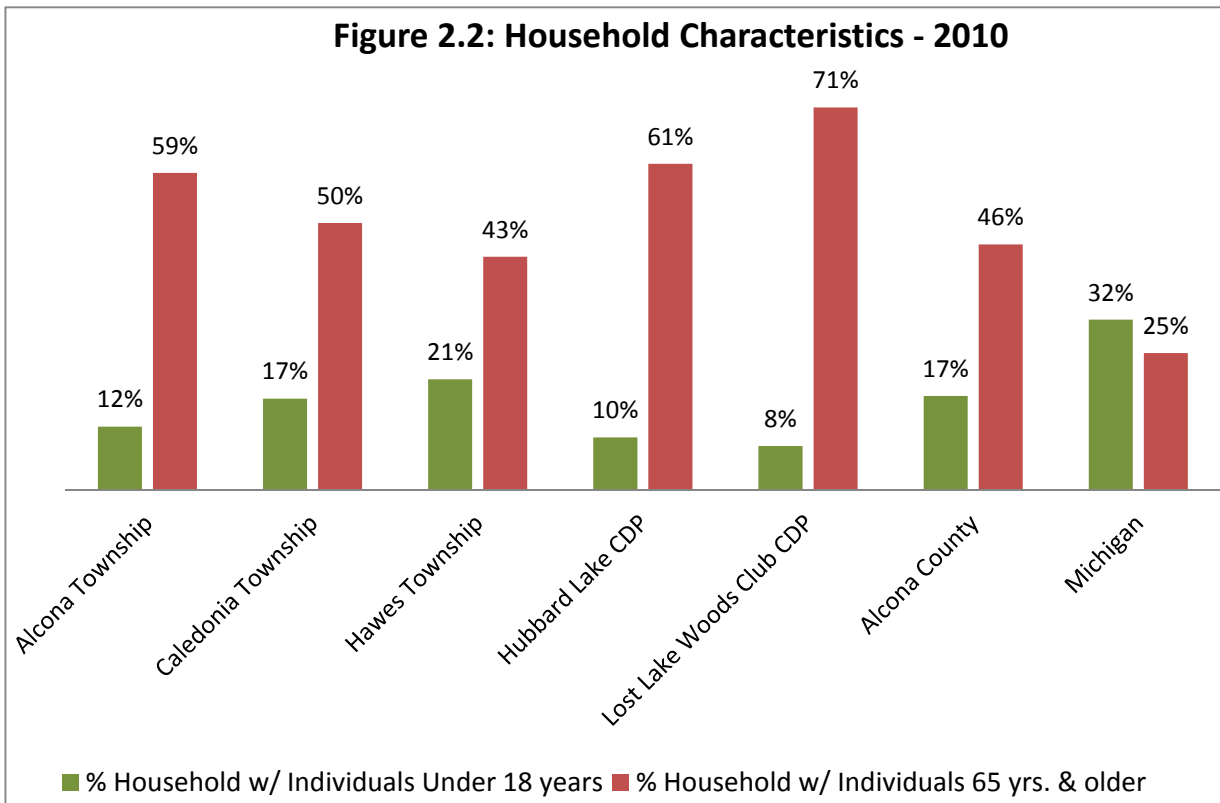


Table 2.5 Population By Race And Hispanic Origin For Alcona County 2010		
	Number of Persons	% of Total Population
Total	10,942	100%
White	10,712	97.9%
Black	13	0.1%
American Indian	66	0.6%
Asian	25	0.2%
Two or More Races*	99	0.9%
Hispanic or Latino Origin**	124	1.1%

* Census 2010 gave respondents the opportunity to choose more than one race category.
 ** Persons of Hispanic or Latino Origin may be of any race.
 Source: U.S. Bureau of the Census

Disability Status

Data shown in **Table 2.6** from the *2009-2013 American Community Survey 5-Year Estimates* gives an indication of disabled people who reside in the Tri-Townships, Alcona County and Michigan. Persons with disabilities include those with a hearing difficulty, a vision difficulty, a cognitive difficulty, an ambulatory difficulty, a self-care difficulty and an independent living difficulty. The percent population of persons with disabilities is higher for two of the Townships and Alcona County than Michigan as a whole. The same is true for the population 18 to 64 years of age. Statistics for 65+ years show all three communities have lower percentages than Alcona County and the State of Michigan.

Table 2.6 Alcona County Disability Status of Civilian Non-Institutionalized Persons				
LOCAL UNIT	% Disabled persons	% Disabled Under 18 Years	% Disabled 18-64 Years	% Disabled 65+ Years
Alcona Township	19.5%	5.7%	15.4%	26.5%
Caledonia Township	21.9%	14.7%	19.8%	26.9%
Hawes Township	12.7%	3.9%	10.4%	20.3%
Alcona County	21.7%	7.2%	18.6%	33.9%
Michigan	13.7%	6.3%	11.9%	36.5%

Source: 2009-2013 American Community Survey 5-Year Estimates

Educational Attainment

Table 2.7 has educational attainment information from the *2010-2014 American Community Survey 5-Year Estimates*. Data is provided for persons 25 years and older within each Township. The percentage of population who attained a high school diploma or higher degree was comparable to the County and State as a whole. Generally, rural communities in the northeast have lower percentages of the population with advanced degrees than the State as a

whole. However, communities with large amounts of prime waterfront and higher percentages of retirees tend to have similar educational attainment levels as the State.

Table 2.7 Educational Attainment					
	Alcona Township	Caledonia Township	Hawes Township	Alcona County	Michigan
Population 25 years and over	822	889	823	8,717	6,594,586
Less than 9 th grade education	1.3%	1.8%	5.0%	3.5%	3.4%
9 th – 12 th grade, no diploma	5.2%	11.8%	11.1%	9.6%	7.7%
High school graduate	33.6%	40.2%	35.6%	40.0%	30.4%
Some college, no degree	24.9%	22.7%	30.0%	25.8%	24.0%
Associate degree	9.9%	10.7%	4.1%	8.0%	8.6%
Bachelor's degree	16.2%	6.2%	9.8%	8.1%	15.9%
Graduate or professional degree	8.9%	6.6%	4.4%	5.0%	10.0%
Percent high school graduate or higher	93.4%	86.4%	84.0%	86.9%	88.9%
Percent bachelor's degree or higher	10.9%	12.8%	14.2%	13.0%	25.9%
Source: 2010-2014 American Community Survey 5-Year Estimates					

Housing Characteristics

The 2010 US Census reports a wide variety of housing characteristics. Housing characteristics for all communities in Alcona County are found in **Table 2.8**. The total number of units includes single and multiple family housing types. The table shows the total number of housing units, occupied, vacant and seasonal. The number of vacant units includes seasonal housing, which accounts for the unusually high numbers for townships in the County.

Certain housing characteristics contrast sharply with the State as a whole. Most significant is the high percentage of housing units classified as seasonal, recreational or occasional use. Countywide, 47.2 percent of the housing units are seasonal as compared to 5.8 percent Statewide. Within Tri-Townships, Alcona Township had 59.0 percent, Caledonia Township 49.9 percent, and Hawes Township 45.7 percent. Additionally, two Census Designated Places (CDP) show an even higher percentage of seasonal housing units, Hubbard Lake CDP 60.9 percent and Lost Lake Woods Club CDP 63.8 percent. Of the occupied housing units, the percent of owner occupied is much higher in Tri-Townships than Statewide. Alcona Township 94 percent, Caledonia Township 92.3 percent and Hawes Township 91.3 percent in comparison to 72.1 percent in the State as a whole.

Table 2.9 and **Figure 2.3** compare housing characteristics between 2000 and 2010. Even with the downturn in the economy in latter part of the past decade, there was still an increase in total number of housing units and seasonal housing units. It is understood the units were likely added prior to 2008.

Information reported on occupied housing units found 62.3 percent of the housing units in Caledonia were heated with natural gas, while 48 percent in Alcona and 40 percent in Hawes had natural gas. The percentage of units heating with bottled, tank or LP gas ranged from 16 to

30 percent. Worth noting is the percentages of housing units reported as using other fuels (wood and pellets). **Table 2.10**

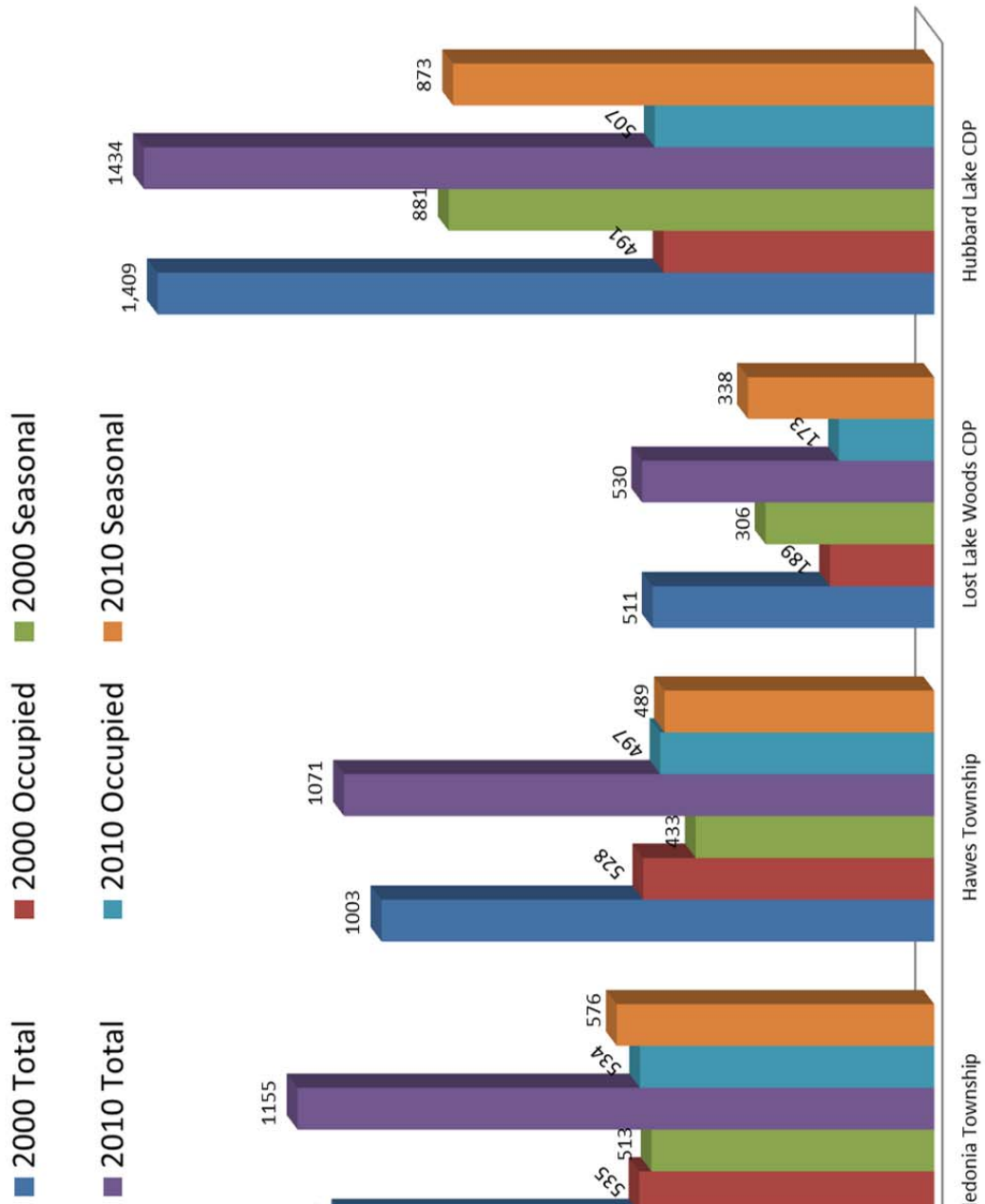
Table 2.8 Housing Counts and Occupancy Status in Alcona County						
Area Name	2010					
	Total	Occupied	Vacant	Percent Vacant	Seasonal	Percent Seasonal
Alcona Township	1,366	496	870	63.7%	806	59.0%
Caledonia Township	1,155	534	621	53.8%	576	49.9%
Hawes Township*	1,071	497	574	53.6%	489	45.7%
Hubbard Lake CDP**	1,434	507	927	67.6%	873	60.9%
Lost Lake Woods Club CDP***	530	173	357	67.4%	338	63.8%
Curtis Township	1,700	595	1,105	65.0%	1,013	59.6%
Greenbush Township	1,496	676	820	54.8%	680	45.5%
Gustin Township	497	339	158	31.8%	94	18.9%
Harrisville Township	874	588	286	32.7%	205	23.5%
Haynes Township	627	342	285	45.5%	240	38.3%
Mikado Township	653	407	246	37.7%	192	29.4%
Millen Township	540	200	340	63.0%	314	58.1%
Mitchell Township	765	184	581	75.9%	553	72.3%
City of Harrisville	329	231	98	29.8%	60	18.2%
Village of Lincoln	236	160	76	32.2%	47	19.9%
Alcona County	11,073	5,089	5,984	54.0%	5,222	47.2%

Source: 2010 US Census Bureau
 * Includes parts of Village of Lincoln
 ** Count also included in all three Townships
 *** Count also included in Alcona Township

Table 2.9 Housing Counts and Occupancy Status Comparisons								
MUNICIPALITY	2000				2010			
	Total	Occupied	Seasonal	Seasonal	Total	Occupied	Seasonal	Percent
Alcona Township	1313	524	748	57%	1366	496	806	59%
Caledonia Twp.	1074	535	513	48%	1155	534	576	50%
Hawes Twp.	1003	528	433	43%	1071	497	489	46%
Lost Lake Woods Club CDP*	511	189	306	60%	530	173	338	64%
Hubbard Lake CDP**	1,409	491	881	63%	1434	507	873	61%

Source: 2010 U.S. Census Bureau
 * Count also included in Alcona Township
 ** Count also included in all three Townships

**Figure 2.3
Comparison of Housing 2000-2010**



House Heating Fuel	Alcona Twp.	Caledonia Twp.	Hawes Twp.
Utility gas	48.1%	62.3%	39.5%
Bottled, tank, or LP gas	23.8%	16.0%	29.8%
Electricity	7.8%	6.3%	3.9%
Fuel oil, kerosene, etc.	4.0%	2.4%	6.6%
Coal or coke	0.0%	0.0%	0.0%
All other fuels	16.2%	13.0%	20.1%
Source: 2010-2014 American Community Survey 5-Year Estimates			

Economic Characteristics

Alcona County is a rural, sparsely populated county sandwiched between two larger, more urbanized counties (Alpena and Iosco). The opportunity for year-round higher wage jobs has traditionally not been good in Alcona County. Historically, a large number of Alcona County residents commuted to the Wurtsmith Air Force Base in Iosco County and to Alpena County, where a large number of good paying industrial jobs could be found. Over twenty years ago, Wurtsmith Air Force Base was closed, causing the loss of over 600 government jobs, some of which were held by Alcona County residents. Around the same timeframe, hundreds of industrial jobs were lost in Alpena County due to cut backs and closures of several of their major employers. These job losses impacted Alcona County employment, as well.

Since the 1990's major efforts have been underway in the region to improve and diversify the local economy of each. Re-use of Wurtsmith Air Force Base as an industrial park; an enterprise zone was established at the Alpena County airport; and development of medical and educational facilities have all created job opportunities in the region. The upward trends in the local economy were reversed in 2008 when the "Great Recession" occurred. Unemployment rates experienced significant increases to some of the highest on the nation; the mortgage crisis saw many homes, including second homes, facing foreclosure; a subsequent drop in tourism; and the loss of high paying auto industry related jobs in Southeast Michigan all combined to wield a hard economic blow to the region. The 2010 US Census provides a snapshot of the economic downturn, even though some of the indicators, such as housing values, continued to weaken past 2010. The economic turn-around has been slow but steady, with the region still trying to regain losses associated with the recession.

Income

According to the U.S. Census, American Community Survey, all three communities have median household, median family and per capita income levels that are higher than Alcona County. **(Table 2.11)** Typical for northeast Michigan, median family and household incomes are lower than the State as a whole. Per capita income was higher for Alcona and Caledonia than the State. Income levels for the Lost Lake Woods Club and Hubbard Lake Census Designated Places (CDP) are generally higher than the Townships, County and State. Two other

characteristics that set Tri-Townships apart from the State of Michigan are the percent of households that get retirement income and social security retirement income. (Table 2.12)

Table 2.11 Income for Tri-Townships, Alcona County & State							
Category	Alcona Twp.	Caledonia Twp.	Hawes Twp.	LLWC CDP	Hubbard Lake CDP	Alcona County	Michigan
Median Household Income	\$46,932	\$45,089	\$38,359	\$47,574	\$48,750	\$37,189	\$48,411
Median Family Income	\$52,875	\$52,273	\$49,615	\$54,338	\$47,500	\$45,424	\$60,793
Per Capita Income	\$28,855	\$27,898	\$20,717	\$34,795	\$31,906	\$22,719	\$25,681
Source: 2010-2014 American Community Survey 5-Year Estimates, U.S. Census Bureau							

Table 2.12 Households with Retirement Income and Social Security Income		
Geography	With Retirement Income	With Social Security
Alcona Township	52.5%	66.5%
Caledonia Township	47.1%	62.7%
Hawes Township	35.0%	56.9%
Hubbard Lake CDP, Michigan	61.6%	71.8%
Lost Lake Woods Club CDP, Michigan	55.7%	75.0%
Source: 2010-2014 American Community Survey 5-Year Estimates, U.S. Census Bureau		

Poverty

Information from the American Community Survey shows poverty rates for all three Townships, Alcona County and Michigan (Table 2.13). The percent of families, individuals and individuals 65 years and over living in poverty is lower in the townships than in Alcona County and Michigan. Alcona Township has lower poverty rates than the other two townships, Alcona County and Michigan. Caledonia Township is similar to the County and State, while Hawes has higher poverty rates than the County and State. The female head of household demographic has high poverty rates for all entities. While the female head of household (with children) poverty rates are extremely high being greater than 60% in the Tri-Townships.

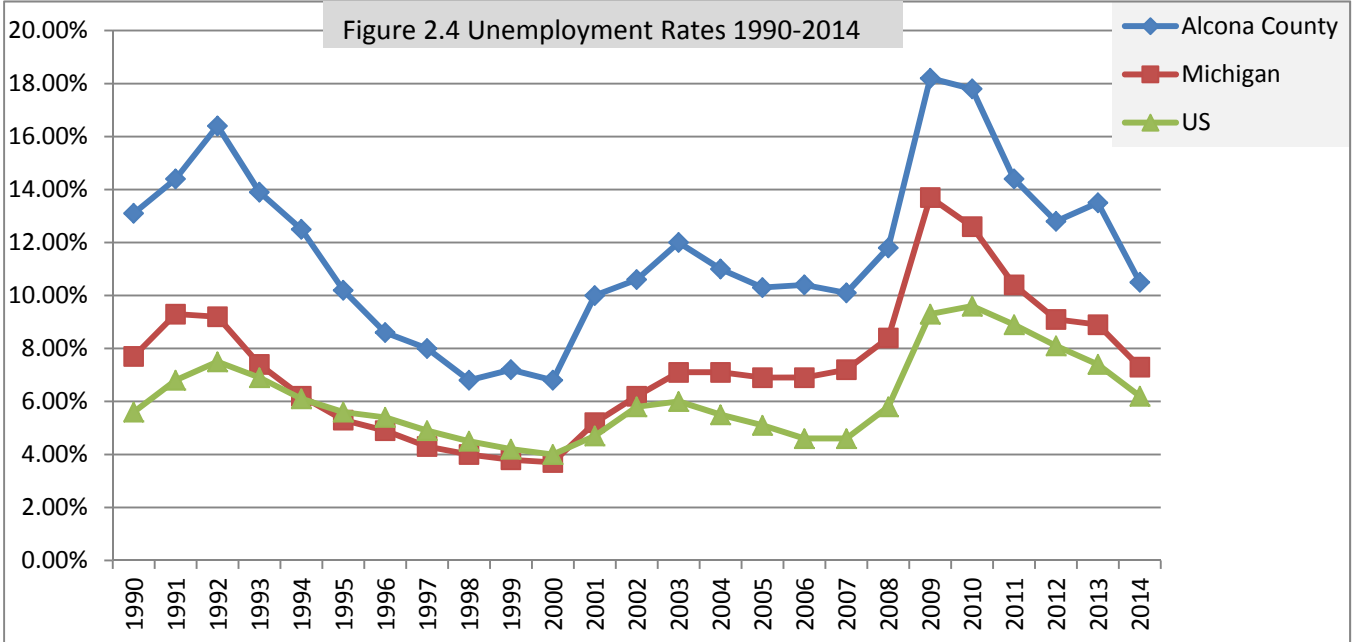
Table 2.13 Poverty Rates: Tri-Townships, Alcona County and Michigan					
	Alcona Twp.	Caledonia Twp.	Hawes Twp.	Alcona County	Michigan
Families	5.3%	12.47%	13.8%	11.1%	12.0%
Families w/ female head of household	28.0%	20.0%	59.1%	26.4%	34.3%
Individuals	10.8%	12.5%	19.6%	15.1%	16.8%
Individuals 65 years and over	3.7%	8.7%	13.1%	8.2%	8.2%
Source: 2010-2014 American Community Survey 5-Year Estimates, U.S. Census Bureau					

Employment and Unemployment

The civilian labor force is defined as all civilian individuals over age 16 who are employed or actively seeking employment. Labor force numbers can change rather quickly in response to economic conditions. During prolonged periods of unemployment, unsuccessful job seekers can drop out of the work force by going back to school, leaving the area in search of work or by stopping the search for work.

Table 2.14 presents information on labor force, employment and unemployment for Alcona County from 2004 to 2014. Unemployment rates experienced a significant increase in 2009 as a result of the “Great Recession” in 2008. Jobless rates peaked in 2009 and have dropped to the typical long term rates. The number of persons in the labor force and employed began to fall in 2006. The economic downturn continued to feed this trend. Even though jobless rates have fallen to 10.5 percent in 2014, the labor force and number of persons employed has not returned to 2006 levels. As seen in **Figure 2.4**, unemployment rates in Alcona County generally mirror those in the State and U.S., however, they are consistently at a higher level.

Table 2.14				
Employment Information Alcona County 2004 - 2014				
Year	Labor Force	Employment	Unemployment	Jobless Rate
2014	3,836	3,435	401	10.5%
2013	3,817	3,303	514	13.5%
2012	3,717	3,242	475	12.8%
2011	3,808	3,260	548	14.4%
2010	3,880	3,188	692	17.8%
2009	4,353	3,563	791	18.2%
2008	4,361	3,845	516	11.8%
2007	4,339	3,901	438	10.1%
2006	4,481	4,013	468	10.4%
2005	4,316	3,871	445	10.3%
2004	4,197	3,736	461	11.0%
Source: Michigan Labor Market Information				



Wage and Salary Employment

For residents of the Townships and County, the largest employment sectors are retail trade and services. Public administration and construction are also important sectors. Note: the information reflects where township residents work, not job locations within the township. Mining, agro-forestry, manufacturing and wholesale trade accounted for much lower percentages of the wage and salary employment (Table 2.15).

Category	Alcona Twp.	Caledonia Twp.	Hawes Twp.	Alcona County
Agricultural, Forestry, Fishing	2.1%	5.0%	1.8%	2.0%
Mining	0.0%	0.0%	0.5%	0.2%
Construction	6.4%	8.1%	4.1%	5.4%
Manufacturing	2.1%	1.9%	6.0%	7.4%
Transportation and Communications	2.9%	5.0%	1.8%	3.3%
Wholesale Trade	0.7%	4.4%	3.9%	1.4%
Retail Trade	17.1%	24.4%	19.2%	21.3%
Finance, Insurance And Real Estate	2.1%	4.4%	3.9%	4.7%
Services	56.4%	26.9%	45.31%	37.0%
Public Administration	4.3%	18.1%	12.8%	16.6%
Unclassified	2.1%	2.5%	0.5%	0.7%
Source: NEMCOG				

Commuting to Work

The vast majority of residents drive alone to work (**Table 2.16**). According to the *2010-2014 American Community Survey 5-Year Estimates*, only two to eight percent of the residents worked from home. Due in advancements in technology and businesses allowing greater flexibility in worker location in the past decade, that number will likely continue to increase. The mean travel time in the Tri-Townships is approximately 20 minutes, which shows many individuals travel to adjacent communities for work.

Table 2.16 Tri-Townships Work Commute			
Mode of Transportation	Alcona	Caledonia	Hawes
Drove Alone	79.3%	81.7%	75.3%
Carpooled	10.6%	8.6%	8.5%
Public Transportation (includes taxi)	0.0%	0.0%	0.6%
Walked	6.2%	1.4%	4.1%
Worked at home	2.2%	3.6%	8.5%
Source: 2009-2013 American Community Survey 5-Year Estimates U.S. Bureau of the Census			

Chapter 3 - Community Services and Facilities

Key factors that contribute to the quality of life of a community are the type and variety of services available to residents and visitors. Unlike more populated communities, smaller rural communities do not have the financial resources to provide many of the services that would normally be considered essential. In the case of fire and ambulance, many rural communities work cooperatively with adjacent communities to provide essential services.

This chapter of the Master Plan will identify the types and extent of services available to residents and businesses in Alcona, Caledonia and Hawes Townships. Although these services may be sufficient for the needs of the current population, future development may increase the demand to upgrade or expand the services and facilities to maintain a satisfactory living environment.

Water Supply

Public drinking water is not available in the Tri-Township communities. Residents rely on on-site private wells for domestic drinking water. Some older systems do exist, however, where two residences share a single well. Private drinking water wells are regulated by the District Health Department under the Public Health Code. Wells for facilities such as schools or motels serving the public fall under regulations of the Federal and State Safe Drinking Water Acts, where isolation distance, minimum yield and water quality testing requirements are more stringent than for a private residential well.

According to the District 2 Health Department, most drinking water wells in Alcona County are drilled to a depth of 20 to 150 feet in glacial materials. These unconsolidated sands and gravels generally yield sufficient water for domestic supply. However, to obtain suitable water, wells along the lakeshore where glacial materials are thin or clay deposits occur, may be 200-300 feet into the bedrock.

Sewage Disposal

There are no public sewage or wastewater disposal systems in the Tri-Townships. Residents must rely on private on-site septic systems. Generally, these systems are satisfactory when development is scattered or seasonal in nature. As more lots are developed in lakeshore areas and seasonal homes are converted to year-round use, problems with malfunctioning septic systems tend to occur. The Townships have adopted septic system regulations to provide better protection of surface and groundwater protection. Completeness of permit applications, access to accurate records and enforcement issues are being addressed by the Townships.

Solid Waste

Private contractors provide solid waste pick-up services for the Tri-Townships.

Utilities

Three different providers furnish electric energy. Alpena Power Company serves the north end of Hubbard Lake, Presque Isle Electric and Gas Cooperative serves parts of Caledonia Township, while Hawes and Alcona Townships and part of Caledonia Township are served by Consumers Energy Company. Natural gas service is available along the County Highway F-41 and US-23 corridors supplied by DTE. Presque Isle Electric and Gas Cooperative supply Spruce and parts of the Hubbard Lake area. There are several private companies that deliver home heating oil or LP gas in the area.

Land line based telephone service is provided by Frontier and Charter, while cellular service is available from numerous service providers. Cable television service is available along the F-41 corridor, around parts of Hubbard Lake, Lost Lake Woods and Barton City. Current provider is Charter Communications. While internet services are available through cable, DSL, Dial-up, cellular and satellite, access to high speed internet is lacking in many parts of the three townships.

Other Public Facilities

All three of the Townships have community centers. The Alcona County Courthouse is located in the City of Harrisville at the intersection of M-72 and US-23. The Alcona County Sheriff Department and associated facilities are located adjacent to the Courthouse. The Alcona County Road Commission offices and garage are located in the Village of Lincoln. There is a DNR field office, which is no longer open to the public, located in Lincoln.

Postal Service

To serve the Tri-Township postal service needs, United States Post Offices are located in Spruce, Hubbard Lake, Lincoln, and Barton City.

Schools

The Alcona Area Community Schools provide kindergarten through 12th grade educational services. The school system encompasses Alcona, Caledonia, Hawes, Harrisville, Haynes, Gustin and Millen Townships and a small portion of Mikado Township. The school buildings for K-6 and grades 7-12 are located on Barlow Road just off M-72 in Gustin Township. The Alpena-Montmorency-Alcona Educational Service District provides special education services.

Post high school educational services are available through Alpena Community College offering career and technical training, liberal arts and transfer programs. One-year certificates and two-year associates' degrees may be obtained, as well as a bachelor's degree in nursing, business or human services through a joint agreement with Lake Superior State University and a Master Degree through a joint agreement with Lawrence Technological University. Off-campus ACC classes are available nearby in Oscoda at the old Wurtsmith Air Force Base area and other local high schools throughout the Alpena Community College service area. Area residents also utilize Kirtland Community College in Roscommon.

Public Safety

Alcona County Sheriff's Department supplies general law enforcement protection, dispatched from the 911 Center in Harrisville. Michigan State Police from the Alpena Post also serve the Tri-Township area and have a satellite post in Lincoln. Ambulance service is provided by Alcona County, which pays for the costs through the general fund millage.

A citizen's watch group is active around Hubbard Lake and Spruce. Volunteers patrol the area and notify the County Sheriff as necessary. Lost Lake Woods Club employs a private security force for residents of the development.

Fire protection for the Tri-Township area is provided by volunteer fire departments located in Barton City, Hubbard Lake North End, Hubbard Lake South Shore, Black River, and Lincoln. All fire departments have first responders available. Fire calls are centrally dispatched through Alcona County.

The U.S. Forest Service is responsible for wildfire protection in the Huron National Forest and the Department of Natural Resources (DNR) is responsible for wildfire protection on State forested land. Both the Forest Service and DNR work closely with local fire fighters whenever the danger of woodland and urban fires is elevated. Additionally, all fire departments have mutual aid with each other. The County has an all-encompassing mutual aid agreement with the adjoining Counties of Iosco, Alpena, and Oscoda which provides for assistance outside the realm of normal emergency services.

Medical Facilities

There are no medical facilities located in the Tri-Townships. Clinics, doctor and dentist offices are located in other communities such as Oscoda, Tawas, Harrisville, Lincoln and Alpena. The Alcona Health Center is located in Lincoln and VA Clinics are located in Oscoda and Alpena. For health care services not available at these facilities, residents travel to Mid Michigan Medical Center in Alpena, Munson Healthcare Hospital in Grayling, John Tolfree Memorial Hospital in West Branch, St. Joseph Health Systems Hospital in Tawas City and Munson Medical Center in Traverse City.

Health, Nursing, Senior Citizens Services

District Health Department No. 2, including home health care and physical therapy, provides public health care services. Hospice services may be obtained from Hospice of Northeast Michigan in Alpena, and Reverence Home Health Care and Hospice in East Tawas City. Lincoln Haven Health Care Center provides 24-hour nursing care with a family atmosphere. Alcona County Senior Citizens Center in Lincoln provides senior citizen services.

Northeast Michigan Community Mental Health provides support services to developmentally disabled persons as well as persons needing mental health services. The Northeast Michigan Community Mental Health service area covers Alcona, Alpena, Montmorency and Presque Isle Counties.

Civic and Community Organizations

A number of civic and community organizations provide social services and volunteer activities for residents of Alcona, Caledonia and Hawes Townships. These organizations are listed below.

Habitat for Humanity for Northeast Michigan
 Barton City Improvement Association
 Community Red Cross
 Eagles (Ossineke and Barton City)
 Hubbard Lake Community Association
 Hubbard Lake Lady Leaners
 Hubbard Lake Lions Club
 Hubbard Lake Sportsman and Improvement Association
 Knights of Columbus, Spruce
 Masonic Lodge, Lincoln
 Veterans of Foreign Wars in Barton City

Roads and Transportation

US-23, running north/south along the eastern side of Alcona Township, is the only State trunkline in the Tri-Township area. County primary roads account for more than 49 miles of roads in the Tri-Townships, while 52 miles are classified as County local roads. An additional ten miles of local roads are located in various subdivisions. Alcona County Road Commission is the agency responsible for maintenance, snow removal and improvements. The Townships contribute to the cost of local road upkeep.

Below is a listing of roads located in each township. The type of road surface is indicated after each road name; (P) = Paved, and (G) = Gravel. Private roads are not listed. However, the County under special assessment maintains some private roads district agreements between the Road Commission and the appropriate township.

Roads in Alcona, Caledonia and Hawes Townships

Alcona Township

<u>State Trunkline</u>	<u>County Primary</u>	<u>County Local</u>
US-23 (P)	Black River Rd. (P)	Anderson Rd. (G)
	F-41 (P)	Balli Rd. (G)
	Lakeshore Dr. (P)	Bouchard Rd. (G)
	Mt. Maria Rd. (P)	Fontaine Rd. (G)
		King Rd. (G)
		LaFave Rd. (G)
		LaLonde Rd. (G)
		LaVergne Rd. (P)
		LaVigne Rd. (G)
		Malaski Rd. (G)
		Sand Hill Rd. (G)
		Sayers Rd. (G)

Caledonia Township

County Primary

F-41 (P)
 Hubbard Lake Rd. (P)
 Hubbard Lake Trail (G)
 Hubert Rd. (P)
 Mt. Maria Rd. (P)
 Scott Rd. (P)
 N. Spruce Rd. (P)
 Spruce Rd. (P)

County Local

Anderson Rd. (G)
 Bennett Rd. (P)
 Black River Rd. (P&G)
 Fruchey Ranch Rd. (G)
 Gillard Rd. (P)
 Godfrey Rd. (P)
 Hansen Rd. (G)
 Holiday Inn Rd. (P)
 Labonte Rd. (G)
 McDonald Rd. (G)
 Olson Rd. (G)
 Roe Rd. (P)
 School Rd. (G)
 Swede Rd. (P&G)

Hawes Township

County Primary

F-41 (P)
 Hubbard Lake Rd. (P)
 Mt. Maria Rd. (P)
 Ritchie Rd. (P)
 Trask Lake Rd. (P)

County Local

Almond Rd. (P)
 French Rd. (G)
 Geres Rd. (P&G)
 McConnell Rd. (G)
 McNeil Rd. (G)
 Miller Rd. (P,G)
 Quick Rd. (P & G)
 Richardson Rd. (P&G)
 Ritchie Rd. (P & G)
 Somers Rd. (P)
 Stout Rd. (P & G)
 Sucker Creek Rd. (G)
 Taylor Rd. (G)
 Trask Lake Rd. (P&G)

Source: Alcona County Road Commission

Regional air service is available at Alpena County Regional Airport (Phelps Collins), along with charter and air freight services.

Railroads

Lake State Railroad provides daily freight handling service to Alpena.

Marine

There are Great Lakes port facilities in the Cities of Harrisville and Alpena. The Harrisville Harbor of Refuge provides docking facilities with 94 seasonal/transient boat slips, fuel and pump-out facilities. Public restrooms/shower facilities, volleyball courts, horseshoe pits, pavilion, grills, picnic tables and playground are associated with the harbor. This recreational harbor is part of the State of Michigan’s Harbor of Refuge network. The Port of Alpena, located in

Thunder Bay, is used for commercial and industrial shipping. The City of Alpena Marina is a full-service marina that can accommodate both seasonal and transient boats. The marina has 177 slips, with full power and water services, launch ramps, courtesy docks, a fuel station, boater restrooms and shower facility, a fish cleaning station, a pump-out station, a marine store, maintenance facilities, winter storage, boat launching and office building.

Public Transit

There is no countywide dial-a-ride bus service available in Alcona County. However, Thunder Bay Transportation, based in Alpena, provides limited specialized transportation services in the County. The Thunder Bay Regional Ride, in cooperation with medical care facilities in the region, provides inter-county transportation for medical and other needs. Limited statewide passenger service is available from Indian Trails Bus Lines.

Air Service

Alcona County's only public airport is located in the City of Harrisville, handling small aircraft. Regional air service is available at Alpena County Regional Airport (Phelps Collins) which is a U.S. Customs Port of Entry. Regional airports are located in Traverse City, Midland, Grand Rapids and Flint. Large aircraft maintenance and air freight service is provided at the Oscoda-Wurtsmith Airport in Oscoda. The Michigan Air National Guard maintains a Combat Readiness Training Center at the airport in Alpena. Air-freight service is provided by United Express, United Parcel Service and Federal Express.

Recreation

Recreation is probably one of the most important activities occurring in the Tri-Townships. The seasonal population experienced by the area is one indicator of recreation-based communities. The lakes, streams and woodlands provide a remarkable source for recreation activities, such as fishing, snowmobiling, ATV, boating, camping, hunting and hiking, just to list a few. One of the gems of the northeast coastline, Negwegon State Park, is partially located in Alcona Township. MDNR park planning activities, Michigan Sea Grant, the NRTH regional citizen's parks committee and the Friends of Negwegon have brought renewed attention to Negwegon State Park.

These activities, along with golf, sightseeing and shopping, are important economic factors for the region. The White Pine National Golf Course (18-hole course) is located in Hawes Township and the Monarch Hills Golf Course, (9-hole course) is located in Caledonia Township. A private 18-hole course is located at Lost Lake Woods for use by the Club members. Logger's Trace at Springport Hills (27-hole golf course) and Greenbush Golf Course (9-hole golf course), are located in neighboring Harrisville Township.

Community Owned Recreation Sites
Alcona, Caledonia and Hawes Townships

Alcona Township

1.5 acres, 200' frontage on Black River (boat launch)
1.5 acres, 160' frontage on Lake Huron (picnic, swimming)

Lot #1, Arbu Shores Subdivision (playground, picnic, swimming)
One public access site on Hubbard Lake
Black River Recreation Area (tennis courts, ball field, toilets, skating rink)
Township Hall (meeting room, fire hall, and community center)

Caledonia Township

One Hubbard Lake access site (swimming)
North End Park located on Hubbard Lake (restrooms, pavilion, picnic tables, grills, swimming and boat launch)
Hickey Hill, 80 acres (undeveloped)
Former disposal site, 40 acres (public hunting)
Reforested gravel pit, 5 acres (undeveloped)
Parcel at mouth of Holcomb Creek, 40 acres (undeveloped)
Township Hall (meeting room, community center)
Spruce Park (leased facility in Spruce)
Michigan Department of Natural Resources boat launch on East Bay

Hawes Township

Brownlee Lake Park (swimming)
Michigan Department of Natural Resources boat launch on South Bay
South Shore Community Center
Jewel Lake Public Access
Hill Street launch site to Hubbard Lake
Trask Lake boat launch

Cultural and Historic Facilities

Alcona County has a wide variety of historic and cultural features including a lighthouse, historic schools, train depots, an inn, Indian mounds and hillforts, burial grounds and a ghost town. Hawes Township and Alcona Township each have historic Indian mounds. In Alcona Township there are foundations and buildings of the former fishing and lumbering community of Black River. Historic train depots are located in Harrisville and Lincoln. These features are listed in Table 11, pages 82 and 83 of the Alcona County 2010-2014 Recreation Master Plan.

Chapter 4 - Natural Resources

The greatest attraction for the residents and visitors of northern Michigan is the area's environment and rural nature of this portion of the State. Recreational activities such as hunting, fishing, golfing, snowmobiling, boating and a multitude of other outdoor activities attract people from urban areas of Michigan, as well as from other states. Many long-time visitors decide to move to the area upon retirement. Because of the abundant outdoor recreation opportunities, the natural environment is a major economic base and income generator.

At the same time, the environment places constraints on human activities. Certain critical and sensitive parts of the natural landscape cannot be altered without creating problems that are not easily corrected. For example, the indiscriminate filling of wetlands and clearing land of vegetation can cause increased flooding and soil erosion. Therefore, it is essential that any future development respect the different characteristics of the natural environment. This is important in preserving the attractiveness of this part of the State and maximizing the economic benefits of the tourist and recreation industry.

The natural feature that joins all of the three Townships together is Hubbard Lake. Located in the headwaters of the South Branch of the Thunder Bay River, this 8,850 acre lake is an integral part of the communities' identity and drives the local economy. Upland forest is the predominant land cover in the three Townships, with much of that being aspen and oak. Farming is limited and tends to be concentrated in eastern parts of Caledonia and Hawes Townships; and around the community of Barton City.

Climate

The climate for the Tri-Townships area is characterized by long cold winters and moderate warm summers. The proximity of Lake Huron serves to moderate temperature extremes in comparison to areas located inland. Because of lake effect, the eastern side of the Tri-Townships area (especially Alcona Township) experiences first frost in the fall as much as four to six weeks later than the west side of Alcona County. The proximity to Lake Huron also influences the length of the growing season; the closer to Lake Huron, the longer the growing season. Growing season length across the County varies from 90 to more than 140 days. Typically, the lowest mean temperature of the year occurs in January, and the highest in July. Average annual precipitation is 27 to 28 inches, and average snowfall is 60 to 70 inches annually.

Geology

The rolling hills, river valleys, swamps and lakes were created by the retreating continental glacier some 12,000 years ago. Beneath this thick mantle of the glacial deposits lays a foundation of layered sedimentary bedrock. This section will describe the glacial landforms or quaternary geology and the underlying bedrock geology.

The bedrock underlying the northern portion of Michigan's lower peninsula was laid down during the Paleozoic era over 320 million years ago. Bedrock formations from three separate periods are evident in Alcona, Caledonia and Hawes Townships. **Figure 4.1** illustrates the location of the three formations and shows a cross-section of the bedrock layers. The youngest bedrock, consisting of Sunbury Shale, is from the Lower Mississippian period, and can be found in the southwest corner of Caledonia Township and the southern two-thirds of Hawes Township.

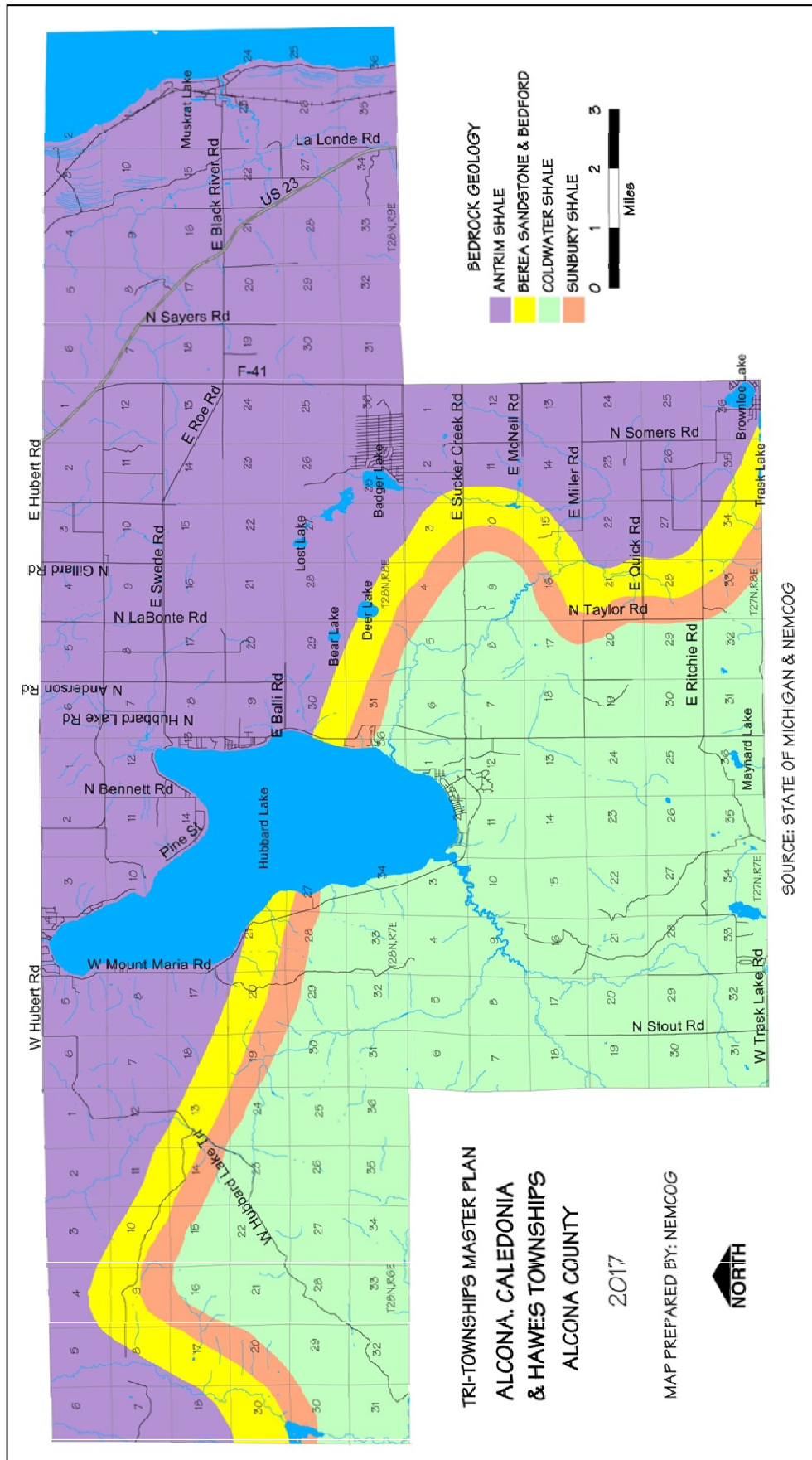


Figure 4.1: Bedrock Geology Map

Mississippian and/or Devonian period bedrock is made up of Berea Sandstone and Bedford Shale. It is found in a narrow northwest/southeast band across the Tri-Townships area. The oldest bedrock layer, covering nearly all of Alcona Township, consists of Antrim Shale from the Upper Devonian period.

Starting some 2 million years ago, during the Pleistocene era, continental glaciers formed in the Hudson Bay area. Several times, over this two million year period, the massive sheets of ice built up and inched their way south across what is today Michigan. The massive ice sheets, more than one mile thick, advanced in a southerly direction, bulldozing their way across the landscape. The glacier pushed material in front of it, incorporated rocks and soil into the debris laden ice; and scraped, ground and broke apart the sedimentary bedrock of the Michigan Basin.

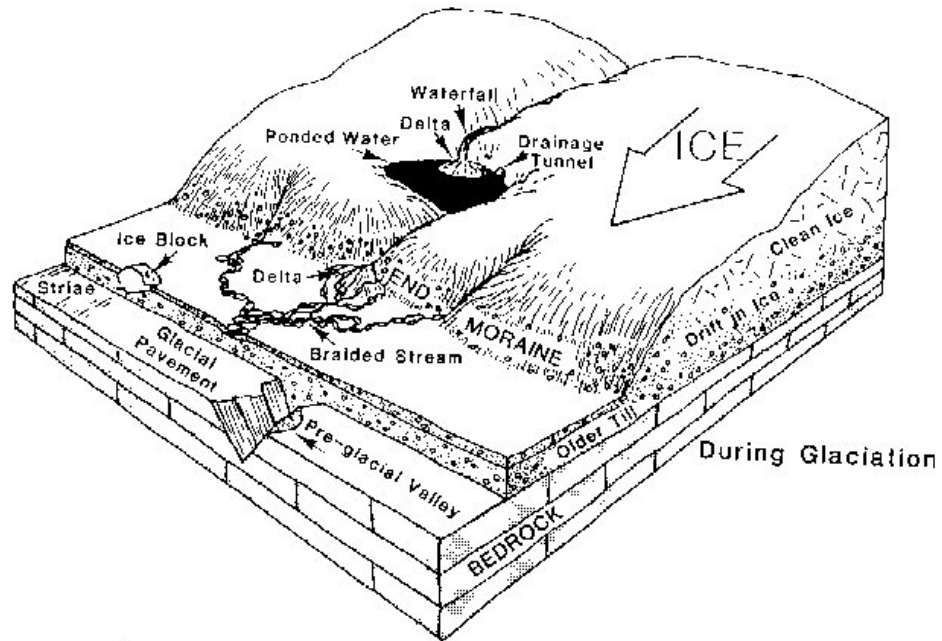
Each advance and retreat of the continental glaciers took tens of thousands of years. This reoccurring process shaped and reshaped the land; obliterating and then creating hills, valleys, rivers and lakes, swamps and marshes. The last glacial period, called the Wisconsin era, created the landscape we know today. The glacier left behind boulders, rocks, cobble, sand, gravel, silt, clay and loam. In some areas the material was deposited in unsorted masses called till plains, ground moraines and end moraines. Water flowing from the melting glaciers also sorted materials, creating outwash channels, sand deltas, kames and eskers. Fine materials, captured in the fast moving glacial meltwater, settled to the bottom of expansive glacial lakes creating lacustrine clay and silt plains. **Figure 4.2** shows the formation of glacial landforms.

Figure 4.3 is a quaternary or glacial geology map of Alcona, Caledonia and Hawes Townships. Landforms include glacial moraines, ice contact outwash, outwash channels and glacial lake plains. The western portion of the planning area is part of a large moraine that extends northwesterly across northern Michigan. Deposits of coarse textured glacial till consisting of sand and gravel form the many hills and valleys. At the front of the massive retreating glaciers, large streams originated from the melting ice. The debris laden water carved through moraines and outwash plains creating wide drainageways and outwash channels. The outwash channels formed wide valleys that today support wetland complexes and streams like Little Wolf Creek, Davis Creek, little North Creek, Comstock Creek, and Buff Creek.

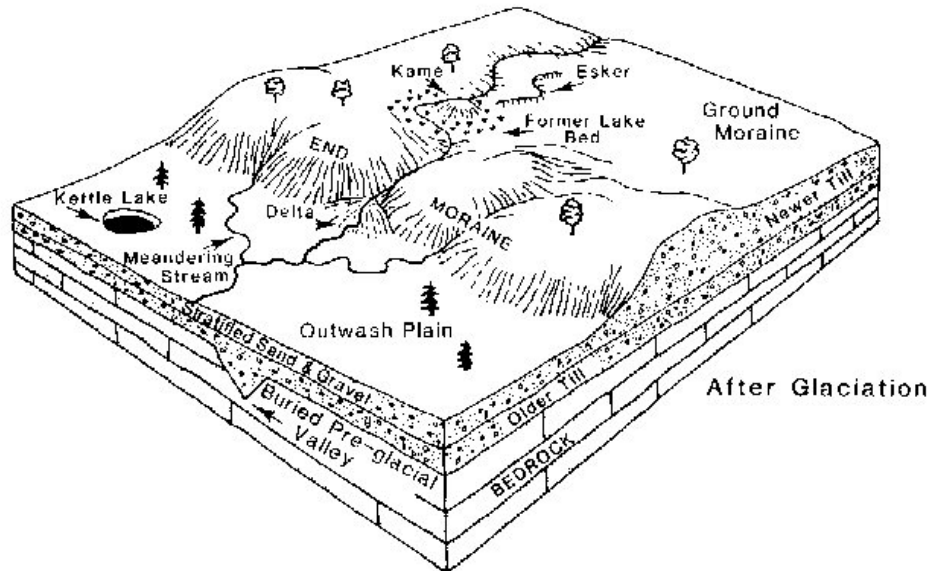
An extensive area of ice contact outwash sand and gravel can be found east of Hubbard Lake. US-23 traverses the eastern edge of these glacial deposits. Part of the Lakeshore Drive follows the eastern base slope of the landform area. A grouping of large knolls called kames interspersed with ice-block depressions or kettle holes are located in the vicinity of Lost Lake Woods. A kame is a mound or knob composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a subglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice. A kettle is a depression in glacial drift, especially in outwash and a kame field, formed by the melting of a detached block of stagnant ice that was buried in the drift. Kettles often contain a lake or swamp. Most of the lakes in the Tri-Townships were formed in this manner. Outwash consists of sand and gravel deposited by meltwater streams in front of the end moraine or the margins of an active glacier.

As the continental glaciers melted, water flowed across the landscape creating landforms and pooling into the expansive post glacial lakes. These emerging lake basins were the beginnings of the our Great Lakes. During different periods, the post glacial great lakes were both much higher and lower than the lake levels we have grown accustomed to in recent times. Geologists have identified and named the different post glacial great lake stages. **Figure 4.4** shows the different stages of the postglacial great lakes Warren, Algonquin, Nipissing and Algoma.

Figure 4.2: Formation of Glacial Landforms by William R. Farrand



Features originating at a glacier front occur in a definite order.

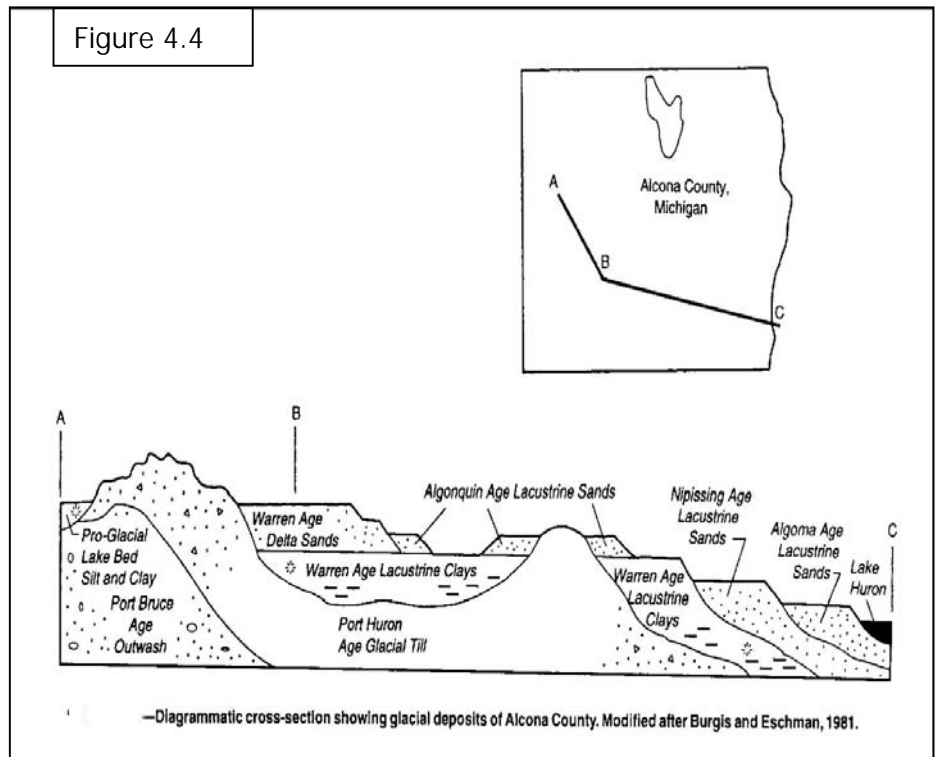
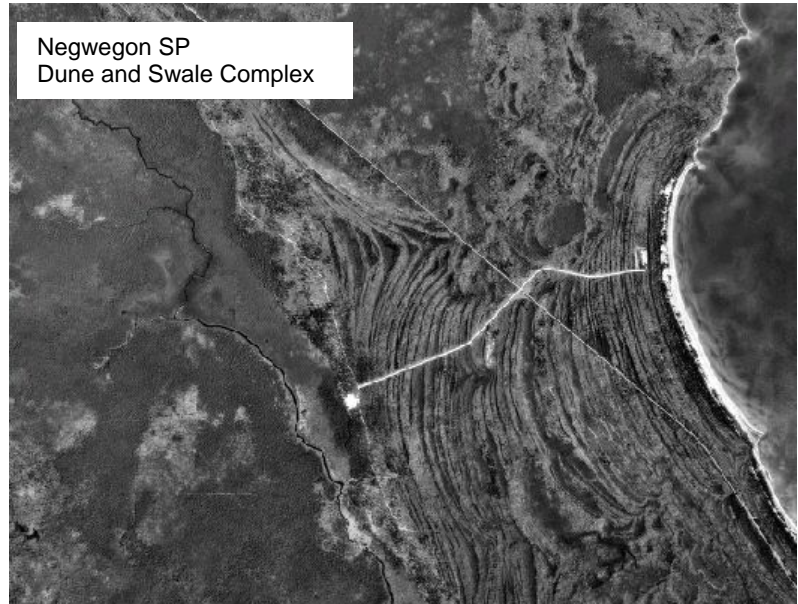


Landforms of continental glaciation are unmistakable.

Landforms and soils in northeastern part of Alcona Township were heavily influenced by these different post glacial lake stages. The Nipissing Great Lakes was the largest of all the Great Lakes stages and inundated eastern parts of the planning area some 5000 years ago. These old lake plains are dominated by extensive wetlands such as the Black River Swamp and sand dunes.

Some of the best examples of old glacial great lake shorelines can be found in Negwegon State Park. Dune and swale complexes are a series of alternating old beach ridges and linear depressions that parallel the Lake Huron shoreline. Near the lake shore the ridges are covered with oak, pine and aspen while lowland conifers and brush can be found growing in the wet depressions. The width of the ridges and associated swales is dependent upon the underlying geology and length of time which the lake levels receded. The distance between old beach ridges can range from less than 100 feet to a mile or more.

A wide sandy ridge, one to two miles inland from the Lake Huron Shoreline, runs from the community of Black River in Alcona County, through Negwegon State Park and Ossineke continuing north into Alpena Township and City of Alpena. Sandhill Road in Alcona County as well as Piper Road in Alpena County follow this dry sandy ridge. The wide sand ridge extends into Alpena Township and the City crossing Werth Road at Hobbs Road, following the west edge of Sunset Lake, continuing in a northeasterly direction, crossing the Thunder Bay River and eventually ending northeast of the Thunder Bay Recreation Center in the City of Alpena.



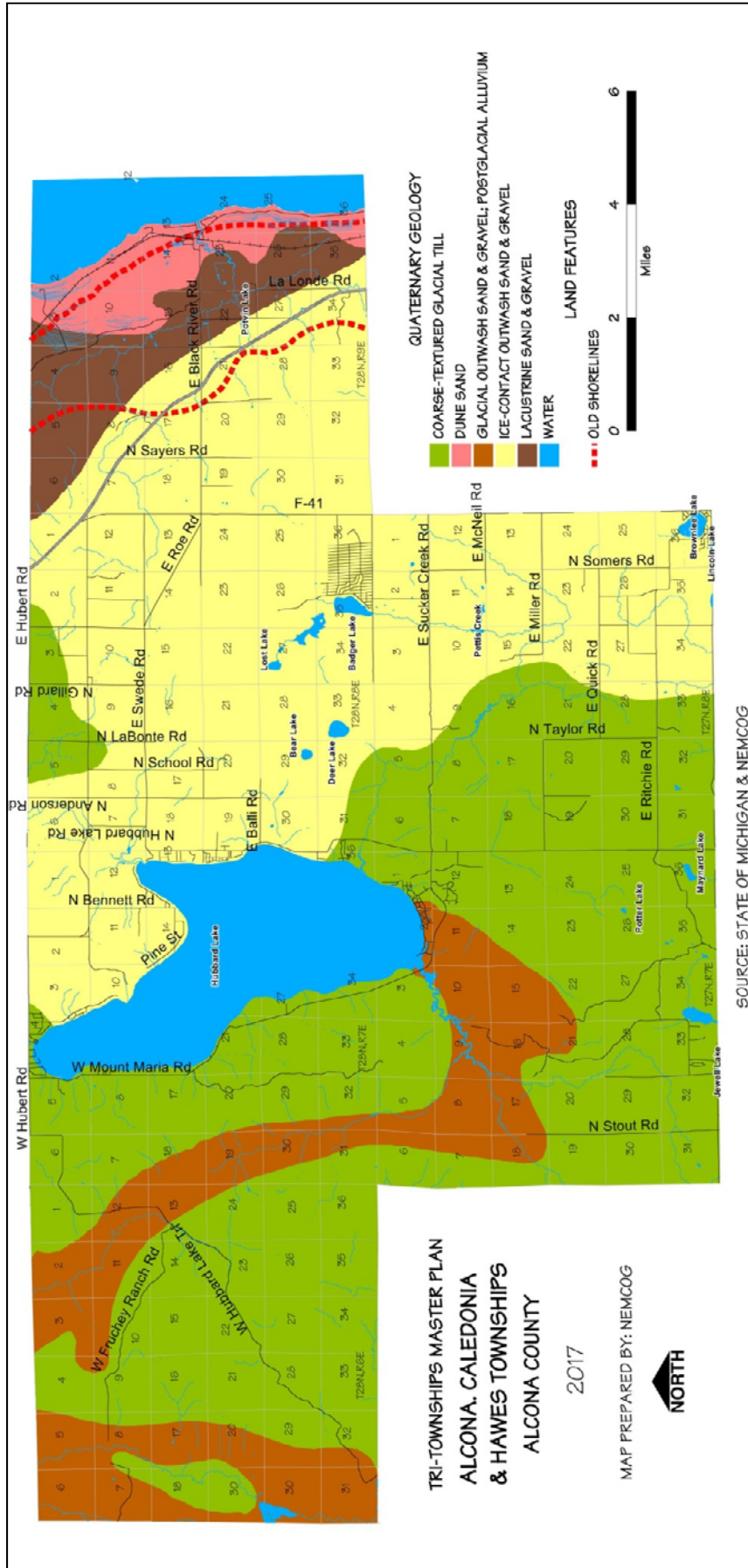


Figure 4.3: Quaternary Geology Map

Topography

The approximate mean elevation for Lake Huron is 579 feet above sea level. In Alcona Township, the elevation rises gently in a westerly direction to approximately 650 feet above sea level at the U.S. 23 right-of-way. Evidence of abandoned shorelines from glacial stages of Lake Huron are evident at the 600 foot and 650 foot levels. An ancient lake bottom is evident on the terrain east of the 650 foot ridgeline, appearing as a large flat wetland area (Black River Swamp in Alcona Township). From the U.S. 23 right-of-way, the elevation rises in a westerly direction to approximately 950 feet within a few miles. It is at this highest elevation point where water either runs toward Lake Huron or to the Hubbard Lake watershed.

Figure 4.5 is a topographic map of the three Townships. Each contour represents a 100 foot range in elevation. The closer together the contour lines are the steeper the slope. A large area on the west side of Hubbard Lake in Caledonia Township is very hilly and reaches elevations of as much as 950 feet above sea level. Elevation for Hubbard Lake is 708 feet above sea level. Another large area of hills is located on the north side of Hubbard Lake in Sections 3, 10, 11 and 14 of T28N-R7E in Caledonia Township. Highest elevation in this area is approximately 925 feet. In Alcona Township, kame fields, described in the geology section, consist of many steeply sloping hills. The high bluffs in Alcona Township fall sharply east of US-23 down to low areas that border Lake Huron. Hilly terrain, part of a large glacial moraine, can be found in Hawes Township. Elevation in these areas reaches as high as 925 feet.

Soils

When planning for types and intensity of land uses, soil types and slopes are two important factors that determine the carrying capacity of land. The construction of roads, buildings and septic systems on steeply sloped areas or areas with organic and hydric soils require special design considerations. In addition, costs for developing these sensitive areas are greater than in less constrained parts of the landscape. If developed improperly, the impacts to natural resources can be far reaching. For the Tri-Townships area, the highest density of residential development occurs around Hubbard Lake and along the Lake Huron shoreline in Alcona Township. Since public sanitary sewer systems are not available in any of the three Townships, each development site must be provided with an on-site septic system. The ability of the soil to accommodate a septic system, as well as the structure's foundation, are key factors in determining the way in which land may be used.

The Natural Resource Conservation Service completed a detailed soil survey of Alcona County. A digital or computerized version of the soil survey maps was acquired from the Michigan Department of Natural Resources, MIRIS program. The soil survey identified 153 different kinds of soil in the County. The soils range widely in texture, natural drainage, slope and other characteristics. Well drained and moderately well drained soils make up about 68 percent of the County, somewhat poorly drained soils make up about 20 percent, and poorly drained soils make up about 12 percent.

Hydric Soils and Steeply Sloped Areas

Figure 4.6 is a color thematic map that classifies hydric soils and soils on steep slopes. Lower density and less intensive development should be directed to these areas with severe building constraints. Hydric soils are saturated, flooded or ponded during part of the growing season and are classified as poorly drained and very poorly drained. Hydric soils have poor potential for building site development and sanitary facilities. Wetness and frequent ponding are severe

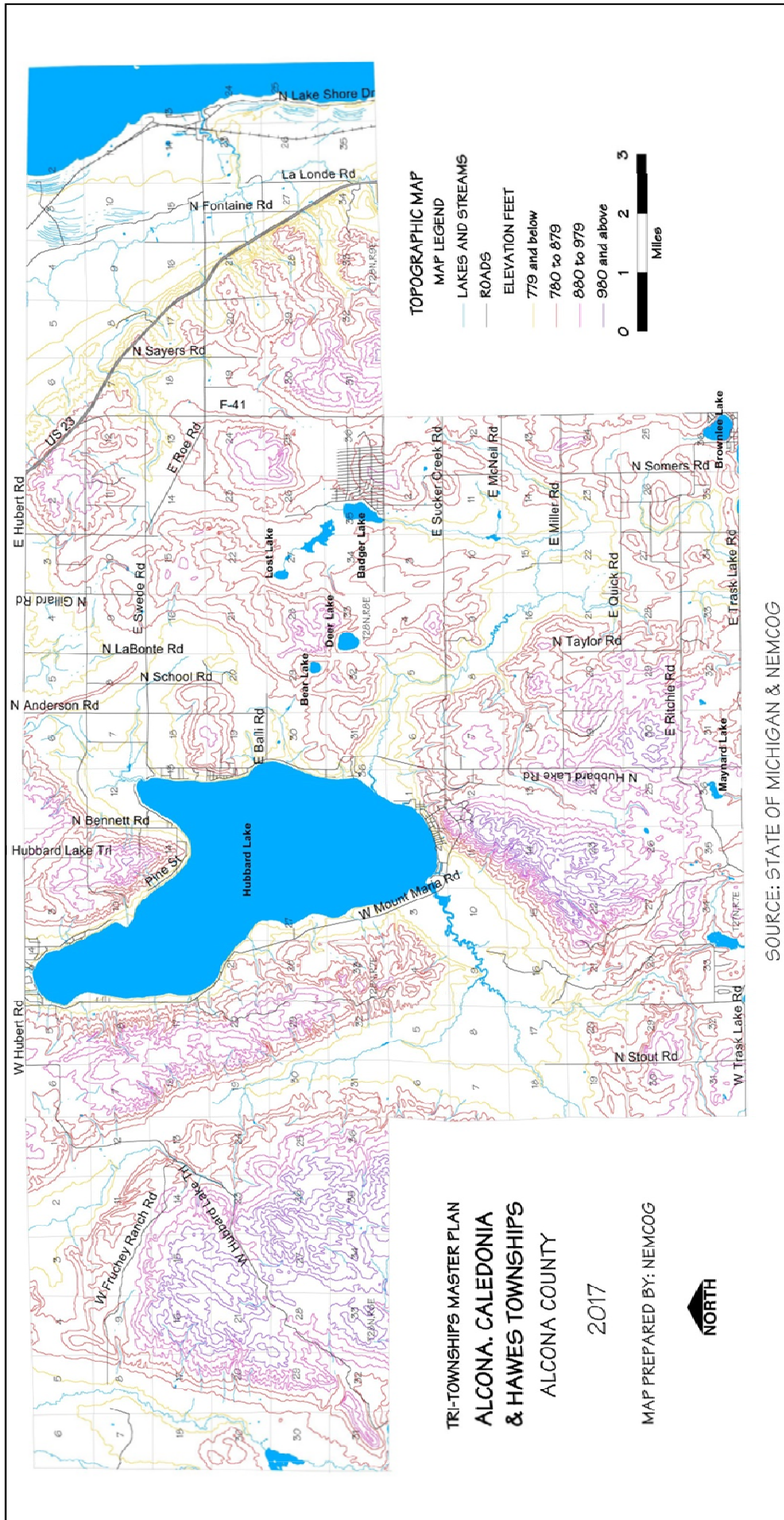


Figure 4.5: Topographic Map

problems that are difficult and costly to overcome. Sites with high water tables may be classified as wetlands and a wetlands permit would be required to develop these areas. The hydric soils, shown as green, are mainly located adjacent to streams and water bodies. This connectivity of riparian wetlands and surface water features can be seen throughout the landscape. Hydric soils are located south and west of Hubbard Lake and in the eastern parts of Alcona Township near Lake Huron.

Hills and steeply rolling terrain may provide opportunities for spectacular views of the landscape. However, steeply sloped sites have severe building constraints, are more difficult and costly to develop. Maintenance costs tend to be higher on steeply sloped terrain. Special design standards such as erosion control measures, limiting size of disturbed areas, retaining natural vegetation, re-vegetation, slope stabilization and on-site retention of water run-off from impervious surfaces would all serve to minimize resource impacts. According to information presented in the Alcona County Soil Survey areas with slopes 18 percent and greater located west of Hubbard Lake, in the central parts of Hawes Township, and in Alcona Township adjacent to US-23.

Septic System Limitations

Using a computer mapping system, soils maps have been color coded to show areas with slight to severe septic system limitations as defined by the USDA Natural Resource Conservation Service. Criteria include depth to water table, wetness, filtering capacity and ability to perk water. **Figure 4.7** is a septic system limitation map. Generally, sandy soils have severe limitations due to poor filtration of septic effluents. This is a critical issue when the water table is close to the surface or when high density development occurs. Limiting types and density of development or making public water and sewer available for high density development are likely the best options for protecting the groundwater resources in these areas.

Figure 4.6: Steep Slopes and Hydric Soils

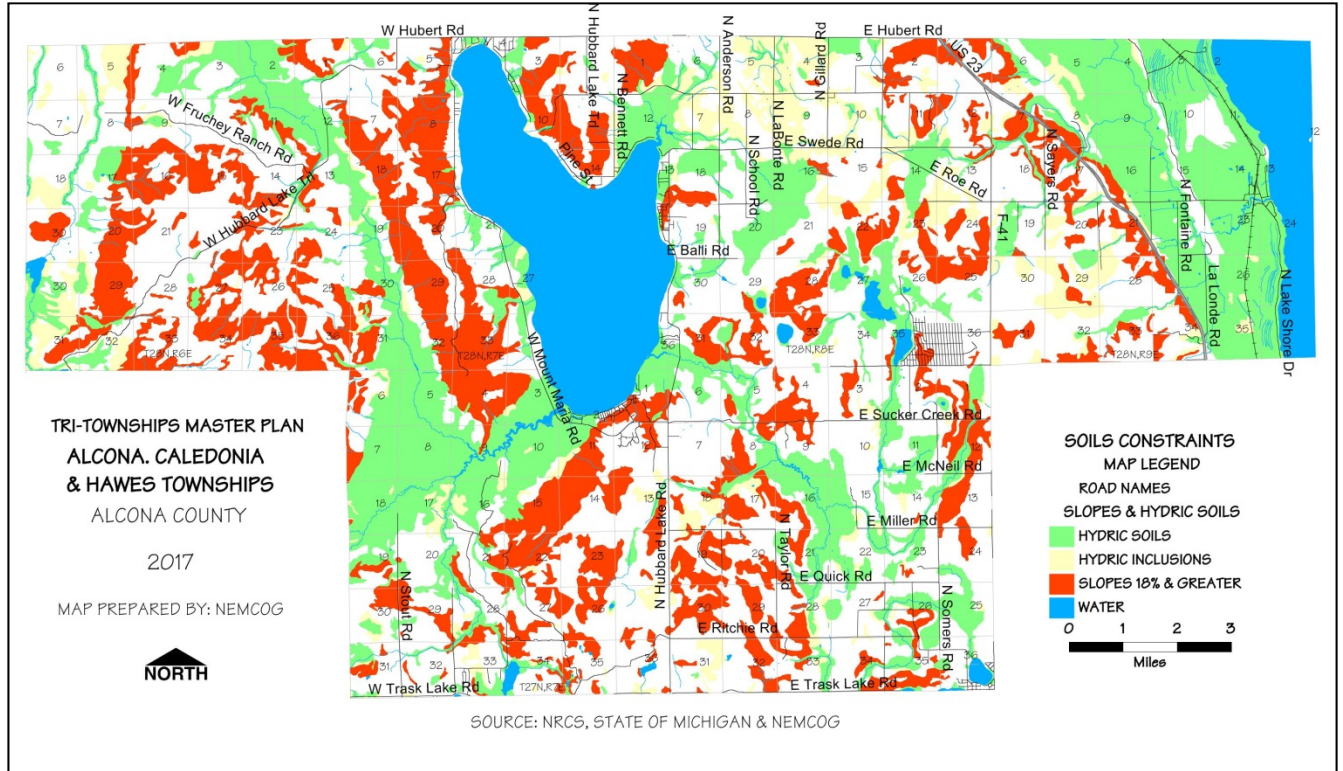
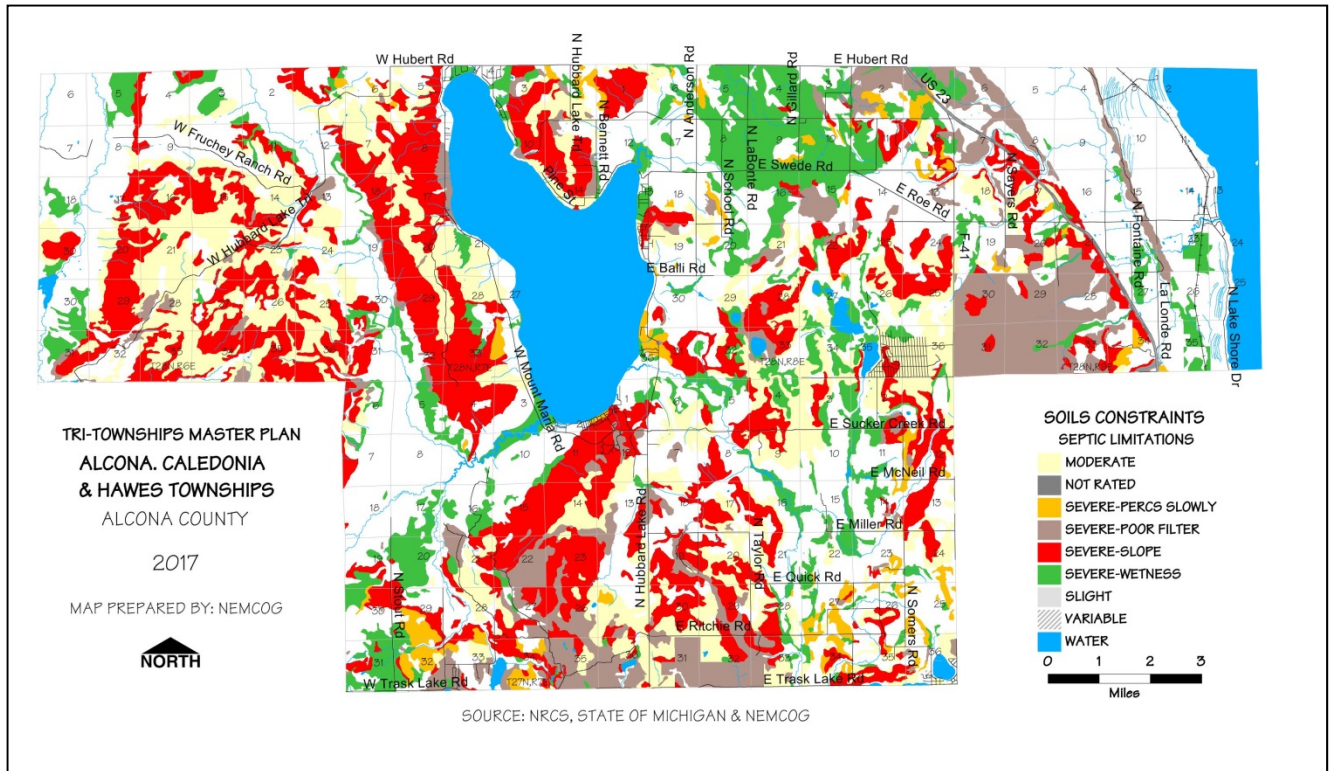


Figure 4.7: Septic System Limitations



Forests

Approximately 70 percent of the Tri-Townships planning area is covered with forests. Tree species vary depending upon the soils, moisture and past activities such as logging, fires and land clearing. For example areas with sandy soils and a history of wildfires support dense stands of jack pine; critical habitat for the Kirtland's Warbler. According to the MIRIS Land Cover/Use Inventory, aspen-birch and red oak-white oak are the most common forest types. See **Figure 4.8**. Aspen forests account for 33 percent of the woodland area. **Table 4.1** summarizes the forest types and acreage according to the 1978 MIRIS Land Cover/Use Inventory.

FOREST TYPE	ACRES	PERCENT
Aspen, Birch	31,104	33.3
Central Hardwood	24,030	25.8
Lowland Conifer	18,017	19.3
Lowland Hardwood	11,933	12.8
Northern Hardwood	4140	4.4
Other Upland Conifer	101	0.1
Pine	3964	4.2
Total	93,289	100

Source: 1978 MIRIS Land Cover and Use Inventory

Bigtooth aspen, quaking aspen, white birch, red maple and red oak are the primary tree species found in the aspen-birch type. Red oak, white oak and northern pin oak (central hardwoods) are the primary species growing in the oak forests. Aspen and oak forests cover extensive areas in western Caledonia Township, the southern half of Alcona Township and in the central parts of Hawes Township. Red jack and white pine forest types are included in the pine forest category. Pine forests account for four percent of the forest area. According to the pre-settlement vegetation map of Alcona County, pine forests accounted for nearly 48 percent of the forest cover in the three Townships. Logging, wildfires and land clearing converted these areas to forests dominated by aspen-birch and oak forests.

Under dry spring conditions forest fires can occur in any forests type. However, some forest types have higher risks. Jack and red pine forests have a high risk for wildfires. Oak and white pine forests have a moderate risk for wildfires. According to the MIRIS Land Cover/Use Inventory, jack pine and red pine forest types cover approximately four percent of the forestland. Oak and white pine forests account for another 26 percent. Draughty, low fertility sandy soils, found in outwash plains and channels, supported pre-settlement pine forests that for thousands of years were perpetuated by wildfires.

The northern hardwood type includes species such as sugar maple, red maple, American beech, basswood and yellow birch. Northern hardwood forests are found scattered through the three Townships, but typically are associated with farmland. Farm woodlots represent much more extensive northern hardwood forests that existed prior to logging and subsequent land clearing for farming. Northern hardwoods grow best on and dominate sites with fertile, well drained soils. Wise pioneers who sought out the rich hardwood forests to homestead became successful farmers. Some of those farms still survive today.

Figure 4.8: Forest Types from 1978 MIRIS Land Cover/Use Inventory

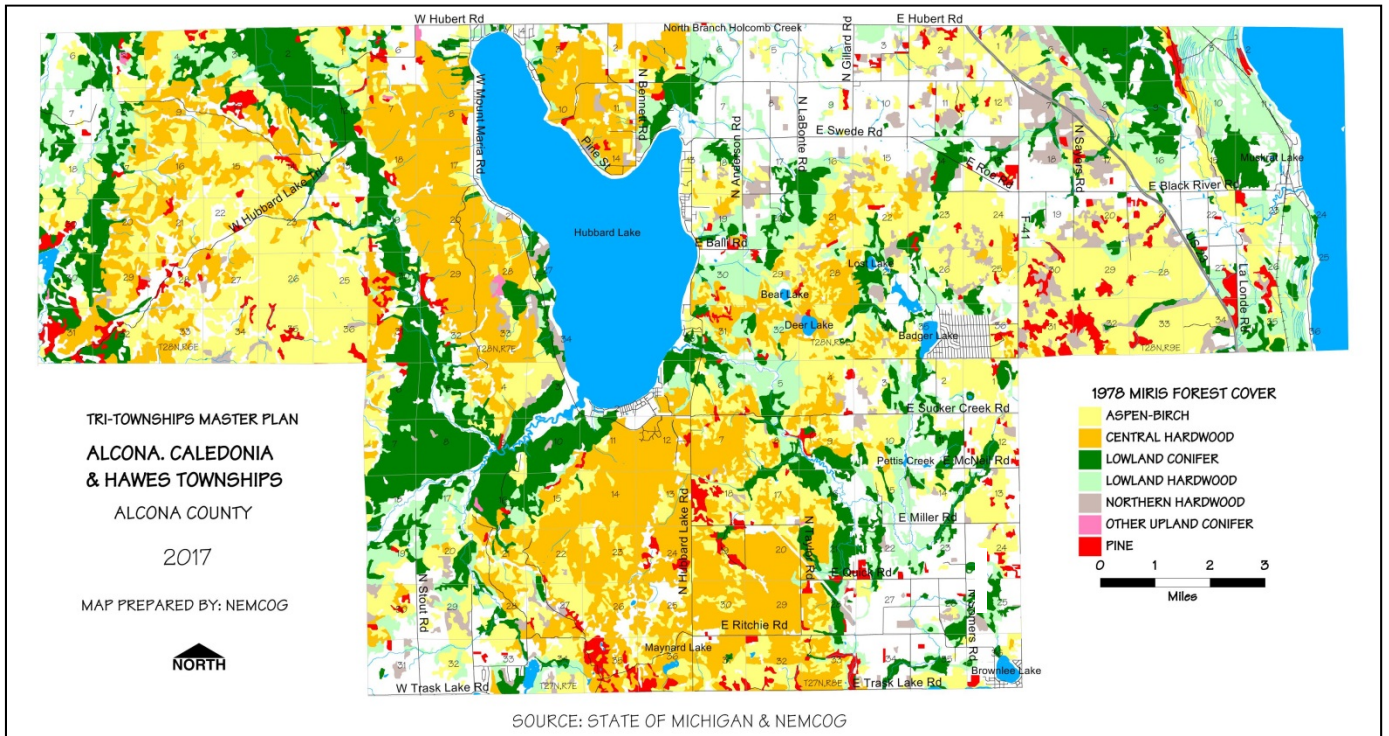
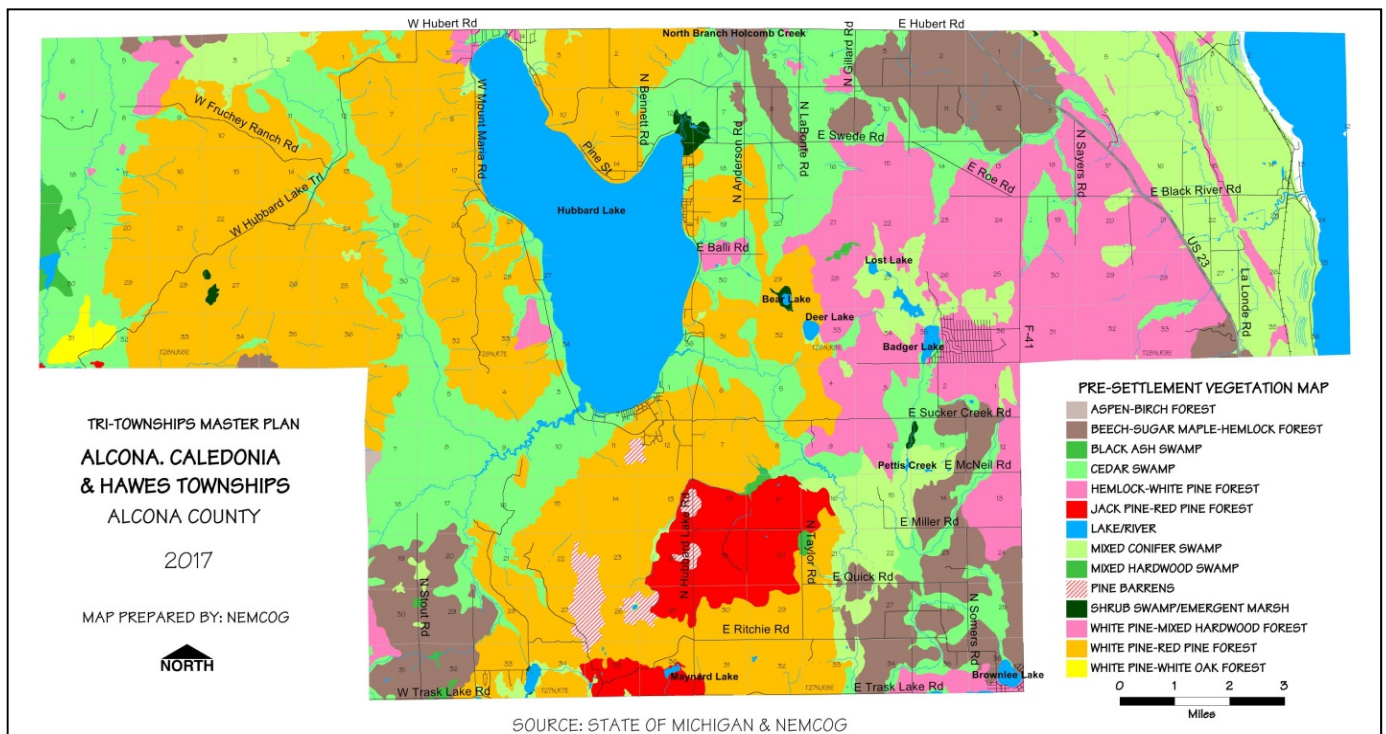


Figure 4.9: Pre-Settlement Vegetation Map



Poorly drained, lowland areas support northern white cedar, tamarack, balsam fir, black spruce, eastern hemlock, white pine, balsam poplar, trembling aspen, paper birch, black ash, speckled alder and shrub willows. Northern white cedar dominates the wetland areas where there is good lateral water movement and the soils are high in organic content. Lowland forests are typically located adjacent to water features and function as riparian forests and water quality buffers. The network of lowland forests, associated with rivers and creeks, also function as wildlife corridors and are the backbone of large regional ecological corridors. Lowland forests adjacent to the Great Lakes are prone to flooding during periods of high lake levels. Lowland forests adjacent to rivers and streams are prone to flooding during the spring snow melt, particularly when combined with heavy spring rains.

Pre-settlement Vegetation

The Michigan Department of Natural Resources has compiled pre-settlement vegetation maps of counties in Michigan. The maps were generated from information contained in the first government land survey notes in the 1800's along with information such as current vegetation, land forms and soils. A review of the presettlement vegetation map of Alcona County show extensive areas were covered with pine and oak forests, see **Figure 4.9** on the previous page. The map delineates white pine-red pine forest, white pine-mixed hardwood-hemlock forests and lowland conifer-hardwoods forests. The presence of pine forest types over 150 years ago clearly shows a long history of wildfires in the area. In the late 1800's extensive logging and subsequent wildfires resulted in the conversion of white pine-red pine forests to oak and aspen forests. Areas covered with pre-settlement northern hardwood forests, which tended to dominate more productive soil types, were cleared for farming. A review of the existing land cover/use map in Chapter 5 shows that farms are concentrated where these historic northern hardwood forests once thrived.

Wetlands

A wetland is land where water is found, either on the surface or near the surface, at any time during the year. Wetlands are also referred to as marshes, swamps or bogs. People are becoming increasingly more aware of the value of wetlands. Beyond their aesthetic value, wetlands improve water quality of lakes and streams by filtering polluting nutrients, organic chemicals and toxic heavy metals. Wetlands are closely related to high groundwater tables and serve to discharge or recharge aquifers. Wetlands support wildlife, and wetlands vegetation protects shorelines from erosion. Furthermore, in Michigan, development of property determined to be a state-regulated wetland is severely restricted.

Several large areas of wetlands are found throughout the Tri-Townships area. Two of the most prominent wetlands are the Black River Swamp in Alcona Township between U.S. 23 and Lake Huron, and Smoke Hollow Swamp (or Hubbard Swamp) in Caledonia Township. Territory in the Black River Swamp lies below the 650 foot elevation line and is the bottom of glacial Lake Huron. It includes lands adjacent to the Black River and its several feeder streams. The Smoke Hollow Swamp encompasses lands adjacent to Widner and Davis Creeks.

Wetlands are often found adjacent to or near lakes or streams, as is the case in the Tri-Townships. Prominent wetland areas adjacent to Hubbard Lake are found at the lake's three main feeder streams: West Branch River at South Bay in Hawes Township, Sucker Creek at Coon Point in Alcona Township, and Holcomb Creek at East Bay in Caledonia Township.

Additionally, wetlands in the Tri-Townships are noted adjacent to smaller streams and lakes including: Little North Creek, Stevens Creek, Little Wolf Creek, Fish Creek, East Branch Pine River, Comstock Creek, Cabbage Creek, and Lost Lake and Bear Lake in the LLWC. Ludwig Swamp, located in the northwest section of LLWC, is another prominent wetland area.

The U.S. Fish and Wildlife Service developed national wetlands inventory program in the 1980's. Through this effort a national wetlands inventory map was compiled for Alcona County. The digital data was acquired from the Center for Geographic Information, State of Michigan, and used to compile **Figure 4.10**. The map depicts forested and non-forested wetlands.

Fish and Wildlife

The woodlands, wetlands and surface waters of the Tri-Townships area provide habitat to an abundance of fish and wildlife. Sport fishing and hunting are popular recreational activities for local residents and visitors alike.

The forested and wetland regions of the area are home for several game and non-game species common to northern Michigan. Game species include white-tail deer, bear, wild turkey, ruffed grouse, woodcock, pheasant, partridge, rabbit, waterfowl and occasional rare sightings of elk. Non-game species include: squirrel, fox, raccoon, opossum, skunk, woodchuck, weasel, chipmunk, badger, porcupine and coyote. An abundance of perching birds, shorebirds, waterfowl and birds of prey also call the Tri-Townships area home. The U.S. Fish and Wildlife Service has identified the Kirtland's Warbler as endangered and the bald eagle as threatened, both of which have been seen locally.

Lake Huron sport fishing is a popular summer activity where several species of salmon, whitefish and lake and brown trout may be taken. Game fish found in Hubbard Lake are: northern pike, tiger muskie, walleye, small and largemouth bass, yellow perch, trout, whitefish, catfish, suckers and several panfish species. Hubbard Lake is also home to beaver, muskrat, loons and turtles. Badger Lake fish include: walleye, northern pike, yellow perch, bass, sunfish, rock bass, bullheads and suckers.

Invasive Species

Invasive species have been a growing problem in parts of northeast Michigan. Insects, plants and plant diseases inadvertently brought into the Great Lakes region are causing damage to terrestrial and water ecosystems. It is clearly important for communities to gain an understanding of invasive species and when possible partner with groups such as the Huron Pines RC&D Council to address impacts, particularly on public owned lands. The emerald ash borer has devastated black ash lowland forests and removed the white ash component from upland northern hardwood forests. With oaks being common species in the forests, an increasing concern is the spread of oak wilt disease. The spread of nonnative Phragmites is another major concern in wetlands.

Insects – Emerald ash borer, gypsy moth, spruce budworm

Plant Diseases – beech bark disease, oak wilt and Dutch elm disease

Plants – Phragmites, Eurasian watermilfoil, autumn olive, buckthorn, spotted knapweed, purple loosestrife, baby's breath, garlic mustard, invasive honeysuckle, and European frog-bit.

Other – New Zealand mud snail, round goby, zebra mussel, quagga mussel and sea lamprey.

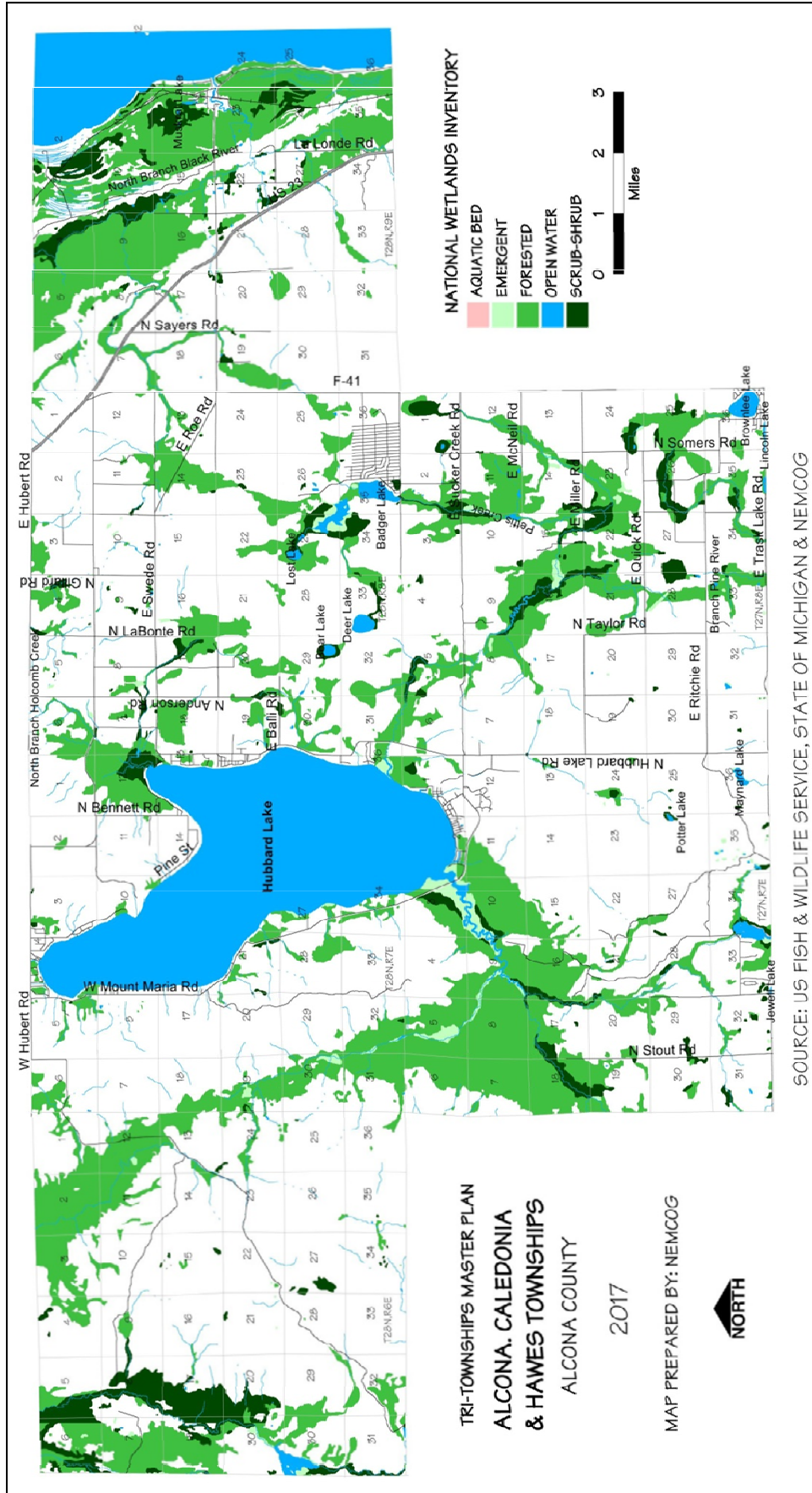


Figure 4.10: National Wetlands Inventory Map

Threatened & Endangered Species

Michigan Natural Features Inventory (MNFI) maintains a Statewide database of plants and animals that are threatened, endangered or are of special concern. **Table 4.2** lists the endangered or threatened plant and animal species found in Alcona County that are protected under the Natural Resources and Environmental Protection Act of the State of Michigan (Part 365 of Public Act 451 of 1994, as amended). *“The lists include all elements (species and natural communities) for which locations have been recorded in MNFI’s database. Information from the database cannot provide a definitive statement on the presence, absence, or condition of the natural features in any given locality, since much of the state has not been specifically or thoroughly surveyed for their occurrence and the conditions at previously surveyed sites are constantly changing. The County Elements Lists should be used as a reference of which natural features currently or historically were recorded in the County and should be considered when developing land use plans. Included in the list are scientific name, common name, element type, federal status, and state status for each element.”* Research has found Great Lakes coastal areas to be biologically rich with the high number of species and communities of special interest (rare, special concern, threatened and endangered). If extensive field surveys were conducted, it is expected a greater number of elements would be identified.

Scientific Name	Common Name	Federal Status	State Status
<i>Accipiter cooperii</i>	Cooper's Hawk		SC
<i>Accipiter gentilis</i>	Northern Goshawk		SC
<i>Buteo lineatus</i>	Red-shouldered Hawk		T
<i>Calypso bulbosa</i>	Calypso or Fairy-slipper		T
<i>Carex albolutescens</i>	Greenish-white Sedge		T
<i>Carex frankii</i>	Frank's Sedge		SC
<i>Carex nigra</i>	Black Sedge		E
<i>Cirsium hillii</i>	Hill's Thistle		SC
<i>Cirsium pitcheri</i>	Pitcher's Thistle	LT	T
<i>Cypripedium arietinum</i>	Ram's Head Lady's-slipper		SC
<i>Dalibarda repens</i>	False-violet		T
<i>Dendroica discolor</i>	Prairie Warbler		E
<i>Dendroica kirtlandii</i>	Kirtland's Warbler	LE	E
Dry northern forest	Dry Woodland, Upper Midwest Type		
Dry-mesic northern forest			
<i>Emys blandingii</i>	Blanding's Turtle		SC
<i>Festuca scabrella</i>	Rough Fescue		T
<i>Gavia immer</i>	Common Loon		T
<i>Glyptemys insculpta</i>	Wood Turtle		SC
Great blue heron rookery	Great Blue Heron Rookery		
<i>Haliaeetus leucocephalus</i>	Bald Eagle	PS:LT,PDL	T
Hardwood-conifer swamp			
<i>Panax quinquefolius</i>	Ginseng		T
<i>Percina copelandi</i>	Channel Darter		E
<i>Planogyra asteriscus</i>	Eastern Flat-whorl		SC
Poor conifer swamp			
Poor fen	Poor Shrub/herb Fen, Upper Midwest Type		
<i>Prunus alleghaniensis</i> var. <i>davisii</i>	Alleghany or Sloe Plum		SC
<i>Pterospora andromedea</i>	Pine-drops		T
Rich conifer swamp			
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	C	SC
<i>Sterna caspia</i>	Caspian Tern		T
<i>Trimerotropis huroniana</i>	Lake Huron Locust		T
Wooded dune and swale complex			
Source: Michigan Natural Feature Inventory, MSU Extension. *LE = Listed endangered, LT = Listed threatened, PDL = Proposed delist, PS = Partial status (federally listed in only part of its range), C = Species being considered for federal status. ** E = Endangered, T = Threatened, SC = Special concern.			

Water Resources

The two most important water resources in the Tri-Townships are the Lake Huron shoreline in Alcona Township and the shared resource of Hubbard Lake. Because of wetness, the Lake Huron shoreline shows only limited residential development in the Black River community area and in the southeast corner of Alcona Township. Hubbard Lake, on the other hand, is extensively developed for residential and recreational uses.

Lake Huron Coastal Areas

The U.S. Army Corps of Engineers has maintained lake level records for Lake Huron since 1900. During periods of high water levels, shoreline erosion is problematic, particularly where development is close to the lakeshore and on bluffs. Coastal wetlands change in size and species composition as Lake Huron water levels rise and fall. During periods of low water levels, wetland herbaceous vegetation expands out into the exposed bottomlands. Woody plants such as northern white cedar and balsam poplar march outward from the forests edge onto now dryer sites. As the lake level rises, the newly established vegetation is inundated and the plant communities are pushed back inland. The flooded vegetation creates critical habitat for fish and wildlife, in addition to protecting shore areas from erosion. The ebb and flow of lake levels creates a constant see-saw of early succession plant communities along the zones. **Figure 4.11** from "Filling the Gaps" publication by Michigan Department of Environmental Quality¹, depicts the fluctuations of lake levels and the ever changing coastal landscape.

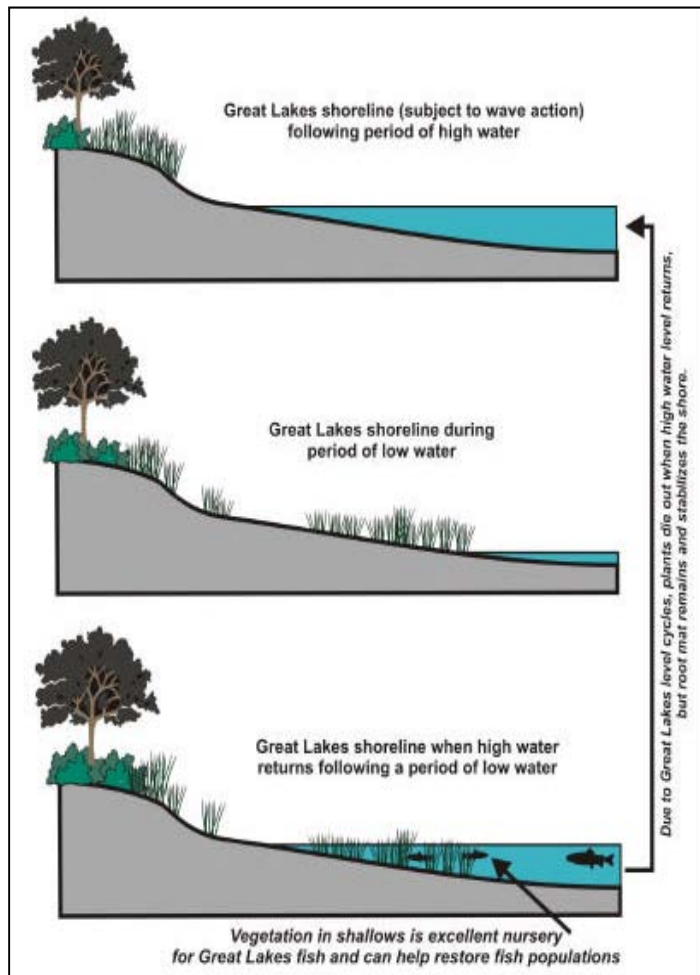


Figure 4.11: Josh Warbach, Planning and Zoning Center.

Hubbard Lake

Hubbard Lake, Michigan's 12th largest inland lake, covers 8,850 acres in Sections 1, 2 and 3 of T27N-R7E and many sections of T28N-R8E. Hubbard Lake is more than eight miles long and three miles wide and has a maximum depth of 97 feet. In addition to Sucker Creek, West Branch River and Holcomb Creek, Hubbard Lake is fed by many natural springs, contributing to the lake's high water quality.

¹ Michigan Coastal Management Program, Filling the Gaps, Environmental Protection Options for Local Governments, K. Ardizzone and M. Wyckoff, 2003.

Hubbard Lake water level is controlled by a dam on the Lower South Branch of the Thunder Bay River, the lake's outlet. The dam, owned by Alpena Power Company until recently, is located at the Alpena/Alcona County line. Because of complaints about fluctuation in water levels, Alpena Power Company, in consultation with the Hubbard Lake Sportsman and Improvement Association, formulated an experimental operating policy for water levels at Hubbard Lake. The Alpena Power Company implemented the experimental policy for the period 1988-1992. The dam is currently owned by Thunder Bay Power Company, and a permanent policy agreement on water level control is now on file at the Alcona County Courthouse. The environmental benefits of this operating policy are:

- to alleviate shoreline erosion
- to promote better fish and wildlife habitat, and
- to facilitate use of boat launching sites and docks.

Hubbard Lake Shoreline Assessment of Greenbelts, Cladophora, and Erosion

A multi-agency and organization effort developed the Thunder Bay River Non-Source Watershed Management Plan. The plan encompasses all streams, creeks and lakes, including Hubbard Lake. A shoreline assessment was completed in 2003 as a part of the inventory phase.

According to the report, Hubbard Lake is considered borderline oligotrophic. For Hubbard, one of the most serious threats to water quality is the accelerated eutrophication (aging) of the lake. A shoreline survey was conducted to identify potential sources of nutrients to the lake; document serious erosion sites; the presence and condition of shoreline greenbelts; and the intensity of Cladophora algae growth along the waterfront.

The shoreline inventory was conducted during the spring of 2003 by staff from Huron Pines RC&D and NEMCOG. Using kayaks and generally paddling within 30 feet of the shoreline, technicians documented the entire shoreline of the lake, noting erosion, intensity of Cladophora growth, and greenbelt condition on a parcel by parcel basis. This information was then put into a database from which maps of each attribute were then produced.

Number of shoreline miles: 21.02

Number of shoreline miles undeveloped: 2.8

Number of property parcels: 942

Percent of shoreline undeveloped: 13.3%

Number of parcels with good to excellent greenbelts: 128

Number of parcels with poor or no greenbelts: 796

Number of parcels with moderate to heavy shoreline erosion: 27

Percent of parcels with Cladophora habitat: 73%

Percent of Cladophora habitat parcels with light, mod, or heavy growths: 68%

- Cladophora habitat: This form of filamentous green algae requires a hard surface (rock, seawall, log) to attach to. If this surface is not available, there is no Cladophora habitat and the algae will not be present. In summary, 73.4% (691) of the property parcels exhibited suitable habitat for Cladophora growth.
- Cladophora: The survey noted whether Cladophora was present or absent, and whether it was found in light, moderate or heavy growths. In nutrient poor (low productivity) lakes like Hubbard, Cladophora is a reliable indicator of possible nutrient pollution. Of the

parcels with habitat, 474 parcels (68%) showed visible signs of growth. Significant (heavy) growths of *Cladophora* were observed on 127 (18%) of parcels.

- **Shoreline erosion:** While erosion is a natural process, it can be accelerated by human activities and lead to both property loss and environmental problems. This survey noted only visible erosion, such as bare soil on steep slopes, gullies, undercut banks, and slumping. Erosion was classified as slight, moderate, or severe. 27 of the 942 sites (2.8%) exhibited significant shoreline erosion, considered to be moderate or heavy.
- **Shoreline greenbelts:** Greenbelts were scored on a scale of 0 to 3, with 3 being an undeveloped shoreline. A .5 signifies removal of all vegetation except for turfgrass, a 1 represents some vegetation, but not enough to qualify as a greenbelt zone, and a 2 or above is considered “good.” Good greenbelts will have significant areas of natural vegetation that remain, particularly adjacent to the shoreline. Homes with good to excellent greenbelts can often be difficult to observe from the water. This may be the most subjective of the inventory categories; however, maintaining natural vegetation is perhaps the most significant action a lakefront property can take to preserve high water quality. Greenbelts minimize overland runoff, hold shoreline soils in place and buffer the shoreline from erosion, remove nutrients from the soil, minimize the need for intensive lawn maintenance, and provide important riparian habitat for wildlife. 128 parcels were scored good to excellent; 796 were scored 1.9 or below.
- **Other field notes:** This section was for comments by the technician regarding any special resource concerns. Field notes made by the shoreline technician also indicated sites where tributaries were noticeable, setbacks were poor (less than 40 feet), or stormwater outfalls were present.

The following recommendations have been used with other lakeshore communities; some may be helpful for Hubbard Lake:

- Follow up the shoreline survey with an educational program for property owners around the lake. Through workshops, direct mail, and/or a site visit by a shoreline technician, property owners could receive tips for proper methods of erosion control, lawn care practices that can protect water quality, septic system maintenance, maintaining a greenbelt, and reducing runoff. (Such a program could be for all lakefront property owners or targeted to those where *Cladophora* was found.)
- Institute a program requiring inspections and upgrades of substandard septic systems around the lake. Several counties in Michigan and some townships have already taken this step and had success with either phasing in the program over several years or requiring the inspections of septic systems at the time of property sale or transfer.
- Work with real estate agents, land developers, excavators, and landscape/lawn care companies to ensure everyone that interacts with new waterfront property owners is familiar with shoreline stewardship practices for protecting water quality. These people are “on the front line” when it comes to meeting with people new to the area and could easily distribute educational materials.
- Conduct a follow up shoreline study every few years to document changes around the lakeshore.

Other important lakes in the Tri-Townships area include Badger, Deer, Lost, Bear and Beaver Lakes, all located in the Lost Lake Woods Club (LLWC) in Alcona Township. The majority of the residential development for LLWC occurs near Badger Lake. In 1988, LLWC retained the services of Dr. Richard B. Moreau of Alpena Community College to conduct a water quality survey of the lakes in the Club. The report shows that Badger Lake, in particular, is continuing to be enriched and is approaching eutrophic condition.

Other streams and lakes in the Tri-Townships include: North Branch Black River, Widner Creek, Sucker Creek, Potvin River, Davis Creek, Vincent Creek, DeRocher Creek, Little Wolf Creek, Pettis Creek, Liston Creek, Lower Thunder Bay River, Fish Creek, Gauthier Creek, East Br. Pine River, Holcomb Creek, Comstock Creek, Sucker Creek, Cabbage Creek, Butternut Creek, Little North Creek, Muskrat Lake, West Branch River, Stevens Creek, Buff Creek, Potter Lake, Maynard Lake and Sanborn Lake.

Groundwater Issues

As in many northern Michigan communities, residents of Alcona, Caledonia and Hawes Townships rely on groundwater as the sole source of potable drinking water. According to the District Health Department No. 2, most private drinking water wells in Alcona County are drilled to a depth of 20 to 150 feet and are located in glacial deposits. Along the Lake Huron shoreline, where glacial deposits are thinner and some clays exist, wells may need to be drilled 200-300 feet in bedrock to secure sufficient water for domestic use.

According to the MDNR Geological Survey Division, a groundwater yield of 10-30 gallons per minute (GPM) is adequate for residential needs. Most of the Tri-Townships area falls in the less than ten GPM category, thus inadequate groundwater supply can be a limitation on development. Several active artesian wells are located in the area east of U.S. 23 in Alcona Township. Future development plans in this region should consider the protection of these resources.

Another issue with groundwater is vulnerability to surface contamination. Groundwater contamination can occur from several sources, including agricultural runoff, storm water runoff, fertilizer and pesticide runoff and industrial discharge or spills. Golf course development and maintenance, if not properly managed, may contribute to ground water contamination from fertilizer and pesticides.

Sites of Environmental Contamination

The Michigan Environmental Response Act (Part 201 of PA 451 of 1994, as amended) provides for the identification, evaluation and risk assessment of sites of environmental contamination in the State. The Environmental Response Division (ERD) is charged with administering this law. A site of environmental contamination, as identified by ERD, is "a location at which contamination of soil, ground water, surface water, air or other environmental resource is confirmed, or where there is potential for contamination of resources due to site conditions, site use or management practices. The database has information for sites of environmental contamination (Part 201), Leaking Underground Storage Tanks (Part 213) and Baseline Environmental Assessments (BEAs). The BEA is completed when a property is purchased,

leased or foreclosed on for the purposes of documenting contamination and protecting from liability for cleanup of existing contamination on the property.

There are no sites listed as “Sites of Environmental Contamination (Part 201)” in Tri-Townships. The Anchor Market site, 5160 N. Hubbard Lake Road and the Former Tavern and Gas Station site located on Hubbard Lake Road are listed under the Leaking Underground Storage Tank (Part 213) program. Allens Hubbard Lake Western Auto Hardware site, 1505 Hubert Road, is listed as under the Part 213 and has a Baseline Environmental Assessment filed with the DEQ.

Hazards and Hazard Analysis

According to the Alcona County Hazard Mitigation Plan, “communities within the Tri-Townships are vulnerable to a wide range of natural, technological and human-related hazards. Managing these many and varied threats, while protecting life and property, are the challenges faced by emergency management officials at all levels of government. The County Hazard Mitigation Plan identifies potential hazards; ranks hazards according to the relative risk to the community; and finally assess the level of vulnerability for each identified hazard.

The hazard identification and vulnerability assessment is a powerful planning tool that enables emergency management officials and local officials to set priorities and goals for hazard mitigation and preparedness activities. Information allows communities to plan for hazard mitigation, preparedness, response and recovery activities. Below is a listing of potential hazards in the three Townships.

Potential Hazards

Natural: Lakeshore flooding and erosion, riverine flooding, wildfire, damaging wind, thunder storms and tornadoes, and winter storms.

Technological: Transportation accident, hazardous material spill, structural fire, and industrial accident.

Societal: Bovine TB

The following three maps are hazards maps of each Township from the County Hazard Mitigation Plan. Upland forest types, wetlands, water features, oil and gas wells, and roads are displayed on the map to emphasize areas in the communities with highest risks for wildfire, riverine flooding, shoreline erosion and flooding hazards, see **Figures 4.14, 4.15, & 4.16.**

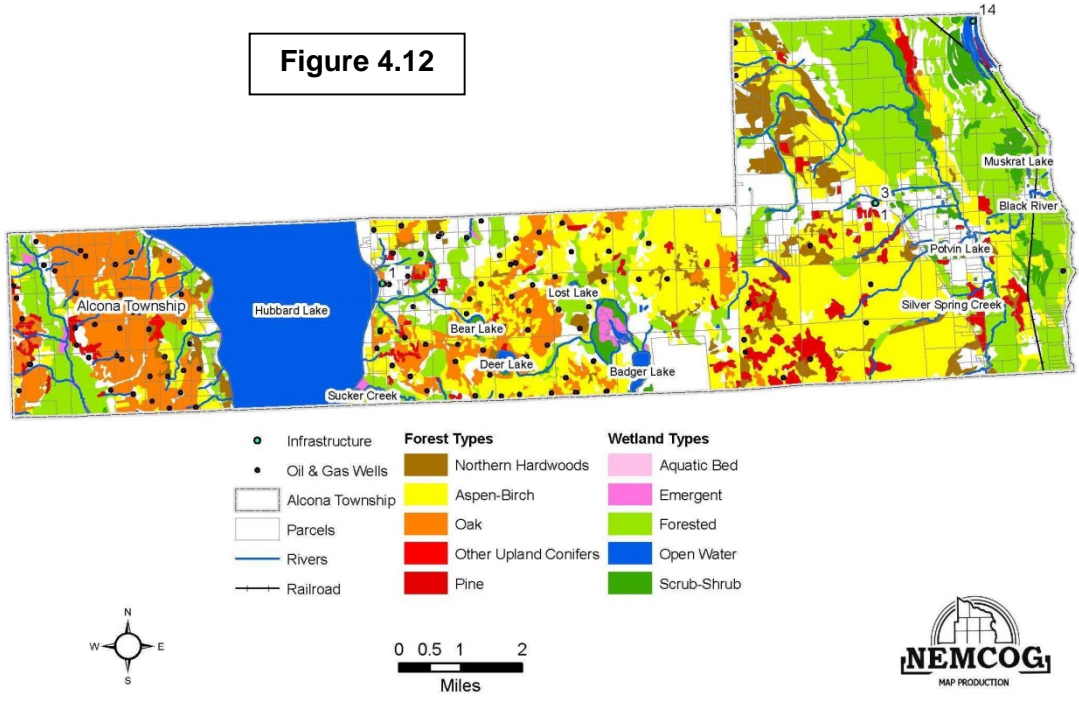
Discharge Permits

Surface Water - National Pollution Discharge Elimination (NPDES) Facilities

Anyone discharging, or proposing to discharge, waste or wastewater into the surface waters of the State is required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES program is intended to control direct discharge into the surface waters of the State by imposing effluent limits and other conditions necessary which meet State and Federal requirements. The NPDES program regulates pollutants discharged directly into waterways from wastewater sources. The lists below show NPDES permits issued in Alcona County. See **Table 4.3.**

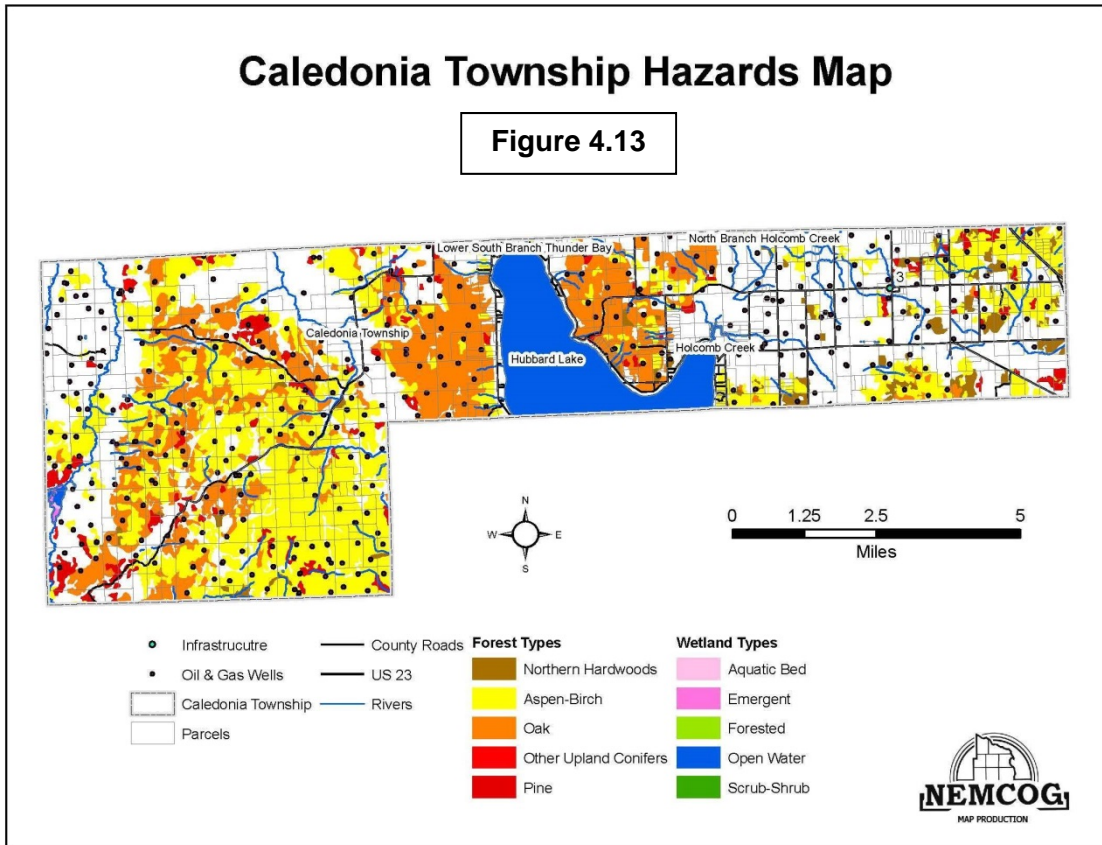
Alcona Township Hazards Map

Figure 4.12



Caledonia Township Hazards Map

Figure 4.13



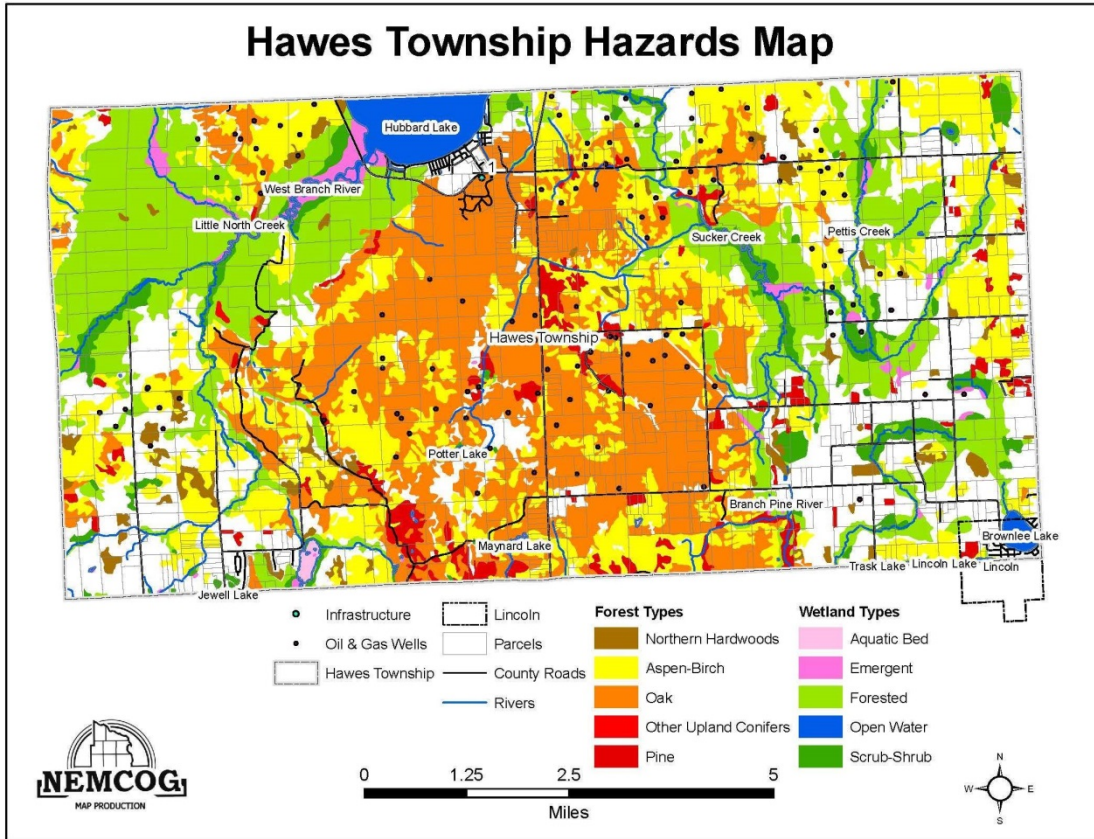


Figure 4.14

Table 4.3 NPDES Permits in Alcona County			
Name	Address	Permit #	Expires
Alcona CRC-Black River Road	Black River Rd from US23 to Lakeshore Dr.	MIR111196	7/13/2014
Alcona CRC-Hubbard Lake Road	Hubbard Lake Road from Woodland Drive to Swede Road	MIR110788	7/8/2013
Alcona CRC-Mt. Maria Road	Mt. Maria Road from Ann Street to Hawes Twp. line	MIR110120	3/1/2012
Beckman Production Services Incorporated	various sites statewide	GW1510140	4/1/2015
MDOT-US-23	from Everette Rd north to Black River Rd.	MIR110635	3/24/2013
Source: MDEQ			

Air Discharge Permits

There are two Renewable Operating Permit (ROP) Air Discharge Permits issued in Alcona County. The ROP program is a national permitting system administered by each state. Each major source of pollution is subject to the program. A "major source" is a facility that is capable of emitting more

than specific amounts of air contaminants.

- Viking Energy of Lincoln LLC, Village of Lincoln

Summary

Alcona, Caledonia and Hawes Townships are blessed with desirable natural resources which are extremely important to the quality of life for residents and visitors of the communities. The existence of clean air and water (both surface and ground), scenic woodlands, natural wetlands, rolling hills and abundant fish and wildlife are recognized by the Tri-Townships communities and have been noted in the development of this master plan.

It is essential that each community consider the preservation and protection of their natural resources when developing plans for future land use. Future land use planning is also an appropriate way to deal with identified environmental problem areas. The quality of the natural environment will ultimately depend on preservation and wise use.

Chapter 5 – Existing Land Cover/Use

Prior to determining future land uses and developing a future land use map a community must have an accurate assessment of existing land cover and uses. This chapter presents information on both the types and location of existing land uses. The process identifies both urban built-up land uses such as residential and commercial, along with natural land cover types like farmlands, forests, wetlands. As a result the final map presented in this chapter is a hybrid that combines land cover and land use.

Land Divisions and Land Use

The patterns of land divisions and existing land use reflect the status of development within a community. Land division patterns described below were referenced from the 2004 Alcona County Equalization Department parcel maps.

The NEMCOG mapped existing land cover/use in the Tri-Townships in 2004. A land use digital map from the 1994 Master Plan was updated using 1998 color infrared digital aerial photos. Michigan Resource Information Systems (MIRIS) land cover/use classification categories were used to map the existing land cover/use. The original 1994 map represented an update of the 1978 MIRIS land cover/use map. Updated information was then computerized to produce the existing land cover/use map and statistics. The chapter presents the land uses, showing the number of acres and percent of each Township in each of the land use categories. Each of the land use categories is discussed later in this chapter. Figure 5.3 depicts the existing land cover/use for the Tri-Township. Given the limited budget for the update and since significant land cover/use conversions have not occurred over the past decade, the three Townships chose not to conduct a land cover/use update for their 2017 Master Plan. Each of the Tri-Township's land division patterns and land use statistics is discussed separately.

Alcona Township

Alcona Township is over 42,000 acres in size, including over 5,000 acres of surface water. The Township's political jurisdiction includes portions of three geographic townships: the southern half of T28N-R7E, the southern half of T28N-R8E, and all of T28N-R9E. Because of the Lake Huron shoreline along the east side of T28N-R9E, the geographic Township is less than 36 complete sections.

Current land division patterns for Alcona Township show only a few remaining large, undivided, privately owned parcels of 160 acres or more. They are found in Sections 5, 6, 8, 9, 16, 20, and 23, of T28N-R9E, and in Sections 21, 28, 29, 31, 32 and 33 of T28N-R7E. **Figure 5.1** shows parcels 160 acres and larger along with public lands.

A number of large, undivided parcels in Sections 21-29 and 31-36 of T28N-R8E are owned by Lost Lake Woods Club (LLWC), established in 1926 as a hunt and fish club. Nearly all of the Club's 10,480 acres are located in Alcona Township, with a few hundred acres in both Hawes and Caledonia Townships. Residential development for LLWC is concentrated in a 700 acre subdivision near Badger Lake, where soils are more suitable for development.

In T28N-R9E, over 5,000 acres in Sections 20-35 are owned by the Federal Government as part of the Huron National Forest, while the State of Michigan owns over 2,200 acres in

Sections 2, 3, 4, 5, 10, 11, 14 and 15 as part of the Au Sable State Forest.

Privately owned parcels of 40 to 160 acres are dispersed throughout Alcona Township. **Figure 5.2** depicts the coverage of parcels 40 acres and larger in size. As can be seen much of the Township is covered with large tracts of ownership 40 acres and larger in size. Parcels of less than 40 acres and small tract development occur mainly along the Lake Huron shoreline in Sections 13, 24, 25 and 36, the U.S. 23 corridor, Hubbard Lake Road and Hubbard Lake shoreline.

Table 5.1 Existing Land Use Statistics for Alcona Township		
Land Cover/Use Category	Number of Acres	Percent of Township
Residential	1,673	4.0%
Commercial	18	Less than 0.1%
Industrial/Extractive/Utilities	120	0.3%
Institutional/Recreational	216	0.5%
Agricultural	1,234	2.9%
Non-forested Uplands	1,749	4.3%
Upland Forest	18,862	45.0%
Lowland Forest	10,342	24.6%
Non-forested Wetlands	2,442	5.8%
Water	5,170	12.3%
Beaches and Dunes	126	0.3%
Total	41,952	100.0%
Source: Michigan Resource Inventory System and NEMCOG photo interpretation, field verification and map updating.		

As **Table 5.1** shows, residential development in Alcona Township accounts for only 4.0 percent (1,673 acres) of the Township's total land area. Residential use occurs primarily along the Lake Huron shoreline, in the community of Black River, along the U.S. 23 corridor, within Lost Lake Woods Club and along the Hubbard Lake shoreline. Approximately 500 homes and a 57-room lodge are located in the 700 acre Lost Lake Woods Club. Though seasonal in nature, 150 to 200 residences are occupied year-round. During the summer months, Lost Lake Woods Club may be the largest population center in the Tri-Township area.

Commercial development is extremely limited in the Township, confined to a small area in the Black River community and a few scattered sites on US 23. Industrial land use makes up only 0.3 percent of the Township's total area. Scattered industrial sites can be found in Sections 8 and 15 of T28N-R9E, Sections 19, 26 and 36 of T28N-R8E, and Section 20 of T28N-R7E.

Lands devoted to public services or developed recreational use make up 0.5 percent of Alcona Township's total area; primarily the Lost Lake Woods Club Golf Course. Lost Lake Woods Club also has a shooting range, campground, tennis courts, and picnic/pavilion within the residentially developed area.

Agricultural development accounts for 1,234 acres (or 2.9 percent) of the total area. Agricultural land use occurs predominantly in the mid-section of T28N-R9E and in small areas near

Hubbard Lake.

The upland forested lands are the most predominant land cover in the Township and account for 45 percent or 18,862 acres of the Township. Northern hardwoods include species such as sugar maple, red maple, American beech, basswood and yellow birch. Bigtooth aspen, quaking aspen, white birch, red maple and red oak are the primary tree species found in the aspen-birch type. Jack, red and white pine trees are found in the pine forest category. Forest occurs throughout the Township.

Wetlands include land that has sufficient water at, or near, the surface to support wetland or aquatic vegetation. These areas are commonly referred to as swamps, marshes and bogs. In addition to the large Black River Swamp near Lake Huron, smaller wetland areas are found adjacent to Sucker Creek, Little North Creek, Mud Bay of Hubbard Lake, and in the Ludwig Swamp, Lost Lake and Bear Lake. The wetland category comprises non-forested types such as lowland brush (tag alder and willow) and wet meadows. Non-forested wetlands account for 2,442 acres or 5.8 percent of the surface area.

Lowland forests grow on soils with a seasonally high water table and are often classified as wetlands. Lowland forests, include areas that support lowland hardwoods and conifers, such as northern white cedar, black spruce, balsam fir, elm, red maple, ash and aspen species. Lowland forests occupy 10,342 acres or 24.6 percent of the Township area. Two of the most important functions of wetlands are water quality protection and ecological corridors. As can be noted on the Existing Land Use Map, the major wetland areas are adjacent to rivers and creeks. The network of wetlands receive surface water and subsurface water discharge, creating the many streams and creeks which in turn flow into the area lakes. The interconnected resources exemplify how activities distant from major water bodies can still have an impact on the water quality.

Water covers over 5,000 acres (or 12.3 percent) of the Township, including Hubbard Lake and the smaller lakes of Lost Lake Woods Club.

Caledonia Township

Caledonia Township is approximately 46,000 acres in total area, including over 3,300 acres of surface water. The Township's political jurisdiction includes parts of the following geographic townships: all of T28N-R6E, the northern half of T28N-R7E, and the northern half of T28N-R8E.

Figure 5.1 shows show large, undivided, privately owned parcels of over 160 acres in Caledonia Township. Many of the large parcels on the west side of Hubbard Lake are held by hunting clubs, while large parcels on the east side of the lake are predominantly used for farming. No State or Federal forest lands are located in Caledonia Township.

Parcels of 40 to 160 acres are dispersed throughout the Township. As can be seen in **Figure 5.2**, much of the Township is covered with large tracts of ownership 40 acres and larger in size. Parcels less 40 acres in size and small tracts occur adjacent to Hubbard Lake, Hubbard Lake Road, Spruce Road, Hubert Road, U.S. 23 and the community of Spruce. Existing land use statistics for Caledonia Township are summarized in **Table 5.2**.

The location of residential development in Caledonia Township corresponds to the location of small parcels and subdivided land, which occur adjacent to Hubbard Lake, Hubbard Lake Road, Hubert Road, U.S. 23, Spruce Road and the community of Spruce. Residential land use

accounts for 1,306 acres (or 2.8 percent) of the Township's total area.

Table 5.2 - Existing Land Use Statistics for Caledonia Township		
Land Cover/Use Category	Number of Acres	Percent of Township
Residential	1,306	2.8
Commercial	62	0.1
Industrial/Extractive/Utilities	362	0.8
Institutional/Recreational	88	0.2
Agricultural	4,914	10.6
Non-forested Uplands	4,932	10.6
Upland Forest	21,735	46.9
Lowland Forest	8,188	17.7
Non-forested Wetlands	1,457	3.1
Water	3,312	7.1
Total	46,356	100.0
Source: Michigan Resource Inventory System and NEMCOG photo interpretation, field verification and map updating.		

Commercial land use, making up 0.1 percent of the area, is primarily found near the communities of Hubbard Lake and Spruce, along US 23 and at scattered sites on Mt. Maria Road. In years past, the community of Spruce had a much larger commercial base, but when U.S. 23 was constructed at its current location, the community experienced a decline in commercial activity, as well as residential use. Commercial development has since sprung up at the U.S. 23 and F-41 intersection (Chippewa Point). Chippewa Point is sometimes referred to as "the new Spruce". Industrial and extractive land use makes up only 0.8 percent (362 acres) of the total area. These sites are located in Sections 3, 11 and 17 of T28N-R7E, and in Sections 1, 3, 14 and 18 of T28N-R8E. MIRIS designated developed recreation or public service land use covers only 88 acres of Caledonia Township.

Agricultural land use accounts for approximately 11 percent (4,914 acres) of the Township's total area, occurring primarily in T28N-R8E, in the northern sections of T28N-R7E, and in Sections 7 and 8 of T28N-R6E. As was the case with Alcona Township, upland forested lands are the predominant land use in Caledonia Township, comprising 21,735 acres and 47 percent of the total area. Lowland forests account for another 8,188 acres (17.7 percent).

Water covers over 3,300 acres (over seven percent) of the Township's total area. Hubbard Lake and various streams account for the Township's surface water. Wetland areas including wooded wetlands and cedar swamps, cover 9,654 acres (20.8 percent) of Caledonia Township. As mentioned in Chapter 4, wetland areas are found adjacent to Holcomb Creek at East Bay of Hubbard Lake, Little Wolf Creek, and Stevens Creek, in addition to Smoke Hollow Swamp (or Hubbard Swamp) located around Widner and Davis Creeks, as well as Little North Creek. Non-forested uplands make up 10.6 percent (4,932 acres) of Caledonia Township and is found dispersed throughout the Township.

Hawes Township

Hawes Township encompasses over 45,000 acres and includes 862 acres of water. The Township's political jurisdiction includes the entire government township of T27N-R7E (west

half) and all of T27N-R8E (east half), except the southern half of Section 36 which is the Village of Lincoln.

Large tract land divisions of more than 160 acres are depicted in **Figure 5.1**. Large tracts of federally owned forest land occur in Sections 22, 35 and 36 of T28N-R7E, and Sections 31, 32 and 33 of T28N-R8E. Parcels of 40-160 acres are dispersed throughout Hawes Township but are more predominant in the eastern half. **Figure 5.2** shows parcels 40 acres and larger in Hawes Township.

Parcels of less than 40 acres and small tract subdivisions occur at the south end of Hubbard Lake, the community of Barton City, adjacent to the Village of Lincoln, and along Hubbard Lake Road, Ritchie Road, F-41 and Mt. Maria Road.

Existing land use statistics for Hawes Township are presented as **Table 5.3**.

Table 5.3 - Existing Land Use Statistics for Hawes Township		
Land Cover/Use Category	Number of Acres	Percent of Township
Residential	1,331	2.9
Commercial	13	Less than 0.1
Industrial/Extractive/Utilities	92	0.2
Institutional/Recreational	342	0.7
Agricultural	2,389	5.2
Non-forested Uplands	4,530	9.9
Upland Forest	22,189	48.7
Lowland Forest	10,949	24.0
Non-forested Wetlands	2,898	6.4
Water	862	1.9
Total	45,595	100.0
Source: Michigan Resource Inventory System and NEMCOG photo interpretation, field verification and map updating.		

Residential land use comprises 2.9 percent (1,331 acres) of Hawes Township's total area. Residential development coincides with the small tract land division patterns of the Township, and can be noted on the south end of Hubbard Lake, Barton City, adjacent to the Village of Lincoln and along the major highways of the Township.

Just thirteen acres of commercial land use is noted in the Township. Approximately two-tenths of one percent, or 92 acres of Hawes Township is categorized as industrial or extractive use. Industrial sites are found in Sections 2, 3, 23, 24, 30 and 35 of the eastern half of the Township, and in Sections 25, 32 and 34 of the western half of the Township.

Public service or developed recreational land use makes up 0.7 percent or 342 acres of the total area. This includes the former Mt. Maria Ski Lodge, located at the south end of Hubbard Lake and the White Pine National Golf Resort south of Sucker Creek Road.

Agricultural land use covers 2,389 acres (5.2 percent) of Hawes Township. Agriculture is predominant on the eastern quarter of the Township (north and west of the Village of Lincoln) and in the southwest corner of the Township.

Forested lands occur most frequently in the central portion and in the northern portion of Hawes Township. However, scattered wooded land is found throughout the Township. As the most predominant land use, upland forests make up nearly 49 percent of the Township. Upland forest types consist of northern hardwoods which includes species such as sugar maple, red maple, American beech, basswood and yellow birch. Bigtooth aspen, quaking aspen, white birch, red maple and red oak are the primary tree species found in the aspen-birch type. Jack, red and white pine trees are found in the pine forest category.

Surface water covers 862 acres in Hawes Township, comprising two percent of the total area, and occurring as Hubbard Lake and various streams. Wetlands and lowland forests are found adjacent to Sucker Creek at South Bay of Hubbard Lake, Fish Creek, East Branch Pine River, Little North Creek, Comstock Creek and Cabbage Creek in Hawes Township and cover nearly thirty-one percent (13,847 acres) of the total area. Non-forested uplands account for nearly ten percent (4,530 acres) of the total area and are found scattered throughout the Township, but are more concentrated on the eastern quarter of the Township.

Figure 5.1 Public Lands and Private Parcels 160 Acres & Greater

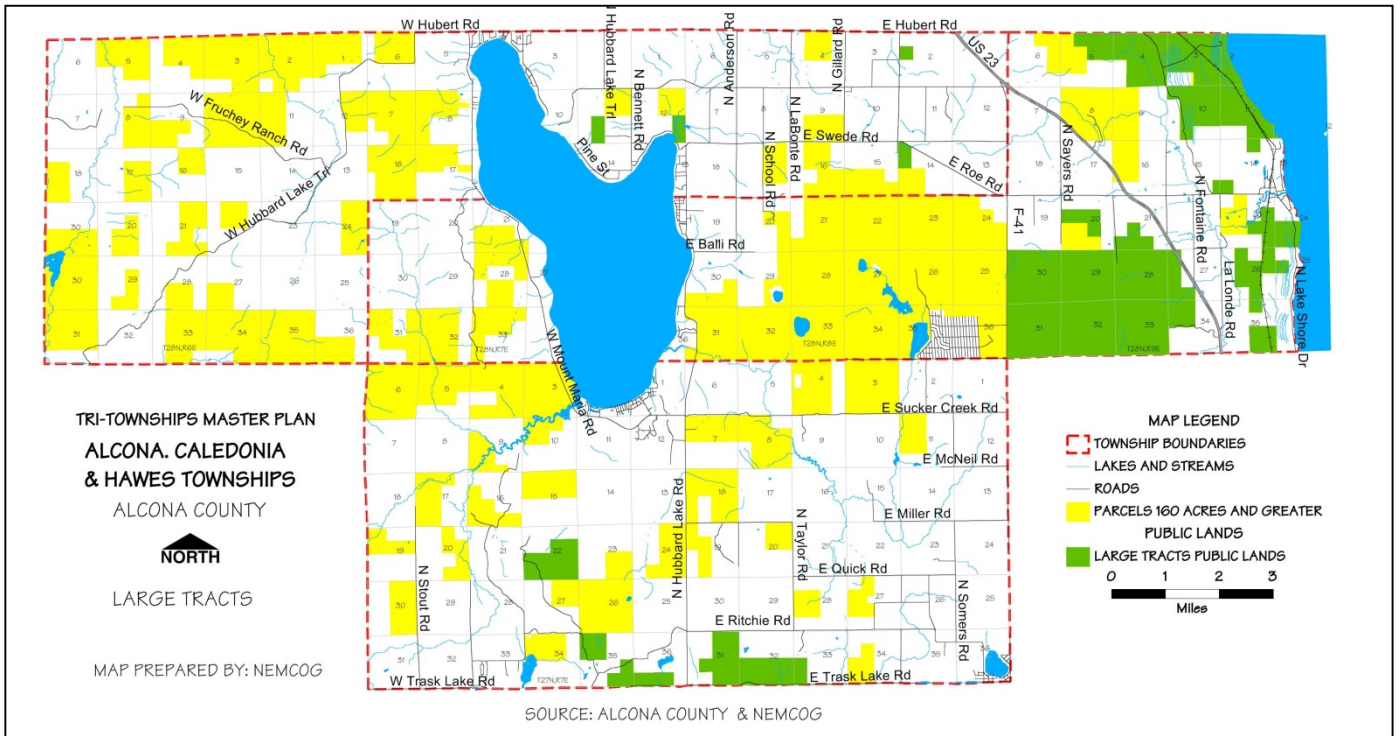
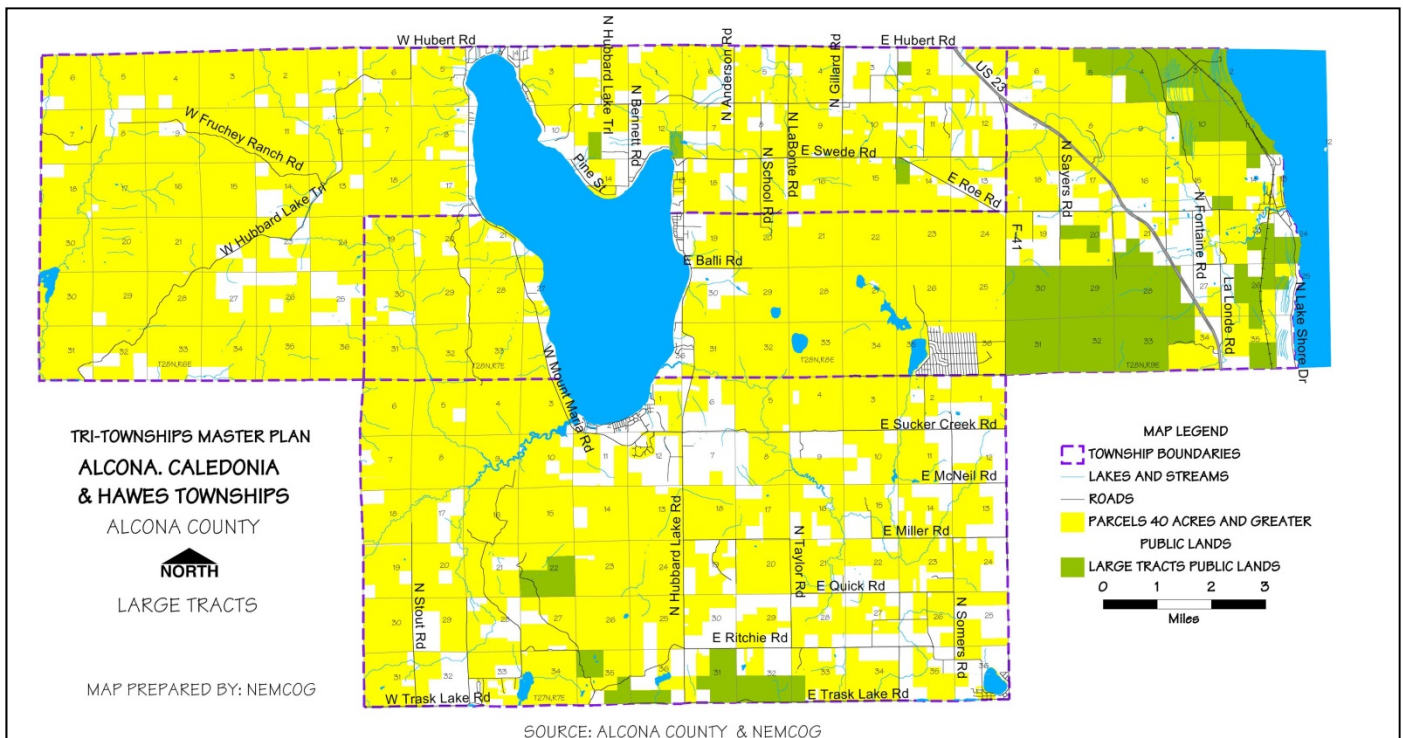


Figure 5.2 Public Lands and Private Parcels 40 Acres & Greater



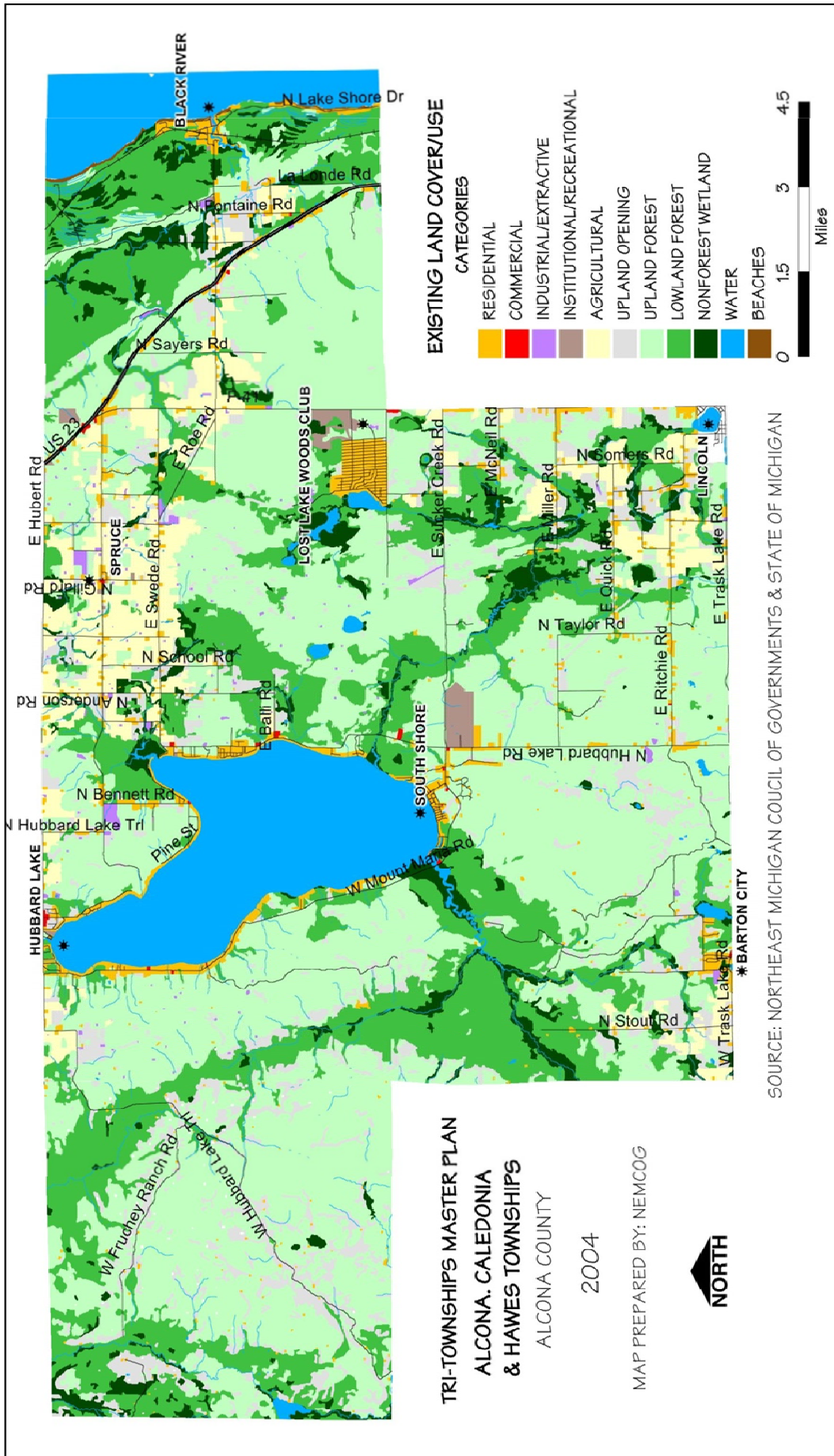


Figure 5.3

Chapter 6 – Community Goals

The purpose of this chapter is to establish the goals and objectives that will guide future development within Tri-Townships. In developing community goals and objectives, it is important to analyze existing community characteristics such as social and economic conditions, services and facilities, environmental conditions, and existing land use. Preceding chapters of this master plan have documented the above characteristics.

An equally important step in developing goals is community input. Given the all three townships have a very high percentage of absentee landowners, which makes it difficult to have good representation at public meetings, the Tri-Townships decided to use a web based survey to obtain input from its citizens. Notice of the web based community survey was sent with the summer tax bill statement. Citizens were directed to their respective township's web site to complete the survey; which was hosted on the site called "Survey Monkey." Citizens without internet access were able to obtain printed copies from the township and at local libraries. A total of 245 surveys were completed, with 78 Alcona Township, 92 Caledonia Township and 73 Hawes Township. The survey had questions that focused household characteristics, community character, natural resources, township government, land use & development, roads and transportation, community services, and economy & business. Respondents were also given the opportunity to list, "What makes our community a great place to live and/or work? and What changes should occur to make our community an even better place to live?" Copies of the survey results are available from each community.

Community Goals and Objectives

After reviewing the community input and considering the existing conditions background information, the planning commission established goals and objectives. These goals and objectives will provide guidance to Alcona Township, Caledonia Township and Hawes Township planning commissions and boards.

Planning and Community Development

Goal: Guide future development in a manner that will protect existing development; preserve rural community character; and conserve natural resources and environment, yet meets the long-term needs of the community.

Objectives:

- Continue implementation of the Tri-Township master plan through revisions to each township's zoning ordinance.
- Control the location of new development by designating appropriate areas for new residential, commercial, industrial and resort/recreational land uses.
- Establish landscape requirements for new development, such as appropriate setbacks, retention of green space, buffer zones between differing land uses, screened parking areas, and roadside landscaping.

- Develop open space residential and commercial development design standards to preserve scenic views, rural character, farmland, meadows, woodlands, steep slopes and wetlands with a target of preserving 50 percent of the land within a development.
- Improve regulations and standards to protect the community against high noise levels to protect the rural atmosphere and exterior lighting glare to protect night skies.
- Implement access management standards for commercial development along the primary corridors which include US-23, F-41, Hubert and Hubbard Lake Roads.
- Evaluate the establishment of a common waterfront overlay district in each community zoning ordinance that will set forth consistent special requirements and standards for development in these sensitive areas.
- Establish/update standards that regulate the placement and size of cellular, communication and transmission towers.
- Develop a joint blight ordinance and consistently enforce the ordinance with the common goal of working towards improving the quality of housing and protecting property values.
- Develop ordinance language that will regulate size and location of signs and billboards to minimize clutter, confusion, aesthetic degradation, and limit traffic hazards.
- Increase safety and reduce the visual impact of on-site and off site signs and billboards, by controlling their size, number, illumination, and configuration.
- Enforce all ordinances in a consistent and fair manner.
- Promote walkable communities by developing trails, sidewalks and safe pedestrian crosswalks in developed areas of the townships.

Residential Land Uses

Goal: Allow for suitable housing opportunities for all income levels and age groups, including year-round residents and seasonal residents.

Objectives:

- Designate areas appropriate for all types of residential development including single family, multi-family, elderly housing, condominium, low to moderate income housing, and extended care facilities.
- To preserve open space and vital natural resources, encourage the development option of clustered in buildable portions of the Townships.
- Encourage new residential development to be sited in a manner that protects the rural character and scenic views by maintaining proper setbacks and providing landscaping screening as appropriate.

- Require large scale development to document the need and demand for such development.
- Encourage existing housing stock and neighborhoods to be kept in good repair, appearance, usefulness and safety.
- Require adequate buffers and transition areas between residential and non residential uses to maintain property values and visual attractiveness.
- Preserve the integrity of existing residential neighborhoods by protecting them from intrusion of incompatible uses.

Commercial Areas and Activities

Goal: Promote a varied business environment, and encourage the development and expansion of businesses to meet the needs of residents and tourists, while preserving the natural environment and rural character of the community.

Objectives:

- Support existing commercial areas by guiding commercial development into community centers through the master plan and zoning ordinances; while discouraging linear strip development along primary county roads.
- Develop and utilize innovative planning and zoning techniques, such as clustering, shared parking, access management, and landscaping to regulate commercial development along primary county roads and state highways.
- Make parking (public and private) needs a consideration for all expansions and new development.
- Require landscape buffers where commercial uses are adjacent to residential uses.
- Regulate home occupations and home based businesses to assure compatibility with existing residential areas.
- Work with county and regional organizations to develop strategies for marketing the area as a tourism destination with recreational, cultural and historic components.

Industrial Land Uses

Goal: Encourage the retention of existing industries and establishment of new light industries to diversify the local economy and to create more stability and self-sufficiency for the community.

Objectives:

- Ensure that industrial uses are developed in an environmentally sensitive manner, are harmonious with the existing community and are located near access to state trunklines.

- Encourage light industries and high tech industries that do not pollute the air, soil, or water nor offend because of noise, odor, or visual impact, to locate in zoned industrial areas within the Township. Due to the lack of public water and sewer, these industries should not require high water usage or generate large amounts of septage.
- Require landscape buffers where industrial uses are adjacent to other land uses.
- Develop guidelines to ensure that extractive development takes place in an environmentally sensitive manner.
- Require landscape buffers around extractive uses to screen adjacent properties and public roadways.
- Establish criteria for reclaiming extractive areas after the operation is complete.

Infrastructure, Services and Community Facilities

Goal: Improve the Township's transportation systems, community facilities, services and public utilities to accommodate the needs of residents and visitors.

Objectives:

- Work with the Alcona County Road Commission to plan for upgrading of roads, maintenance of existing roads, and vehicular and pedestrian safety at intersections and on roadways.
- Develop a capital improvements plan to address the long term needs for road improvements, township hall maintenance, and community recreation.
- Direct development to areas with existing infrastructure and where infrastructure is not adequate require developers to fund the upgrading of infrastructure to support proposed new development.
- Seek grants through federal, state and other funding sources for infrastructure improvements and economic development projects.
- Require new private roads and shared road accesses be developed according to Alcona County Road Commission standards.
- Continue to maintain and, when necessary, expand Caledonia's Pleasantview Cemetery.
- Support the continuation and expansion of public transit to better serve the needs of senior citizens and other transit dependent Township residents.
- *Support expansion of services for the increasing elder population and work with agencies such as the commission on aging.*

Recreation and Public Lands

Goal: Preserve and improve access to public lands and water, establish recreational trails and improve public parks for the enjoyment of residents, visitors and future generations.

Objectives:

- Develop/update Township Recreation Plans that identifies and prioritizes needed community recreation facilities.
- When appropriate, purchase additional property to expand parks.
- Pursue grants and funding sources to supplement maintenance, improvements and expansions of community parks.
- Retain and improve public water access sites for residents, seasonal residents and visitors.
- Facilitate the designation of snowmobile routes through the Townships to connect community centers to regional trail systems. Work with the Alcona County Road Commission, Alcona County Sheriff Department and the Michigan Department of Natural Resources to accomplish this objective.
- Encourage the expansion and creation of non-motorized recreation trails such as x-country ski trails, bike trails and horse riding trails on both public and private lands.
- Connect parks, community centers and residential areas with bicycle and walking trails.
- Through zoning and review procedures, proposed subdivisions, site condominiums, planned unit developments, commercial and industrial developments should be encouraged to provide or participate in the development of neighborhood parks and open space.

Government

Goal: Provide services in an efficient, environmentally responsible and caring manner to meet the needs of the residents, property owners, business people and visitors.

Objectives:

- Ensure a responsible fiscal policy and budget process to finance the Township government.
- Promote intergovernmental and regional cooperation on issues of mutual concern.
- Continue to work cooperatively by supporting the Tri-Township Planning Committee, which provides guidance and input on common zoning issues.
- Continue to work with Alcona County to provide emergency services to Township residents.
- Maintain communication with the Department of Natural Resources and US Forest Service to provide input into the usage and management of the public lands within the Townships.

- Promote the involvement of volunteers in the government process.

Natural Environment

Goal: Protect and preserve the natural environment by protecting groundwater, surface water, environmentally sensitive areas, highly erosive areas, woodlands, wetlands, open space, fish and wildlife.

Objectives:

- Encourage a land use pattern that is oriented to the natural features and water resources of the area. Evaluate type and density of proposed developments based on soil suitability; slope of land; potential for ground water and surface water degradation and contamination; compatibility with adjacent land uses; and impacts to sensitive natural areas like wetlands, greenways and wildlife corridors.
- Limit and control the density and type of residential and commercial development adjacent to lakes, ponds, streams, and wetlands.
- Promote greenbelt areas adjacent to lakes, ponds, streams, and wetlands through development of a greenbelt section in each township's zoning ordinance.
- Evaluate the establishment of a waterfront overlay district that will set forth consistent special requirements and standards for development along designated waterfronts.
- Implement groundwater protection and stormwater management regulations in each community's zoning ordinance, while encouraging the continued natural use of wetlands as groundwater recharge, stormwater filtering and stormwater holding areas.
- Limit development on steeply sloped areas. Require erosion control measures where construction is permitted. Require slope stabilization and revegetation on disturbed slopes or in extraction areas.
- Preserve topography such as slopes, valleys and hills by limiting the amount of cut and fill during site development.
- Encourage the integration of wetlands, woodlands and meadows into site development as aesthetic and functional features.
- Encourage the retention of agricultural lands, forest lands and ecological corridors through available mechanisms such as open space and farmland agreements, forest stewardship programs, and conservation easements, as well as zoning incentives.
- Encourage the use of native plant species and naturalized landscape designs, where appropriate, to enhance the township's existing character.
- In recognizing the importance of trees in the suburban environment, encourage the retention of existing native trees and the establishment of street and shade trees in residential neighborhoods and commercial developments.

Agricultural and Forest Lands

Goal: Support the retention of the forestry/agricultural land base as a viable resource and to insure that forestry/agriculture is a component of the economic diversity of the townships.

Objectives:

- Maintain and provide for the preservation of farmland and woodlands where feasible, including tree farming and specialty crop farms.
- Discourage the conversion of farmland and forestland into other more intensive uses. Recognize farmland and forestland as contributing to the scenic, rural character and economy of the Township.
- Due to negative impact to groundwater and surface water resources, discourage the establishment of industrial feedlots.

Potential Subjects for Common Development Regulations

<u>Subject</u>	<u>Development Standards</u>
<u>Water and Lakefront Related Issues:</u>	
Permitted uses around lake	Primarily residential; commercial limited to tourist and water related uses
Height restrictions around lakes	32-ft. maximum as measured from natural grade, or 25-ft. with 1-ft. additional per foot increased side yard
Boat docking by non-riparians	No renting of watercraft parking spaces on private docking in lakefront residential area
Boathouses	No living quarters within; 10-ft. height limit, and/or not above bank, and/or no unreasonable view obstruction
Keyhole or funnel development	Recommend considering future regulations or limits
Septic permits for lakefront and wetland lots	Require sanitary permit before issuing zoning permit
Greenbelt requirements	Recommendation rather than mandatory use

restrictions; develop and implement a public education program

Other Development Recommendations

Junk ordinance	Work with townships to adopt and enforce similar regulations
Noise control	Cover in zoning ordinance
Townships relation to homeowner groups	Clarify that the Townships cannot enforce deed restrictions
New land divisions and lots	Length-to-width ratio, 4:1 maximum
Location of US-23 improvements	Consider joint lobbying
Signs and Billboards	Consider unified sign controls that address changes in statutes and court law
Open Space Development	Incorporate common open space development regulations in each Township's zoning ordinance

Chapter 7 – Future Land Use Recommendations

According to the U.S. Census Bureau, there has been a small but steady growth in population since the 1960's. Low-density single family residential development, throughout the three townships, accounts for part of the historic population growth. In recent years, the conversion of seasonal homes to year round residences has spurred population growth. While residential growth is occurring in the Tri-Townships area, according to the land use inventory, over 89 percent of the land area was classified as forest, farmland, non-forest open space, and wetlands. Around four percent of the Township's land was used for urban related purposes including extractive, commercial, industrial, utilities, institutional/recreational and residential development.

The final critical step in completing a Master Plan is to determine the types, location and intensities of development that will occur over the next twenty year planning horizon. With the establishment of a Future Land Use Plan, the Tri-Townships intend to ensure that existing land uses such as residential, commercial and industrial can continue; that irreplaceable resources such as water, wetlands and forestlands and farmlands will be protected; and that reasonable growth can be accommodated with minimal land use conflicts or negative environmental impacts.

The Tri-Township Planning Committee, with public input and assistance from NEMCOG, developed future land use recommendations for the Tri-Townships. Recommendations are based on an analysis of several factors including: social and economic characteristics, environmental conditions, existing land uses, available community services and facilities, existing patterns of land divisions, current zoning, and community goals and objectives.

Future Land Use Planning Areas

Based on the social, economic and environmental characteristics of the Tri-Township area, the three communities have identified nine general categories of land use which will be needed to serve future development needs. These categories are listed below. **Figure 7-1** is the Future Land Use Map of the Tri-Townships, which depicts the locations of future land use planning areas. This section will provide explanations of each land use planning area including purpose, recommended development density, and compatible uses. **Table 7.1** (page 7-8) provides a summary of future land uses, compatible uses and general locations. It is important to note this future land use plan recognizes that existing parcels within planning areas may be less than the recommended minimum lot size. The plan does not intend to restrict the construction of new residences or continued residential use of these existing parcels.

- Conservation
- Forest Recreation
- Agricultural
- Shore Area Residential
- General Residential
- General Commercial
- Resort Commercial
- Community Center
- Industrial

Conservation

Location and Setting: The Conservation future land use category includes extensive areas of wetlands, lowland forests and flood plains associated with the interconnected network of streams and lakes. The areas include public and private lands and are shown as dark green on Figure 7.1. Conservation areas provide the backbone of the green infrastructure system in the Tri-Townships and function as stormwater retention areas, water quality buffers, critical wildlife habitat and recreation areas. Road access is limited and consists primarily of seasonally maintained county roads.

Uses: Conservation areas should be protected from intense development without denying private property owners reasonable economic use of the land. Primary uses to be encouraged in this category include hunting, fishing, skiing, hiking, camping, wildlife management and forestry management. Other compatible uses are large lot homes, and cabins. This plan encourages the retention of contiguous resource areas, river greenbelts, wetlands, scenic areas and wildlife habitat. Forest management and harvesting should follow MDNR Best Management Practices to protect all resources and prevent erosion into adjacent waterways.

Development Density: The Conservation category is designed to provide protection to environmentally sensitive areas, while allowing for very limited and low intensity development to occur. This development would be consistent with recreational and conservation uses. A development density of one dwelling per 20 to 40 acres is recommended for the category.

Other Development Considerations: The plan further recommends communities consider incorporating open space development options, river setbacks, native vegetation greenbelts, waterfront overlay zones, and landscaping requirements into zoning ordinances. This future land use plan recognizes that existing parcels within the planning area may be less than the recommended minimum lot size. The Townships do not intend to restrict the construction of new residences or continued residential use of these existing parcels.

Forest Recreation

Location and Setting: The Forest Recreation future land use category is the most extensive future land use category in the Tri-Townships planning area. The land cover is a mix of upland forests (aspen, oak, northern hardwoods and pine), and old farm fields. Parcel sizes are mostly 40 acres and larger and include public and private ownership. Hunting camps are common on large tracts that are typically accessible by seasonally maintained roads. There is still some active farming, mainly hay and pasture lands. Both seasonal and year round homes are located in this area. Locations recommended for this category are shown on the future land use map, **Figure 7.1.**

Uses: The protection of forested land, wetlands, and non-forested open space is critical to preserving the rural character of the Townships. The fragmentation of large parcels is discouraged. This category encourages the continuation of resource management and wildlands recreation activities. Along with low density residential uses, forestry activities associated with timber and wildlife management would be considered compatible in this area. Other compatible uses include vacation homes, public and private conservation areas, hunting camps, parks, and playgrounds. Additionally, controlled extraction with site reclamation plans,

cellular towers and home occupations would be allowed as special uses, provided the activity is compatible with surrounding neighborhoods.

Development Density: The plan recommends this category accommodates single family dwellings at an average density of one unit per five to ten acres. Larger residential lots provide privacy and tend to maintain ecological integrity of the natural resources. To protect sensitive areas and maintain larger tracts available for other uses, clustering based on density equivalents (one house per five acres) should be encouraged.

Other Development Considerations: The Tri-Townships intend to work cooperatively with the Alcona County Road Commission to maintain and improve the road network. No municipal water or sewer service will be available. Buffers or physical separation from incompatible uses (commercial and industrial) are necessary when Forest Recreation areas are located next to more intensive development. The plan further recommends incorporating open space development options, native vegetation greenbelts, and landscaping requirements into the Zoning Ordinance.

Agricultural

Location and Setting: The Tri-Townships recognize the presence of farmland as well as old farm fields contribute significantly to the scenic and rural character valued by Township residents. The Agricultural future land use designation is intended to encourage the continued existence of farms in the Townships particularly on prime agricultural soils and active farms on large parcels. Designated areas are primarily located in the eastern portions of Caledonia and Alcona Townships, and the southeast and southwest parts of Hawes Township, as shown on the Future Land Use Map, **Figure 7.1**.

Uses: Farm dwellings and agricultural accessory buildings are allowed, as well as crop production, roadside stands, small scale forestry, raising of livestock normally associated with farming activities *and single family residential*. Special uses may be allowed if they are designed to be compatible with the primary uses. Where compatible with surrounding uses, plant nurseries, greenhouses, parks, bed and breakfast inns, churches, home occupations, golf courses, telecommunication towers, kennels, private clubs, veterinary services, human care facilities, publicly owned buildings and publicly owned parks would be allowed.

Development Density: The plan recommends this category accommodates single family dwellings at an approximate maximum density of one unit per ten to twenty acres .

Other Development Considerations: There are no current plans for providing municipal water or sewer service. Buffers or physical separation from incompatible uses (commercial and industrial) are necessary when agricultural areas are located next to more intensive development. The plan further recommends incorporating open space development options, river set-backs, native vegetation greenbelts, waterfront overlay zones, access management, and landscaping requirements into the zoning ordinance

Shore Area Residential

Location and Setting: Land adjacent to Hubbard Hake, Lake Huron and lower sections of the Black River are included in Shore Area Residential. The plan recognizes that many areas were subdivided prior to current zoning regulations and, as a result, are legal nonconforming lots of record. Future development regulations should recognize these conditions and provide for the reasonable continuance of their use and character. Historically, residential units were generally used for vacation or seasonal use. Current trends are to upgrade the cottages to year-round residences. In some cases, smaller cottages are expanded to larger homes, limiting the ability to site future wells and septic systems. Another trend is the conversion of natural vegetation greenbelts to well-manicured lawns and creating “hard” shorelines. Water features serve as important recreational, economic and natural assets within the Townships, shoreline properties will continue to be popular locations for residential growth. Environmental protection measures are key to sustaining long term, high quality surface water.

Uses: It is anticipated that single-family dwellings and cottages would be the primary uses, but existing water dependent services, tourism and recreation uses, and vacation resorts should continue to exist.

Development Density: Any new development along or near the many lakes and streams should require a greater standard of review to maintain or improve the quality of the Townships' water resources. New lots should be a minimum of 100 feet in width and 15,000 square feet in lot area.

Other Development Considerations: Future development proposals should address issues including erosion control, minimum building elevations, setbacks from the high water mark of the Great Lakes and inland lakes and streams, stormwater run-off, septic field setbacks from the water, shoreline buffering, keyhole development standards, and lower density development. These considerations are intended to grant access to these water features with the expectation that higher design standards will be necessary. In recognition of the common shared water features and interconnected network of lakes and streams, the Townships should consider adopting shore area overlay districts with common supporting language.

General Residential

Location and Setting: The General Residential category is intended to preserve existing residential development where land has already been subdivided into smaller lots and to expand specific areas for future residential growth. These areas are clustered near community centers and along major roads.

Uses: Principal uses would include single family dwellings and two-family dwellings. Where compatible with the residential, other uses to be considered include home occupations contained within the dwelling, neighborhood services, churches, schools and libraries, group homes per state law, utilities, bed and breakfast facilities, parks and playgrounds, community buildings and publicly owned buildings, public utility buildings; and publicly owned and operated parks. The Townships should require site plan review and special approval for all uses other than individual single and two family homes. Development regulations within waterfront areas should be designed to address Township residents' concerns regarding water quality and streamside protection.

Development Density: The General Residential development category is primarily designed to accommodate single-family dwellings on lots with a typical size of ½ to 2 acres. Older platted subdivision areas contain lots created prior to implementation of Township Zoning Ordinances. These lots-of-record are smaller than minimal lot sizes in current residential zoning requirements. Future development regulations should recognize these conditions and provide for the reasonable continuance of their use and character.

Other Development Considerations: Due to a lack of public water and sewer service available, higher density residential uses, such as apartments, townhouses, condominiums, mobile home parks, convalescent or nursing homes and manufactured home developments should be restricted. If adequately engineered wastewater disposal systems are included as part of the design, higher density development can be considered. It is also important to note that under state law, manufactured homes are allowed in any residential area if the structure meets all requirements set for site-built homes. Additionally, a manufactured home development would be compatible with the multiple-family portion of the residential area. However, given the soil limitations for septic system drain field operation, compact mobile home parks could not be accommodated unless adequately engineered wastewater disposal systems are included as part of the design.

General Commercial

Location and Setting: At the present time commercial development is very limited in the Tri-Townships planning area. Existing business areas are located in community centers, at major intersections, and along the east side of Hubbard Lake.

Development Density: Commercial lots in community centers have variable sizes and widths. Commercial lots along major roads with higher traffic volumes and higher speed limits should have widths that can accommodate recommended driveway spacing in MDOT's access management guidebook for local communities. For example, at speed limits of 55 mph driveways should be spaced at least 455 feet apart. As an alternative, narrower lots would be acceptable if frontage roads or shared driveways are incorporated in development plans. Access management will preserve the safety and efficiency of travel; preserve community character; advance economic development goals; and protect the substantial public investment in roads and highways.

Uses and Development Considerations: Commercial development, located in community centers, tend to serve local residents and visitors. Compatible uses in community centers include retail sales, gas stations/convenience stores, restaurants, personal services, and office uses. Businesses in the community centers are located adjacent to residential development and should have adequate buffers separating operations from residential uses. Access management, pedestrian access, landscaping, signage, traffic and pedestrian safety, and outdoor lighting should be considered in development plans within community centers.

Commercial centers located along major roads and highways are located to serve vehicular traffic and will, therefore, generate heavy vehicular traffic. Compatible uses include gas stations, vehicle service and repair businesses, auto sales and service, retail operations that require large outside storage areas, drive-in food and drink establishments, hotels and motels. It is further recommended to implement cluster commercial development zoning through Planned Unit Developments that allows for shared driveways and parking lots and the creation of a pedestrian friendly environment, while maintaining open space, protecting sensitive areas, and

minimizing visual impacts. Commercial developments should consider access management, shared driveways and parking lots, buffering, signs, stormwater management, groundwater protection and landscaping to maintain traffic safety and minimize any negative visual impacts of development along the main roads. Larger scale commercial development often needs municipal water and sewer or may need a satellite water or sewer system.

Other Considerations: State law grants the authority to regulate billboards along state and federal highways to townships, cities and villages, but not to counties. Therefore it is recommended the Townships adopt a billboard ordinance to regulate billboards along US-23.

Resort Commercial

Location and Setting: The Resort Commercial category is designed to accommodate commercial development associated with recreation and tourism. The Tri-Townships recognize the importance of tourism in the local economy and has designated areas to accommodate tourism/recreation development. Locations include Mt. Mariah, existing and proposed golf courses, and the intersection of U.S. 23 at Black River Road.

Uses: Primary uses include motels, hotels, condominiums, restaurants, bars, tourism services, golf courses, and recreation facilities.

Development Density: Minimum lot sizes should be five acres. These more intense uses require site plans and, in some districts, a special use permit.

Other Development Considerations: Developments should consider access management, buffering, signs, stormwater management, groundwater protection, and landscaping to maintain traffic safety and minimize any negative visual impacts of development along the main roads. Larger scale commercial development often needs municipal water and sewer or may need a satellite water or sewer system. It is further recommended to implement cluster commercial development zoning through Planned Unit Developments that allows for shared driveways and parking lots and the creation of a pedestrian friendly environment, while maintaining open space, protecting sensitive areas, and minimizing visual impacts.

Community Centers

Location and Setting: The Tri-Townships master plan recognizes the importance of several community centers within the planning area. These include Black River, Spruce, Barton City, South Shore, Hubbard Lake, the Lincoln area, and Lost Lake Woods. Participants in community visioning sessions associated with this planning effort identified the significance of these older community centers and the need to sustain and expand upon historic development patterns.

Uses: Compact growth, neighborhood businesses, public facilities, pedestrian friendly development, walkable communities, and neighborhood parks were envisioned for these communities. As well, the concept of community themes was discussed to foster community identity and attract visitors.

Development Density: A mix of lot sizes will be accommodated in these community centers.

Industrial

Location and Setting: The communities have identified the need to improve employment opportunities and expand the local tax base. Industrial future land use areas include active quarries, existing industrial sites, the Lincoln area, and lands along US-23 and F-41.

Uses: Industrial areas are those where general commercial, warehousing, storage, light manufacturing, and regulated extraction with reclamation plans are permitted. These more intense uses require site plans and, in some districts, a special use permit.

Development Density: Recommended minimum lots sizes would be two acres.

Other Development Considerations: Developments should consider access management, buffering, signs, stormwater management, groundwater protection and landscaping to maintain traffic safety and minimize any negative visual impacts of development along the main roads. Larger scale development often needs municipal water and sewer or may need a satellite water or sewer system. Manufacturing and warehousing development should be located on all-season roads.

Special Issue Areas

Roads

Money for maintaining county roads comes from state and local sources, including the three Townships. Townships pay part of the cost of upgrading roads to a paved surface. This plan recognizes the need for the three Townships to work together to develop a “Cooperative Roads Plan” that will consider the entire road network and allocate resources to maintain and upgrade roads to provide seamless travel across the planning area. The Townships intend to work cooperatively with the Alcona County Road Commission to implement a coordinated asset management program to maintain and improve the road network. However, there are no intentions on upgrading the entire gravel road network to a paved road network. The communities should investigate the process of designating Sucker Creek Road as a scenic road. To address safety, maintenance and possible conversion to public ownership, it is recommended the Townships develop and adopt private road standards.

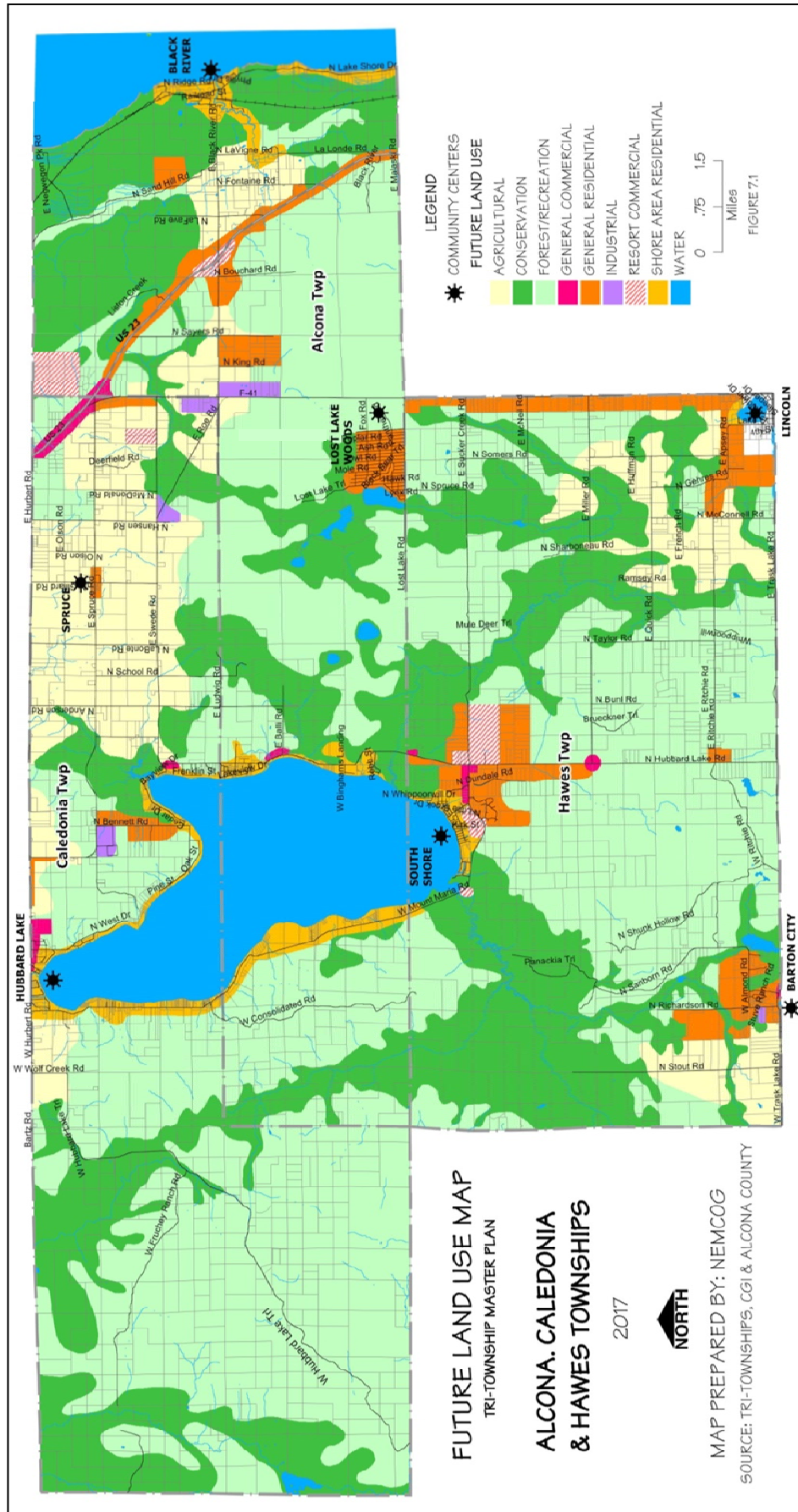
Open Space Development

Methods which other communities have employed to help protect and preserve privately held forest and farm lands while protecting a landowner's economic investment include the Purchase of Development Rights (PDR), conservation open space development standards, clustering requirements for residential uses, and tax breaks or incentives for continuing forestry and farming use. The conservation open space residential and commercial development design standards are effective means to preserve scenic views, rural character, farmland, meadows, woodlands, steep slopes and wetlands with a target of preserving at least 50 percent of the land within a development. It is recommended that these alternatives be investigated for possible application in the Tri-Townships as a way to balance economic rights with wildlands preservation goals. Incorporating open space requirements into Planned Unit Development zoning is a means of achieving this goal. The Townships should consider incorporating Planned Unit Development options as special uses in residential, commercial and industrial zoning districts.

Community Facilities

Surface and groundwater protection is a primary goal of the Tri-Townships long range planning effort. This plan recognizes compact development such as existing development along lakeshores and development within older communities may someday require public or common water and sewer facilities. While specific sites have not been identified, the Townships wish to recognize potential future needs and the necessity to pursue grant funding to implement common or community water and sewer facilities.

Table 7.1: Future Land Use Categories		
Future Land Use Category	Compatible Uses	General Locations
Conservation (20-40 acre parcels)	Forestry, recreation, hunting camps, large lot homes, and cabins	Wetlands, lowland forests, flood plains, upland forests on public and private lands
Forest Recreation (5 acre minimum lots) (hunting, 10 acre minimum)	Recreation, rural residential, hunting, forestry, "gentleman farming", controlled extraction	Upland woods, rural and isolated areas away from community centers or major roads.
Agricultural (10 to 20 acre minimum parcels)	Farming, animal husbandry, small-scale forestry, farm homesteads	Prime agricultural soils, active farm areas on large parcels
Shore Area Residential (retain lots of record; new lots, 100-ft. minimum width, 15,000 sq. ft. minimum lot area)	Single-family homes, water dependent services, tourism and recreation uses, environmental protection measures	Lake Huron shoreline, Hubbard Lake shoreline, Black River shoreline
General Residential (various sizes, 1/2 acre to 2 acres typical)	Single-family homes, neighborhood services, churches, schools, group homes per state law, utilities	Clustered near community centers or along major roads
General Commercial (various sizes; width minimums on major roads)	Retail sales, personal services, office use	Existing business areas, major intersections, convenience areas on Hubbard Lake
Resort Commercial (minimum 5 acres)	Motels, hotels, condominiums, restaurants, bars, tourism services, golf courses, recreation facilities	Mt. Mariah, golf course area, U.S. 23 at F-41, U.S. 23 at Black River Road
Community Center (various; 12,000 sq. ft. minimum)	High-density residential, general commercial, public facilities, neighborhood recreation	Black River, Spruce, Barton City, South Shore, Hubbard Lake and Lincoln area, and Lost Lake Woods
Industrial (various; 2-acre minimum lot recommended)	General commercial, warehousing, storage, manufacturing, and regulated extraction	Active quarries, Chippewa Point, F-41, US-23, Lincoln area, existing industrial sites



Chapter 8 – Implementation and Adoption

Plan Coordination and Review

As required by the Michigan Planning Enabling Act of 2008 (P.A. 33 of 2008 as amended), notification of intent to update the Tri-Townships Master Plan was sent on _____ to all adjacent communities and other relevant entities to request cooperation and comment. A copy of the notice letter, affidavit of mailing and entities notified can be found at the end of this chapter.

After the draft plan was completed by the three Townships with the assistance of NEMCOG, a draft was transmitted to each Township Board for approval to distribute the plan for review and comment. The draft plan was transmitted on _____ to entities notified at the initiation of the plan development. After the required comment period, a public hearing notice and notice of plan adoption of the final plan was transmitted to all required entities. A copy of all relevant information can be found at the end of this chapter.

Public Hearing

A public hearing on the proposed Master Plan, as required by the Michigan Planning Enabling Act of 2008 (P.A. 33 of 2008 as amended) was by each Township Planning Commission. The Act requires that 15 days' notice of the public hearing be given in a publication of general circulation in the community. Notices of the public hearings were published in the Alcona County Review. Copies of the public hearing notice are reproduced at the end of this chapter.

Plan Adoption

The Alcona Township Planning Commission formally adopted the master plan on _____.
 The Alcona Township Board passed a resolution of support the master plan on _____.
 The Caledonia Township Planning Commission formally adopted the master plan on _____.
 The Caledonia Township Board formally adopted the master plan on _____.
 The Hawes Township Planning Commission formally adopted the master plan on _____.
 The Hawes Township Board passed a resolution of support the master plan on _____.

Plan Implementation

The Master Plan was developed to provide a vision of the Tri-Townships' future. It will serve as a tool for decision making on future development proposals. The plan will also act as a guide for future public investment and service decisions, such as the local budget, grant applications, road maintenance and development, community group activities, tax incentive decisions, and administration of utilities and services.

On an annual basis, each Township Planning Commission will review the goals and objectives of the Master Plan and identify objectives to be completed that year. Those objectives will be shared with the Tri-Townships Planning Committee. These identified priority items will be the focus of the Planning Commission's activity throughout that particular year. This will allow the

Planning Commissions to work on a proactive basis in order to better accomplish the goals identified in the Master Plan.

Zoning Plan

The Michigan Planning Enabling Act, P.A. 33 of 2008, as amended, requires a Master Plan contains a Zoning Plan – *an explanation of how the land use categories on the future land use map relate to the districts on the zoning map*. The zoning ordinance is the primary tool for implementing the Tri-Townships Master Plan. This plan recommends each Township's zoning ordinance be reviewed to ensure the ordinances are consistent with the goals and the future land use plan. At that same time the zoning ordinance should be reviewed to assure it conforms to current State of Michigan statutes and court rulings.

Zoning standards and allowable uses will be periodically reviewed and evaluated to determine if changes are needed in order to facilitate orderly development; incorporate innovative approaches; and maintain the desired community character. Chapter 6 contains many objectives that will be achieved through zoning updates. Each community will review their zoning ordinance to determine if the following items are properly addressed: mixed use neighborhoods, private roads and driveways, landscaping and screening, stormwater management, access management, home-based businesses, groundwater protection, and outdoor lighting.

In addition to goals and objectives in Chapter 6, the three communities have identified potential subjects for common development regulations. The Tri-Townships Planning Committee will facilitate discussions and recommend common ordinance language that each of the three townships can adopt. Issues to be considered are permitted uses around lakes, height restrictions around lakes, boat docking by non-riparians, boathouses, keyhole or funnel development, septic permits for lakefront and wetland lots, greenbelt requirements, junk ordinance, noise control, open space development, townships relation to homeowner groups, new land divisions and lots, location of U.S. 23 improvements, and signs and billboards.

Chapter 7, Future Land Use Recommendations depicts the locations of future land use planning areas and provides explanations of each land use planning area including purpose, recommended development density, and compatible uses. Agricultural Future Land Use (FLU) areas are consistent with Agricultural Zoning Districts in each township. Conservation FLU areas, which include wetlands, lowland forests and flood plains, cover small parts of agriculturally zoned areas in each township. It is not the intention of the master plan to change agricultural zoning district boundaries, but to identify and protect ecologically sensitive areas within the agricultural landscape.

The Conservation FLU category includes resource sensitive areas associated with the interconnected network of streams and lakes. As a result the boundaries do not coincide with zoning district boundaries. It is not the intention of this master plan to create a new zoning district, but rather to recognize natural resource constraints as redevelopment and new development occur. The most extensive desired future land use is Forest Recreation. Each township has a forest recreation zoning district and their boundaries are consistent with areas delineated in the Future Land Use map.

General Commercial FLU identifies areas of existing commercial development and allows for expansion of new commercial enterprises. Townships should review and if needed amend general provisions and supplemental regulations to address groundwater protection, noise, lighting, landscaping, screening, signs and access management; especially when development

is located along major roadways, within neighborhoods and along community entryways. New development will be directed into the General Commercial FLU areas and the plan would support changing zoning district boundaries.

The Resort Commercial FLU category covers golf courses and recreational developments. The Mt. Maria Ski Area, which closed several years ago, was recently sold. Given the property is still under a single ownership and is currently zoned commercial; the master plan shows the land as Resort Commercial. Since Hawes Township has not been informed of the long term plans of the new owners; this designation does not intend to limit future possibilities of the property.

Presently, there is limited demand for new industrial development. The Industrial FLU category identifies sites with existing extractive and industrial activities, along with including areas for future expansion. Townships should review, and if needed, amend general provisions and supplemental regulations to address groundwater protection, noise, lighting, landscaping, screening, signs and access management in relation to industrial development.

The General Residential FLU category includes existing residential development on smaller lots. The areas are zoned as single family residential, low to medium density residential, multi-family residential and manufactured housing residential zoning districts. Anticipating residential growth, the Townships have planned for additional areas to accommodate future residential development. Areas identified for future growth are mostly zoned as forest recreation and agricultural. The master plan supports changing of the non-residential zoning to residential zoning in order to accommodate higher density residential developments. It is expected the zoning changes would occur as the demand for new housing on smaller lots increases.

The Shoreline Residential FLU category covers shorelines of Hubbard Lake, Brownlee Lake, Lake Huron and the lower stretch of the Black River. Most of the category is currently zoned as R-1, Single Family Residential. The common resource of Hubbard Lake was the driving force behind the creation of the Tri-Township Planning Committee in the early 1990's. In addition to the joint master plan, the Committee has been working towards common zoning language for waterfront properties. As stated above the Tri-Townships Planning Committee has identified potential subjects for common development regulations. The Committee will work to address changes to regulations over the next five years.

Grants and Capital Improvement Plan

The Master Plan can also be used as a guide for future public investment and service decisions, such as the local budget, grant applications and administration of utilities and services. Many communities prioritized and budget for capital improvement projects, (such as infrastructure improvements, park improvements, etc.). A Capital Improvements Program (CIP) typically looks five years into the future to establish a schedule for all anticipated capital improvement projects in the community. A CIP includes cost estimates and sources for financing for each project. It can therefore serve as both a budgetary and policy document to aid in the implementation of a community's master plan.

Recreation Plan

The Townships or County must have a current DNR approved Community Recreation Plan to be eligible for recreation grant funding. Alcona and Caledonia Townships have approved plans. The DNR approved Recreation Plan covers a five year planning period. Grant funds would be pursued for recreation projects identified in the Master Plan and Community Recreation Plan. Project may include improvements to the ball fields, expansion of indoor and outdoor recreation facilities, bike and hiking trails, and public access onto the lakes and streams.

Official Documentation

The following pages contain the official documentation of the master planning process.